Arloetako alfabetatzearen azterketa batxilergoko diziplinarteko proiektu batean. Kasu azterketa.
Analysis of Subject-Specific Literacies in a Multidisciplinary Project in Upper-Secondary Education. Case Study.

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Joanesi,

Aurrera, beti aurrera!

Eskerrak

Gogorra izan da amaiera, baina azkenean iritsi da hainbeste esperotako eguna. Erronkaz beteriko urteak izan dira. Harro gogoratuko dut beti egindako esfortzua eta urte hauetan bizitakoa. Izugarria izan da ikasitakoa.

Atzera begiratu, eta asko dira urte hauetan nire ondoan egon zaretenak. Badira ere, nahi baino urrutiago egon direnak. Lerro hauek aprobetxatu nahi ditut modu batean edo bestean prozesu honetan lagundu didazuen guztioi eskerrak emateko.

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Laburpena

Tesi-lan honen helburu nagusia da aztertzea batxilergoko diziplinarteko proiektu batean arloetako alfabetatzeak nola lantzen diren. Helburuari erantzuteko kasu azterketa kualitatibo bat egin da eta sei jakintza-arloz (historia, matematika, euskara, gorputz hezkuntza, ekonomia, eta ingelesa) osatzen den diziplinarteko proiektua aztertu da. Batetik, irakasle eta ikasleen ahotsak jaso dira proiektuaren aurretiazko ezaugarriak ezagutzeko; bestetik, irakasleek proiekturako diseinatutako material didaktikoa aztertu da; eta azkenik, ikasle-irakasle elkarrekintzetan arloetako alfabetatzea garatzeko gako diren Funtzio Kognitibo Diskurtsiboak nola aldamiatzen diren aztertu da. Analisia Pluriliteracies Teaching for Deeper Learning (PTDL) markoan oinarritu da. Emaitza nagusien arabera, alde nabarmenak daude Funtzio Kognitibo Diskurtsiboek jakintza-arlo bakoitzean duten presentzian eta rolean, bai material didaktikoan, bai irakasleen eta ikasleen arteko elkarrekintzan ere. Azkenik, irakasleen diskurtsoetan ikusten da irakasleek hizkuntza-ikuspegi desberdinak dituztela, eta hori islatu egiten dela hala diseinatutako materialean, nola ikasgelako arloetako alfabetatzearen lanketan.

Abstract

The main objective of this thesis is to examine how subject-specific literacies are addressed in a multidisciplinary project in upper-secondary education. A qualitative case study was conducted to respond to the objective. The project analysed is composed of six subjects: history, mathematics, Basque, physical education, economics and English. First, the voices of teachers and students were collected in order to learn about the presage characteristics of the project; then, the teaching material designed by the teachers for the project was analysed; and finally, an analysis was made of how cognitive discursive functions (CDF), which are one of the keys for developing subject subject-specific, are scaffolded through teacher-student interactions in the classroom. The analysis was based on the Pluriliteracies Teaching for Deeper Learning (PTDL) framework. The main results show differences in the presence and role of CDFs in each subject, both in the teaching material and in classroom interaction. Furthermore, different linguistic approaches were identified in teachers' discourses, and this is reflected in the teaching material, as well as in the way subject-specifices are scaffolded in classroom interaction.

AURKIBIDEA

IRUDIEN AURKIBIDEA

TAULEN AURKIBIDEA

Motibazio pertsonala

Asko izan dira tesi hau egiteko eta egin ahala izan ditudan motibazioak. Txiki-txikitatik hizkuntzak eta irakaskuntza izan dira nire pasioa, eta lau urtez gehien betetzen nauen gaiaren inguruan ikertzeko aukera izateak oso zoriontsu egin nau.

Aukeratutako gaiaren inguruan ikasteaz gain, tesia hau egitearen arrazoi nagusia ikertzaile bezala formatzea izan da. Bigarren Hezkuntzako irakasle izateko masterra egiten ari nintzela, irakasleak ikertzaileak ere izan behar direla entzun nuen lehen aldiz. Urte horretan bertan ikertalde batean zer egiten den ezagutzeko aukera izan nuen. Irakasle hobea izateko eta eskoletan dauden erronkei aurre egin ahal izateko ikertu egin behar nuela sentitu nuen. Orduan hasi nintzen eskoletan egiten diren ikerketak ezagutzen, artikuluak irakurtzen, eskolan dauden beharrak identifikatzen.

Gaur egun, zaila egiten zait irakasleen lana eta ikerketa banatzea. Ikasleen emaitzak gero eta okerragoak direla irakurtzen dudan bakoitzean, ikasleak komunikatzeko gai ez direla entzuten dudanean, gazteen pasibotasunaz hitz egiten denean, gaur egun hezkuntza sistemak dituen erronkak aipatzen direnean… Zerbait pizten zait barruan. Ikerketa lan hau egiteko aukeratutako Pluriliteracies Teaching for Deeper Learning markoa ezagutu nuenean, eskoletan gehien errepikatzen diren erronkei erantzuten lagundu dezakeela sentitu nuen.

Azkenik, motibatzen nau tesiak ekarpen bat egiten duela jakiteak. Tesiak iraun duen bitartean nire interesak aldatzen joan dira. Baina nire ikertzeko gogoa hazi egin da. Hezkuntzaren eta irakaskuntzaren kalitatea eskolako komunitatean parte hartzen dugun denon ardura eta erantzukizuna dela sinesten dut, eta horregatik, eskoletan ikertzen jarraituko dut.

1. Kapitulua: SARRERA
INTRODUCTION

1. SARRERA

Gizartea aldatzen ari da etengabe eta horrek aldaketa horietara etengabe egokitzeko eta horiei erantzuteko ahalmena duten herritarren beharra ekarri du. Herritar horiek izan beharko dira autonomoak, motibatuak, sortzaileak, berritzaileak edota taldean lan egiten dakitenak (Loshkareva et al., 2018; Griffin eta Care, 2014). Gaitasun horiek XXI. mendeko konpetentziak izenarekin definitu dira, eta bizitzan zehar sortzen diren arazo eta erronkei aurre egiteko behar diren konpetentziei dagozkie. Ikaskuntza sakonagoa sustatzea funtsezkoa da XXI. mendeko konpetentzi horiek garatzeko, eta era berean, garapen konpetentzialak ikaskuntza sakonagoa laguntzen du (Pellegrino eta Hilton, 2012).

Azken urteetan, eskolan, konpetentzietan oinarritutako hezkuntza eredua nagusitu da, ikasleek XXI.mendeko konpetentziak garatzea helburu duena (Care et al., 2012; Binkley et al., 2012; Viinikka et al., 2019). Jakina da ikasleek modu esanguratsuagoan garatzen dituztela konpetentziak ikaskuntza prozesuaren protagonista direnean. Hori dela eta, gizartearen beharrei erantzun ahal izateko, eskolak ikaslea ikaskuntza prozesuaren erdigunean kokatu du eta eskatu dio prozesu horretan modu aktiboan parte hartu dezan (Peláez eta Gómez, 2013). Eta ikasleek konpetentziak garatu behar horrek eskolari egiteko moduak aldatzea eskatzen dio eta ikaskuntza aktiboa bultzatzen duen hautu metodologikoak sustatzea. Metodologia aktiboen artean, lan honetan Proiektu Bidezko Ikaskuntzan (PBL) jarriko dugu arreta (Bell, 2010).

Eskola tradizioz jakintza-arlotan banatuta badago ere, gizartearen eta errealitatearen konplexutasunek diziplinarteko irtenbideak eskatzen ditu (Morin, 2010). Diziplinartekotasunak konpetentzien garatzea sustatzen du eta mundua hobeto ulertzen laguntzen digu. EAEko curriculumak (Eusko Jaurlaritza, 2014) ere etapa guztietan diziplinartekotasunaren ikuspegia bultzatzen du, baina ez da jarraibiderik ematen hori praktikan jartzeko. Eskola batzuetan gero eta ohikoagoak dira diziplinarteko proiektuak, eta irakasleen artean sortzen diren erronkak asko eta askotarikoak dira.

Ikasleek eskolan garatu behar dituzten konpetentzien artean konpetentzia komunikatiboa dugu, eta konpetentzia horren garapenarekin lotzen da, besteak beste, eskola arrakasta (Lorenzo eta Trujillo, 2017; Pérez eta Pavón, 2018). Marko teorikoaren atalean ikusiko dugun moduan, hizkuntzak rol garrantzitsua dauka ikaste-prozesuan. Izan ere, hizkuntzaren bidez irakasten dira jakintza-arloak, hizkuntzaren bidez eraikitzen da ezagutza eta hizkuntzaren bidez adierazten dute ikasleek ikasitakoa. Hizkuntza ikastea, beraz, eskolako ikasgai guztietan gertatzen da, jarduera akademiko eta mental

guztietan, eskolatze-prozesu osoan (Lemke, 1988). Gainera, jakintza-arlo bakoitzak arloari dagokion hizkuntza propioa dauka, eta hizkuntza hori berariaz landu eta irakatsi behar da (Beacco et al., 2016; Shanahan eta Shanahan, 2008). Hori dela eta, garrantzitsua da arloetako alfabetatzeak ikaste-irakaste prozesuetan dagokien lekua izatea eta horren lanketa diziplina bakoitzeko irakasleari legokioke. Hala ere, oraindik orain gutxi ikertu da irakasleek arloetako alfabetatzeak lantzeko dituzten egiteko moduez.

Ikerketa egin dugun testuinguruan, gainera, ikasle guztiek komunikazio konpetentzia eleanitza garatu behar dute, gutxienez hiru hizkuntzatan, euskaraz, gaztelaniaz eta ingelesez, ahoz zein idatziz (Eusko Jaurlaritza, 2014). Hizkuntza gutxitua babesteko helburuarekin, euskal hezkuntza sistemak hizkuntza gutxitua, euskara, ardatz duen eleaniztasunaren alde egiten du. Euskara ikasle askoren lehen hizkuntza ez bada ere, gaur egungo EAEko ikasle gehienen eskolatze-hizkuntza euskara da (Eusko Jaurlaritza, 2021).

Hala ere, lau urtetik behin egiten diren ebaluazio diagnostikoaren (ISEI-IVEI, 2018) emaitzek diote ikasleen euskara maila gero eta kaskarragoa dela. Azken urteetan egindako zenbait ikerketek erakusten dute hizkuntza-gaitasun desegokia izan daitekeela eskola-errendimendu baxuaren arrazoi nagusietako bat, hizkuntza maila baxuak jakintza-arlo guztien ikaskuntzan eragiten baitu.

Hori guztia kontuan hartuta, lan honen helburua da aztertzea batxilergoko diziplinarteko proiektu batean arloetako alfabetatzeak nola lantzen diren. Horretarako, kasu azterketa bat egingo da. Kasu azterketa egiteko eskola berritzaile bat aukeratu dugu, berrikuntzan erreferentea dena. Eskola horretan, ikasleen profila erdigunean jartzen da eta helburu pedagogiko eta didaktikoak ikasleen irteera profilarekin lerrokatzen dira. Helburu horiek lortzeko, batxilergoko lehenengo mailan proiektu eraldatzaileak egiten dituzte, 6 irakaslez eta 6 jakintza-arloz osatzen direnak, horietako bi jakintza-arlo hizkuntzak izanik.

Tesi honen helburuari erantzuteko, proiektuan parte hartu duten ikasle zein irakasleen ahotsak jaso dira, irakasleek diseinatutako materiala aztertu da, eta gelan irakasle-ikasleen arteko elkarrekintzan egiten den aldamiajea aztertu da. Proiektuaren azterketa egiteko Pluriliteracies Teaching for Deeper Learning (PTDL) (Coyle eta Meyer, 2021) markoa aukeratu da, zeinek arloko alfabetatzea jartzen duen ikaskuntza sakonagoaren erdigunean. Nikula et al.-ek (2016) plangintza kurrikularra eta pedagogikoa, parte-hartzaileen begirada eta gelako praktika aipatzen dituzte edukia eta arloa integratzeko

kontuan hartu beharreko alderdi gisa. Ikerketa honek ekarpena egin nahi du, hain zuzen ere, hiru alderdi horietan.

Lan honek zortzi atal ditu. Bigarren eta hirugarren atalek marko teorikoa osatzen dute. Bigarren atalean gizarteak azken urteetan jasan dituen aldaketak jasoko dira, eta aldaketa horiek hezkuntzan izan duten eragina. Aldaketen artean konpetentzietan oinarritutako hezkuntza ereduan sakonduko da, eta konpetentzia horiek lantzeko eta garatzeko proposaturiko metodología aktiboak, bereziki aztergai dugun Proiektuetan Oinarritutako Ikaskuntza, ezaugarrituko da. Hirugarrenean, aldiz, hizkuntzak ikaste-irakaste prozesuan duen rolaz eta rolaren garrantziaz arituko gara, hizkuntza ulertzeko ikuspegi desberdinak aipatuz eta hizkuntza eta edukiak integratzeko dauden eredu nagusiak aurkeztuz, besteak beste. Atal honetan proiektuaren analisia egiteko aukeratu dugun markoa aurkeztuko da: Pluriliteracies Teaching for Deeper Learning (PTDL). Marko horretan garrantzia hartzen dute irakasle zein ikasleen rolek, eta sakon definitzen dira arloko alfabetatzea lortzeko gako diren Funtzio Kognitibo Diskurtsiboak (FKD) (Dalton-Puffer, 2013).

Hurrengo hiru atalek marko enpirikoa osatzen dute. Laugarren atalean lanaren helburu nagusia eta iker-galderak, ikerketaren testuingurua eta ikerketa egiteko jarraitu den metodologia aurkeztuko dira. Tesia kasu azterketa bat denez, lanaren testuinguratze sakona egingo da irakurleari lana ulertzen laguntzeko. Atal honetan deskribatuko dira hain zuzen, EAEko egoera soziolinguistikoa, kasu azterketa gertatzen den eskolaren izaera eta aztertutako proiektuaren nondik norakoak. Ondoren, ikerketa egiteko erabili den metodologia azalduko eta justifikatuko da, besteak beste, datuak jasotzeko erabili diren teknikak, eta baita datuak aztertzeko jarraitu diren urratsak ere.

Bestetik, bosgarren atalean iker-galderei erantzuteko egin diren analisien emaitzak aurkeztuko dira. Lehenik, irakasleei eta ikasleei egindako elkarrizketetetik eta eztabaida taldeetatik lortutako emaitzak aurkeztuko dira. Bigarrenik, irakasleek diseinatutako materialaren arloetako alfabetatzea nola lantzen den aztertuko da; eta hirugarrenik, gelako irakasle eta ikasleen arteko elkarrekintzan Funtzio Kognitibo Diskurtsiboen aldamiajea nola egiten den deskribatuko da.

Azkenik, seigarren atalean lanaren eztabaida eta ondorioak aurkeztuko dira. Eztabaidan lortutako emaitzak beste ikerlari batzuek egindako ikerketekin kontrastatuko dira. Eta ondorioetan, lanaren ondorio orokorrak, mugak eta aurrera begirakoak jasoko dira. Zazpigarren atalean lanean erabilitako erreferentziak topatuko ditugu, eta zortzigarrenean eranskinak.

Tesia bi hizkuntzatan idatzita dago: euskaraz eta ingelesez. Lerro hauetan atal bakoitzean egin den hizkuntza hautuaren arrazoiak aurkeztuko dira. Batetik, ikerketa kokatzen den markoa berria da, eta sinesten dugu PTDL markoak ekarpena egin dezakeela Euskal Herriko testuinguruan. Orain arte, ez da arloetako alfabetatzearen azterketarik egin testuinguru honetan PTDL markotik euskaraz. Horregatik, marko teorikoaren atala euskaraz idaztea erabaki da, markoa gure testuingurura hurbiltzeko eta, era berean, euskararen corpusa osatu eta hari ekarpena egin asmoz. Bestetik, gainerako atalak ingelesez idazteko hautua egin da, nahiz eta kasu azterketa bat izan, bertatik ateratako emaitzak eta ondorioak lagungarriak izan daitezkeelakoan PTDL markoa bera garatzen jarraitzeko nazioartean, eta antzeko nahiz bestelako testuinguruekin alderaketa egitea errazteko.

Society is In today's rapidly changing society, it is necessary for citizens to be able to adapt to new circumstances, and to be motivated, creative, innovative, and team-oriented, among other things (Loshkareva et al., 2018; Griffin and Care, 2014). In the 21st century, competencies are needed to deal with the problems and challenges that arise throughout the course of our lives. Promoting deeper learning is essential for the development of these 21st century competencies, and in the same vein, competence development promotes also deeper learning (Pellegrino and Hilton, 2012).

In recent years, schools have adopted a competency-based education model with the aim of developing 21st century competencies (Care et al., 2012; Binkley et al., 2012; Viinikka et al., 2019). Taking the lead in the learning process is known to result in students developing competencies more effectively. In order to respond to societal needs, the school places the learner at the heart of the learning process and encourages them to be active participants (Peláez and Gómez, 2013). A shift in school practices and the promotion of methodological choices that promote active learning are essential to the development of student competencies. Among the active methodologies, in this research study focus will be placed on Project Based Learning (PBL) (Bell, 2010).

Although schools are traditionally divided into subject areas, the complexity of social and real-world problems necessitates interdisciplinary approaches (Morin, 2010). Interdisciplinarity contributes to the development of skills and aids in the understanding of the world. A number of interdisciplinary approaches are encouraged in the BAC (Basque Autonomous Community) curriculum (Eusko Jaurlaritza, 2014), but no guidelines are provided regarding their implementation. Interdisciplinary projects are becoming increasingly common in some schools, and teachers are faced with a variety of challenges.

Among the competencies that students are required to develop in school is communicative competence, which is associated with academic success (Lorenzo and Trujillo, 2017; Pérez and Pavón, 2018). Throughout the theoretical framework, we will see that language plays a significant role in the process of learning. It is through language that subjects are taught, knowledge is constructed, and students express what they have learned. Throughout the educational process, language learning occurs in all school subjects, in every academic and mental activity (Lemke, 1988). Furthermore, each subject has a specific language that must be developed and taught specifically (Beacco et al., 2016; Shanahan et al., 2008). It is therefore crucial that subject-specific literacy be given its proper place within the teaching-learning process. Thus, it is the responsibility of teachers across all subject areas to ensure their students develop

communicative competence. However, little research has been done on how subject-specific literacy is taught in the classroom.

Moreover, in the context of the research, all students are required to develop plurilingual competency in at least three languages: Basque, Spanish, and English (Eusko Jaurlaritza, 2014). The Basque education system is committed to multilingualism centered on the minority language as a means of protecting the minority language. In spite of the fact that Basque is not the first language of many students, it is now the language of instruction for the majority of BAC students (Eusko Jaurlaritza, 2021).

Based on the results of the diagnostic assessment (ISEI-IVEI, 2018), which is conducted every four years, it appears that the Basque level of students is declining. Studies have shown that low language proficiency may be one of the primary causes of poor school performance, since low language skills affect learning in all academic areas.

Taking all of this into consideration, the purpose of this paper is to examine how subject-specific literacies are addressed in a multidisciplinary project in upper-secondary education. To achieve this, a case study will be conducted within the context of a school known for its innovative practices. In this school, the pedagogical objectives relate to the development of core skills based on the exit profile of the students. Toward this end, the school implements innovative projects in the first year of upper-secondary education, which comprise six teachers and six subjects, including two language courses.

In response to the thesis' objective, the voices of both students and teachers who participated in the project were collected, the material designed by the teachers was analysed, as well as the analysis of the scaffolding of cognitive discourse functions (CDFs) in the teacher-student interaction. For the analysis, the Pluriliteracies Teaching for Deeper Learning (PTDL) framework (Coyle and Meyer, 2021) was chosen, which places subject-specific literacy at the centre of the deeper learning process. Nikula et al. (2016) identify curricular and pedagogical planning, participant perspectives, and classroom practise as factors to consider when integrating content and language. This research aims to contribute to all three of these areas.

In terms of structure, this thesis is divided into eight chapters. The theoretical framework is presented in chapters two and three. In Chapter 2, recent societal changes and their implications for education are discussed, including competency-based education, active methodologies, and project-based learning (PBL). The third chapter will discuss the role and importance of language in the teaching-learning process. A description of the main

content and language integration models will be provided, along with a discussion of different language approaches. We will also present the framework we have chosen to analyze the project: Pluriliteracies Teaching for Deeper Learning (PTDL). Both teachers and learners are considered important in this framework, and Cognitive Discourse Functions (CDF) (Dalton-Puffer, 2013) are defined as essential for achieving literacy.

The empirical study can be found in chapters 4, 5 and 6. In chapter 4, the purpose of the study, the research questions and objectives, the context in which the study is conducted, and the methodology used will be discussed. The context in which the case study takes place will be described in detail to help the reader better understand the work. This includes the sociolinguistic situation of the BAC, the types of linguistic models, the nature of the school where the case study is conducted, and the project under analysis. Following that, the data collection methods and analysis procedures used in the study will be described.

Chapter five presents the results of the analyses conducted to answer the research questions. The results of interviews conducted with teachers and students will be presented first; then, we will examine how subject-specific literacies are addressed in teaching materials; and thirdly, how scaffolding of the Discursive Cognitive Function Construct is carried out in teacher-student interaction will be described.

Chapter six concludes with a discussion and conclusions. First, the results of the discussion will be compared with those of other research studies. Afterwards, the general conclusions, limitations, and future perspectives of the study will be presented. A list of references used throughout the work will be provided in chapter seven, and an appendix in chapter eight.

The thesis has been written in two languages: Basque and English. PTDL is a new framework, and we believe that it can contribute to the context of the Basque Country. The PTDL framework has not been applied to studying subject-specific literacies in Basque to date. As a result, it was decided to write the theoretical framework in Basque in order to bring the framework closer to our context while also completing and contributing to the Basque corpus. As for the rest of the sections, even though this is a case study, we have chosen to write them in English because the conclusions and results drawn from the study may assist with the further development of the PTDL framework at an international level and facilitate comparisons with similar contexts. A summary of what is said in each section is presented in the other language at the end of each section.

2. Kapitulua:
XXI. MENDEKO HEZKUNTZA

Arloetako alfabetatzearen azterketa
batxilergoko diziplinarteko proiektu
batean.

1.Kapitulua
XXI. Mendeko Hezkuntza

2. XXI. MENDEKO HEZKUNTZA

2.1.   GIZARTE-ALDAKETEK HEZKUNTZAN IZAN DUTEN ERAGINA

"Ez dago ulertzerik zer ari den gertatzen hezkuntzan, begiratu gabe gizartean zer ari den gertatzen" (Azkarraga, 2014)

Mendeetan zehar gizartea hainbat une historiko eta sozialetatik igaro da. XX. mendearen bigarren erdialdetik aurrera egon diren etengabeko aldaketa politiko eta sozialen ondorioz, bizitzaren oinarrizko egitura eraldatu egin da: bizitzeko modua, ohiturak, familia-harremanak, kulturaren transmisioa, eta naturarekiko harremana, besteak beste (Harari, 2018). Oro har, bizitzaren filosofia, balioak eta etikotzat eta moraltzat jotzen dena aldatu egin da erabat (Gray, 2016; Bauman, 2013); eta zenbait adituk diote, oraindik ere, gizarteak erabateko aldaketa ekonomiko eta soziala jasango duela (Loshkareva et al., 2018).

Bauman (2013) soziologoa Modernitate Likidoa kontzeptua erabiltzen hasi zen XXI. mendeko gizartea definitzeko. Gaur egun daukagun guztia aldakorra da iraganeko egitura finkoekin alderatuta (Menéndez, 2017). Azkarragak (2014) aipatzen du, besteak beste, identitatearen eraikuntza aldatu egin dela, familian gertatzen ari diren aldaketa sakonek harremantzeko modua aldatu dutela, eta pantailek protagonismoa hartu dutela gizartean (Azkarraga, 2014). Ildo beretik, Marina Garcés filosofoak (2020) dio ezer ez dakigun etorkizun baterantz goazela, atzean uzten ari garen gizartearen antzik izango ez duena. Ez dakigu bihar ekonomia nola egongo den, krisia egongo den ala ez, lana izango dugun, familia bat osatuko dugun… Aurrekaririk gabeko eraldaketa-mundu baten aurrean gaude (Harari, 2018), eta ziurgabetasuna da etorkizuneko ziurtasun bakarra (Garcés, 2020).

Mundua gero eta konplexuagoa da hainbat joerak bultzatuta, hala nola, aldaketa teknologikoak, biztanleriaren zahartzeak eta globalizazioak (Loshkareva et al., 2018). Ez dugu inoiz aldi berean hainbeste aldaketa dramatiko izan, gizarte-harremanei, garraioari, hezkuntzari, ekonomiari, merkataritzari, pribatutasunari eta ezagutzari aldi berean eragin diotenak. Etzioni-ren (1968:3) esanetan, gizakiak gara gizarte aldaketaren erantzule nagusiak "is chiefly propelled by social selves, by acting collectivities". Hau da, gizartea aldatu egiten da premia berriak agertzen direnean.

Aldaketa horiek guztiek ekarri dute gaur egungo gizarteak hainbat ezaugarri izatea. XXI. mendea informazioaren aro gisa ere ezagutzen da, iraultza digitalarena, eta baita

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teknologia berriena ere, eta esan daiteke prozesuen automatizazioagatik nabarmentzen dela. Batzuek diote hirugarren iraultzan gaudela oraindik; beste batzuek dagoeneko sartu garela laugarrenean. Dena den, gizartea izendatzeko eta deskribatzeko termino desberdinak erabiltzen badira ere, ez da zalantzan jartzen gizartea aldatzen dabilela modu azkar eta harraparian, eta informazioak bonbardatu egiten gaituela eremu guztietatik eta hainbat bitartekoren bidez (Harari, 2018; Larson eta Miller, 2012).

90eko hamarkadak aro berri bat ekarri zuen eta harrezkero inoiz baino gehiago inbertitu da informazioa sortzen, manipulatzen, kudeatzen eta zabaltzen (Trilling eta Fadel, 2009). Google-eko zuzendari ohi Eric Schmidt-en arabera, bi egunetik behin lehenengo gizakia sortu zenetik 2003ra arte sortu zen adina informazio sortzen da. Gaur egun, munduko biztanleen bi heren internetera konektatuta bizi da, eta dagoeneko, planetan pertsona baino mugikor gehiago dago. 60 eta 70eko hamarkadez geroztik, eta globalizazioaren ondorioz, informazio eta komunikazioaren teknologien iraultza oso azkar iritsi da munduko leku guztietara (Bravo, 2012). Trantsizio berriaren ezaugarri nagusia da azkarregi gertatzen ari dela, aurretik egon diren iraultzekin alderatuz (Loshkareva et al., 2018).

Aipatutako aldaketa guztiek egokitzapen soziokulturalak eragin dituzte gaur egungo herritarren bizimoduan (Lozano eta Herrera, 2013). Mundua gero eta konplexuagoa bihurtzen den heinean, gizarteko arazo eta erronkei aurre egin ahal izateko (Harari, 2018), gizabanakook errealitate aldakor eta zalantzakorrera egokitzeko ahalmena garatu behar izan dugu (Garcés, 2020; Menéndez, 2017). Horregatik, XX. eta XXI. mendeko gizabanakoen profilak erabat desberdinak dira (Dede, 2009); XX. mendearen bigarren erdialdean, industria iraultzaren ondorioz, ekoizpena izugarri handitu zen, kapitalismoak aldaketa nabarmenak jasan zituen eta ekonomia globalizatu egin zen (Stevens, et al., 2000). Beranduago, aurrerapen eta berrikuntza teknologikoak eta aro digitala etorri ziren, eta horiek ere eragin zuzena izan dute lan egiteko eta pentsatzeko moduetan (Care et al., 2012). XXI. mendeko lehenengo hamarkadan egindako ikerketen arabera, teknologiak harremantzeko moduak aldatu ditu, gazteen artean batez ere (Buckingham, 2008). Hori guztia dela eta, aurreko mendeko langilearen profilak ez du dagoeneko balio (Azkarraga, 2014). Izan ere, aldaketa sozialaren abiadurak belaunaldi berri bakoitzari aurretikoaz desberdina den mundu batera etortzea eskatzen dio (Enguita, 2013).

Behar eta ardura berriek lanbide berriak sortzen dituzte, eta horrek ekarri du mende berriko beharrei erantzuteko herritarrek garatu behar dituzten gaitasunak ere desberdinak izatea (Loshkareva et al., 2018), eta baita langileei lan egiteko gaitasun

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handiagoa eskatzea ere (World Economic Forum, 2016). Izan ere, duela hamarkada batzuk, pertsona bat lanpostu batean hasi eta erretiratu arte bertan egoten zen. Egun, enpresek berritzen eta egokitzen egon behar dute etengabe, eta ondorioz, lan-joerak nabarmen aldatu dira (Griffin eta Care, 2014). 1960tik gaur egun arte, lan abstraktuak ugaritu egin dira, eta errutinazkoak eta eskuzkoak murrizten joan dira (Griffin eta Care, 2014). Lan munduaren bilakaeraren joera ikusita, urte gutxi barru, gaur egungo lanpostuetan garrantzitsutzat jotzen diren trebetasunen herena baino gehiago (%35) aldatu egingo dira (Gray, 2016). Genetika, adimen artifiziala, robotika, nanoteknologia, 3D inprimategiak eta bioteknologia, besteak beste, erritmo azkarrean ari dira garatzen (World Economic Forum, 2016), eta digitalizazioak protagonismoa hartu du. Hori dela eta, lan batzuk mehatxupean daude eta laster desagertu egingo dira. Beste batzuk, aldiz, azkar hazten ari dira, eta gaur egun existitzen ez diren lanpostuak ere arrunt bihurtuko dira (World Economic Forum, 2016). Munduko ekonomia foroaren arabera, oraingo lanen %52 makinek egingo dituzte, gaur egungo %29arekin alderatuta. Gauza ziurra da langileak etorkizuneko lanpostuetarako behar diren gaitasunak garatzen joan beharko direla gizarteak hala bultzatuta (Gray, 2016).

XXI. mendeko garapen sozial eta ekonomikoak ekarri dituen aldaketei eta beharrei erantzuteko, zenbait autorek hainbat konpetentzia zerrendatu zituzten, "XXI. mendeko konpetentziak" deiturikoak; horien artean daude pentsamendu kritikoa eta modu konplexuan komunikatzeko gaitasuna (Griffin eta Care, 2014), arazo konplexuak ebazteko gaitasuna, egoera berrietara egokitzeko eta berrikuntzarako gaitasuna eta baita teknologia berriak erabiltzeko, lanak erabat automatizatzeko eta berregokitzeko gaitasuna ere. Hasiera batean, XXI. mendean ikasleek lanerako behar dituzten jakintza, gaitasun eta esperientzia jaso eta definitu ziren. Baina aurrerago, konpetentzia horiek, lanerako ez ezik, bizitzarako ere baliagarriak direla ikusi da (Wilson, 2018). Konpetentzia horiei erreferentzia egiteko izen desberdinak erabiltzen dira: *higher-order thinking skills, deeper learning outcomes, complex thinking and communication skills*, edo *soft skills* (Saavedra eta Opfer, 2012). Batzuetan sinonimotzat hartzen dira eta beste batzuetan ñabardura desberdinekin erabiltzen dira herrialdearen eta hizkuntzaren arabera. Dena den, erabiltzen den terminoa edozein delarik ere, aipatutako guztiek mundu konplexu honetan bizitzarako esanguratsuak diren gaitasunak jasotzen dituzte (Claxton et al., 2016).

XXI. mendeko konpetentziak askotan eta autore askok modu independentean zerrendatu eta definitu dituzte (Dede, 2009). Ez dago marko orokor eta unibertsal bakarra horiek antolatzeko (Lamb et al., 2017), guztiek ez baitituzte termino berberak

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erabiltzen konpetentzia horiek deskribatzeko, eta badirudi gainjartze handia dagoela autore desberdinek egindako zerrenden artean (Wilson, 2018).

Irudia/Figure 1. XXI. mendeko konpetentzien sailkapenen konparaketa

21CS	P 21 framework subskills	NRC framework subskills	ATC21
Critical thinking	Critical thinking	Critical thinking	Critical thinking, problem-solving, and decision-making
Communication and collaboration	Communication and collaboration	Complex communication and teamwork	Communication and collaboration
Creativity and innovation	Creativity and innovation	Nonroutine problem-solving	Creativity and innovation
Self-regulation and metacognition	Initiative, self-direction	Self-management and self-regulation	Metacognition and learning to learn
Social and cultural competence	Social and cross-cultural skills	Social skills, cultural sensitivity, and dealing with diversity	Local and global citizenship and personal and social responsibility
Flexibility/ adaptability	Flexibility and adaptability	Adaptability	NA
Information and technological literacy	Information literacy, media literacy, and information and communications technology literacy	NA	Information literacy and information and communications technology literacy

Oharra/Note 1. Hemendik hartua: https://www.pearsoned.com/21st-century-skills-what-are-they

Konpetentzia horien irakaskuntzarekin eta ikaskuntzarekin lotutako ikerketak errazteko, National Research Council-ari (NRC) eskatu zitzaion autore desberdinek zerrendatutako konpetentziak aztertzeko eta antolatzeko (Pellegrino eta Hilton, 2012). Autore hauek azterketa sakon bat egin ostean, konpetentziak hiru multzotan sailkatu zituen: (1) gaitasun kognitiboak, (2) intrapertsonalak, eta (3) interpertsonalak:

Irudia/Figure 2. Ikaskuntza sakonago eta XXI. mendeko konpetentzien arteko markoa (Pellegrino eta Hilton, 2012)
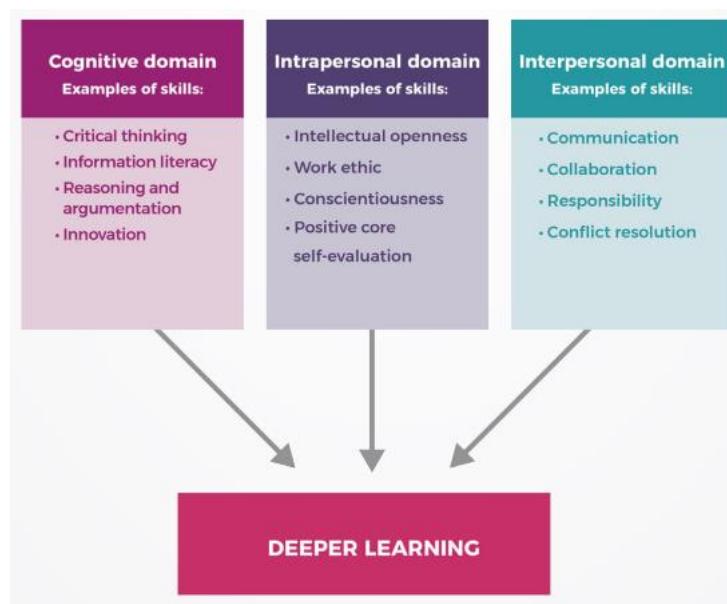
Oharra/note 2. Lamb, et al.,-etik (2017) hartua

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Eremu kognitiboan sartzen dira besteak beste, pentsamendu kritikoa, alfabetatze informazionala *(information literacy),* arrazoitzeko eta argumentatzeko gaitasuna eta berritzailea izatea, eta erreferentzia egiten dio ikasleek erabiltzen dituzten estrategia kognitiboen kopuruari eta motari. Izan ere, erabiltzen dituzten estrategiek eragin zuzena dute ikaskuntza prozesuaren kalitatean. Konpetentzia kognitiboak lotzen dira hezkuntza maila altuagoak lortzearekin, lorpen akademikoekin, soldata altuagoekin eta osasun hobearekin (Pellegrino, 2017).

Eremu intrapertsonalaren barruan sartzen dira buru-irekitasuna (*intelectual openness*), lanarekiko etikoki jokatzea, kontzientzia izatea, eta autoebaluatzeko gaitasuna. Horiez gain, Pellegrinok (2017) beste hainbat gaitasun ere kokatzen ditu eremu honetan, esaterako, malgutasuna izatea, iniziatiba izatea, aniztasuna onartzea, metakognizioa, antolatua izatea, arduratsua eta langilea izatea, eta zehaztutako helburuekin konprometitua izatea.

Azkenik, **eremu interpertsonale**koen artean daude komunikazioa, kolaborazioa, arduratsua izatea eta gatazken kudeaketa, arazoen ebazpena eta negoziatzeko gaitasuna (Pellegrino, 2017). Gaitasun sozialek edo interpersonalek lagundu egiten dute ikaskuntza sakonagoan eta ondorioz lorpen akademikoan. Izan ere, ezagutza taldean eraikitzen da, elkarrekintzan, eta horretarako ezinbestekoa da komunikazioa, taldean lan egiten jakitea, besteen iritziak entzutea eta errespetatzea eta taldeari egokitzen zaion erantzun bat ematen jakitea (Pellegrino eta Hilton, 2012).

2.2. KONPETENTZIETAN OINARRITUTAKO HEZKUNTZA EREDUA

Zerrendatu diren XXI. mendeko konpetentzia horietako batzuk berezkoak dira, izaerarekin lotutakoak, eta beste hainbat bizitzan zehar garatzen dira. Hala ere, oraindik, hezkuntza arautua da horiek garatzeko testuinguru nagusia (Riad, 2017). Are gehiago, gazte askorentzat, eskola da gaitasun eta trebetasun horiek garatzeko leku bakarra (OECD, 2010). Hori dela eta, XXI. mendeko ikasleen eta gizartearen behar sozial eta ekonomikoei erantzuteko, hezkuntzak ere aldaketak jasan behar ditu (Care et al., 2012); oraindik ere, munduko ia herrialde guztietan, hezkuntza-sistema pertsonak iraganeko baldintzetarako prestatzeko diseinatuta baitago (Loshkareva et al., 2018). XXI. mendeko konpetentzien mugimenduaren aldekoek eta defendatzaileek eskolak eta hezkuntza erreformatzeko beharra defendatzen dute (Ananiadoui eta Claro, 2009). Aragay-k dio (2018:2) "La educación va a ser, sin ninguna duda, el sector de nuestra sociedad que más va cambiar en los próximos años, coincidiremos en que no podremos seguir

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repitiendo o incrementando lo que hemos hecho hasta ahora en nuestra escuela o universidad para mejorar la educación".

Gaur egungo gizartean, ezagutzak eskuratzeko moduak areagotu egin dira; interneten edo IKT delakoen bidez, edozein gairi buruzko informazioa minutu gutxi batzuetan, eta munduko ia edozein tokitatik eskura daiteke (Rivas, 2019). Ondorioz, eskolak ezagutzaren kontrola izateari utzi dio, dagoeneko ez baita jakintza transmititzeko toki bakarra (Garcés, 2020), nahiz eta hori ere baden eskolaren helburuetako bat (Riad, 2017). McPhail-ek (2017:16) adierazten duenez, "the emphasis in educational discourse has moved away from knowledge content to focus almost exclusively on process; skills and learning to learn". Izan ere, orain arte gailendu den transmisio-ereduaren bidez, ikasleek edukiak ikas ditzakete, baina normalean ez zaie ezagutza horiek testuinguru berrietan aplikatzeko eskatzen. Beraz, esan daiteke edukien transmisioa ez dela XXI. mendeko konpetentziak garatzeko eta ikaskuntza sakonagoa lortzeko modurik eraginkorrena (Saavedra eta Opfer, 2012; Silva, 2009). Orain, eskolaren egitekoa da ikasleek IKTen bitartez ezagutzak eskuratzeko, informazioa modu kritikoan ebaluatzeko, kuadeatzeko, antolatzeko eta erabiltzeko gaitasuna garatzea (Pellegrino, 2017; Griffin eta Care, 2014).

Hori horrela, arreta irakasgaien eduki espezifikoetan bakarrik jarri ordez, beste egoera batzuetara transferitu daitezkeen konpetentzietan ere jarri behar da (Care et al., 2012; Binkley et al., 2012; Viinikka et al., 2019). Kritikoki pentsatzen irakasten duen hezkuntza-sistema behar da, ikasleengan ikasteko borondatea eta nahia sortzen duena, konpromiso soziala eta herritartasun demokratikoa sortzen duena (Rivas, 2019). Ildo beretik, Fullan eta Langworthy-k (2014) aipatzen dute eskolak gazte guztiak unibertsitaterako, ikasketetarako eta herritartasunerako prestatu behar dituela, XXI. mendeko eskolaren helburua gizarte likido eta aldakorraren erronkei erantzuteko gai izango diren gazteak prestatzea baita. Konpetentzia horiek guztiak oso garrantzitsuak dira, eta ezin dira modu independentean irakatsi, hau da, ezin dira jakintza-arloetatik kanpo ikasi; modu berean, ikasleek ezingo dituzte gaitasun horiek aplikatu jakintza-arloetako edukirik ez badute (OECD, 2010). Horregatik, curriculumean jakintza-arloetako edukiak eta ikasleek garatu behar dituzten gaitasunak integratu behar dira ikaste-prozesua arrakastatsua izan dadin (Griffin eta Care, 2014; Pellegrino eta Hilton, 2012; Saavedra eta Opfer, 2012).

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2.3. IKASKUNTZA SAKONAGOA ETA XXI. MENDEKO KONPETENTZIAK

"Deep learning develops the learning, creating and 'doing' dispositions that young people need to thrive now and in their futures"

(Fullan and Langworthy, 2014:i)

Ikaskuntza sakonagoaren eta XXI. mendeko konpetentzien arteko lotura transferentziaren kontzeptuan datza (Pellegrino, 2017). Konpetentziak garatzea ezinbestekoa baita ezagutzak transferitzeko (Pellegrino eta Hilton, 2012), eskolako jakintza-arlo batetik bestera, zein eskolatik bizitza errealera (Silva, 2009). Konpetentzien transferentzia egiteko prozesu horri ikaskuntza sakonagoa deritzo. Pellegrinok (2017) honela definitzen du ikaskuntza sakonagoa:

> We define "deeper learning" not as a "product", but rather as the process through which transferable knowledge (i.e. 21st century competencies) develops. Through deeper learning, individuals not only develop expertise in a particular discipline, they also understand when, how and why to apply what they know. They recognise when new problems or situations are related to what they have previously learned, and they can apply their knowledge and skills to solve them (:229).

Beraz, ikaskuntza sakonagoaren prozesua funtsezkoa da XXI. mendeko konpetentzia transferigarriak garatzeko; aldi berean, XXI. mendeko konpetentziak aplikatzeak ikaskuntza sakonagoaren prozesuan laguntzen du "in a recursive, mutually reinforcing cycle" (Pellegrino eta Hilton, 2012:8).

Transferentzia horiek, baina, ez dira modu automatikoan gertatzen, eta ikasleak nekez egingo ditu loturak ikasitako edukien artean, aurretik jakintza-arloei dagozkien kontzeptuak ulertzen ez baditu (McPhail, 2017). Konpetentziak garatzeko eta konpetentzia horiek transferitzen ikasteko, ikasleei aukerak eskaini behar zaizkie ezagutzak, gaitasunak eta estrategiak egoera berrietan aplikatzeko (Fullan eta Langworthy, 2014; Pellegrino eta Hilton, 2012; Saavedra eta Opfer, 2012; Claxton et al., 2016).

Hori dela eta, 70eko hamarkadaren hasieran konpetentzietan oinarritutako irakaskuntza sortu zen (Lozano eta Herrera, 2013). Gure hezkuntza sisteman ere, *konpetentzia* terminoa duela 30 urte baino gehiago hasi zen erabiltzen (Astigarraga eta Carrera, 2018), eta gaur egungo herrialde desberdinetako curriculumak konpetentzietan ardazten

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dira (Eusko Jaurlaritza, 2014; Vitikka et al., 2012). Konpetentzien garapena eta konpetentzietan oinarritutako ikaskuntza ikuspegi soziokulturalean (Vygotsky, 1978) kokatzen da. Ikuspegi soziokulturalean " learning takes place as individuals participate in the practices of a community, using the tools, language, and other cultural artifacts of the community" (Pellegrino eta Hilton, 2012:73). Hau da, ikuspegi honek gizakiaren garapena testuinguru soziokulturalean duen elkarreraginarekin estuki lotuta dagoela defendatzen du, eta ezagutza ez dela errealitatearen kopia bat, gizakiaren eraikuntza bat baizik, lehendik dituen eskemetatik abiatuta eraikitzen duena (Salas, 2001).

Hala ere, Voogt et al.-ek (2013) diote teorikoki, XXI. mendeko konpetentziak zer diren eta nola eskura daitezkeen adostuta dagoen arren, nazioarteko azterketen emaitzek adierazten dutela praktikan konpetentzia horiek irakasteko estrategiak ez direla modu egokian erabiltzen. Arrazoien artean aipatzen dituzte konpetentziak ikasketa-planean eta ebaluazioan ez integratzea, irakasleen prestakuntza eskasa, eta irakaskuntza eta ikaskuntzako estrategiei arreta sistematikorik ez eskaintzea, besteak beste.

2.3.1. Metodologia aktiboak

Pellegrino eta Hiltonen (2012) arabera, ikasleek ikaskuntza sakonagoa lortzen dute testuinguru positiboak eskaintzen zaizkienean, ezagutzak eskuratzen laguntzen dutenak, gaitasun interpertsonal eta intrapersonalekin batera. Aurretik aipatu bezala, hainbat autorek diote ikaskuntza sakonagoa lortzeko, ikasleei aukerak eskaini behar zaizkiela ikasitakoa praktikan jartzeko eta taldean lan egiteko, eta gainera, irakaslearen feedbacka eta ikasleen hausnarketak funtsezkoak direla.

Ikusi da ikasleek esperimentatzeko eta ikaste-prozesuan modu aktiboan parte hartzeko aukera ematen zaienean, informazio berria ikasteaz gain, aurretiazko ezagutzekin ere loturak egiten dituztela, eta, ondorioz, prozesua aberasgarriagoa eta esanguratsuagoa bihurtzen da (Fallas, 2021). Ildo beretik, azken hamarkadetan zehar egon diren aldaketek ikaslea ikaskuntzaren erdigunean kokatzen duten irakaskuntza-ereduen beharra ekarri dute, non talde txikietan lan egiteak eta ikasleen arteko eztabaidek leku garrantzitsua hartzen duten (Bietenbeck, 2014). Horregatik, ikasleek konpetentziak garatu ditzaten, ikaskuntza aktiboa bultzatzen duen hautu metodologikoa egin behar da, eta horiek dira hain zuzen, metodologia aktiboak (Peláez eta Gómez, 2013). Autore hauen arabera, metodologia aktiboak deritze ikaslearen parte-hartze aktiboa sustatzeko erabiltzen diren metodo, teknika eta estrategiei, eta horretarako, ikaslea jartzen da ikaste-irakaste prozesuaren erdian; ikasleak informazioa modu pasiboan jasotzetik, bere ikaste-prozesuko protagonista bihurtuz.

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Metodologia aktiboen artean Ikaskuntza Kooperatiboa, Proiektuetan oinarritutako ikaskuntza, Arazoetan Oinarritutako Ikaskuntza edo Erronketan Oinarritutako Ikaskuntza topatu ditzakegu. Metodologia horiek ezagutza transmititzeko eredu bertikala eta edukien memorizazioa eta errepikapena alde batera uzten dute (Guasp et al., 2020), lan kooperatiboa, lan autonomoa eta ebaluazio jarraitua uztartzen dituen eredua sustatuz (Gorostiza et al., 2015).

Metodologia aktiboak erabiltzean ikasle eta irakasleen arteko harremanak eta hauek orain arte ikasgelan izan dituzten rolak aldatu egiten dira (Gorostiza et al., 2015). Batetik, irakaslearen rolak gaitasun pedagogiko sofistikatuagoa eskatzen du, irakaslea ikaste- eta irakaste-prozesuetan gidari, bideratzaile, aktibatzaile eta laguntzaile bihurtzen baita, besteak beste (Fullan eta Langworthy, 2014; Groff, 2013). Horretarako irakasleak estrategia desberdinak ezagutu behar ditu eta ikasleen progresioa etengabe ebaluatzeko gaitasuna izan behar du (Fullan eta Langworthy, 2014).

Bestalde, metodologia aktiboetan ikaslearen inplikazio-maila handitu egiten da: erabakiak hartzerakoan rol aktiboa du, eta modu autonomoan eta kontzientean lan egiten ikasi behar du (Guasp et al., 2020). Gainera, aukera eskaini behar zaio saioak diseinatzen laguntzeko (Ebenezer, et al., 2012; Fullan eta Langworthy, 2014; Groff, 2013; Hatakka et al., 2013).

Fullan eta Langworthyk (2014), ikasleek ikaskuntza sakonagoa lortzeko helburuarekin, ikasle eta irakasleen rolak bereizten dituzte:

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Irudia/Figure 3. Ikasle eta irakasleen rolak ikaskuntza sakonagorako pedagogia berrietan (Fullan and Langworthy, 2014: 13)

Teachers (Pedagogical Capacity)	Students (Deep Learning)
Build trusted relationships with students and peer teachers; seek good mentors	Build trusted relationships with teachers and peers; seek good mentors
Help students find and build on their interests and aspirations through deep learning tasks	Explore own interests and aspirations in learning goals and tasks
Require challenging learning goals, tasks and success criteria for self and students that require creation and use of new knowledge	Develop capacity to define learning goals, tasks and success criteria, partnering in the learning process
Develop repertoire of teaching strategies; use different strategies to activate learning	Reciprocal teaching and learning from and with peers and teachers
Provide high-quality feedback and encouragement, especially when students face challenges in learning	Develop capacity for reflection and perseverance in the face of challenges; provide high quality feedback and encouragement to others
Collaborate with other teachers and leaders researching the impact of different learning strategies on students (i.e., use an inquiry cycle approach)	Provide feedback to teachers and peers on what is working in one's own learning; build mastery of the learning process and one's own progress
Model a proactive disposition towards learning, creating new knowledge and taking action with that new knowledge	Develop intellectual and attitudinal dispositions towards creating new knowledge and doing things with it in the world
Continuously discover and create digital learning tools and resources to: 1) explore new content, concepts, information and ideas; 2) challenge students to create new knowledge; 3) connect with students, peers, and experts beyond the classroom; 4) accelerate students' ability to drive their own learning process; and 5) assess and share information on students' learning abilities and dispositions	Continuously discover and create digital learning tools and resources to explore new content, concepts, information and ideas. Use these tools to create new knowledge, to connect with peers and experts throughout the world and to use new knowledge in the world

2.3.2. Proiektuetan Oinarritutako Ikaskuntza (PBL)

XX. mendearen hasieran, Kilpatrick-ek proiektuetan oinarritutako metodologiaren oinarriak zehaztu zituen, Deweyren "learning by doing" teorian oinarrituta. Metodologia horren helburua da ikasleentzako esanguratsuak diren testuinguruak sortzea, zeinetan azken produktua eskatzen duen proiektu baten bidez, ikasleek, taldeka, funtsezko galdera bati erantzuten, arazo bat konpontzen edo erronka bati aurre egiten dioten (Bell, 2010). PBLa ez da ezagutzen irakaskuntzara mugatzen, eta beste metodologia aktiboak bezala, konpetentzien garapenean jartzen du arreta, hala nola problemak ebaztea, pentsamendu kritikoa eta ikasitakoaren eta errealitatearen artean loturak egitea, taldean lan egitea, komunikazioa, iturri desberdinetan informazioa bilatzea eta informazio hori kudeatzea (Virtue eta Hinnant-Crawford, 2019; Aldabbus, 2018). Gainera, proiektuen bidez erresilientzia gaitasuna ere lantzen da (Bell, 2010). PBLan proiektuak ikasteko eta zenbait gaitasun garatzeko bitartekoak dira (Condliffe, 2017), eta ikasleen motibazioa

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sustatzeko eta ikasten dituzten ezagutzen aplikazio praktikoa ikasteko erabiltzen dira (Ravitz, 2010).

PBLan ikaslea bere ikaste-prozesuko protagonista bihurtzen da (Condliffe, 2017), eta talde kooperatiboetan eta modu autonomoan egiten du lan denbora gehiena (Mergendoller eta Thomas, 2005). Kolaborazioa eta kooperazioa proiektuetan oinarritutako ikaskuntzaren funtsezko alderdiak dira (Virtue eta Hinnant-Crawford, 2019). Modu horretan ikaskideen eta ikasle-irakasleen arteko harremana sustatzen da, eta eskolako kulturan aldaketak eragiten ditu: irakasle-ikasle, irakasle-irakasle eta ikasle-ikasle harremanetan, denbora eta espazioen antolaketan, materialen erabileran, didaktikan… (Gorostiza et al., 2015).

Irudia/Figure 4. Hezkuntza tradizionalaren eta proiektu bidezko irakaskuntzaren arteko desberdintasunak (Gorostiza et al., 2015)

	Enseñanza tradicional	Enseñanza por proyectos
Entre el profesorado	Aislamiento	Cultura cooperativa
Entre el alumnado	Aislamiento	Cultura cooperativa
Grupo-aula	Aislamiento	Permeabilidad
Papel del profesorado	Preeminente	Sutil y activo (guía)
Papel del alumnado	Pasivo y obediente	Más participativo
Estructura	Jerárquica	Más democrática
Percepción del alumnado	Control y sumisión	Mayor libertad
Familia	Fuera del aula	Experta u oyente
Comunidad	Impermeable	Vínculo

PBLren beste ezaugarri bat errealitatearekin egiten duen lotura da. PBLk bizitza errealeko erronkak eta arazoei erantzutea proposatzen du, mundu errealeko egoerak ebazteak esanguratasuna ematen baitie proiektuei (Martínez, 2022); izan ere, Fallas-ek (2021) dio ikaskuntza esanguratsua bihurtzen dela ikasleek benetako gaiak eta arazoak ikertzeko aukera dutenean. Hala ere, proiektuak errealitateko erronkekin lotzeak ez dakar automatikoki arazoak ebazteko behar diren pentsamendu abstraktuaren eta kritikoaren garapena (McPhail, 2017).

Ravitz-ek (2010) dio, proiektuak arrakastatsuak izateko, kalitatezko diseinua izan behar dutela. The Buck Institute for Education-ek (2015) irakaslentzako lagungarriak izan daitezkeen "Gold Standard PBL" izeneko bi gida erabilgarri prestatu ditu (5. irudia). Batetik, *Seven Essential Project Design Elements* izenekoak kalitatezko proiektuak

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garatzeko gakoak ematen ditu, eta irakasleek gida moduan erabili dezakete. Eta bestetik, *Seven Project Based Teaching Practices* izenekoak, irakasleentzat, eskolentzat eta erakundeentzat beren praktika hobetzeko, neurtzeko eta ebaluatzeko lagungarriak diren gakoak ematen ditu.

Irudia/Figure 5. Proiektuak diseinatzeko gida (Buck Institute for Education, 2015).
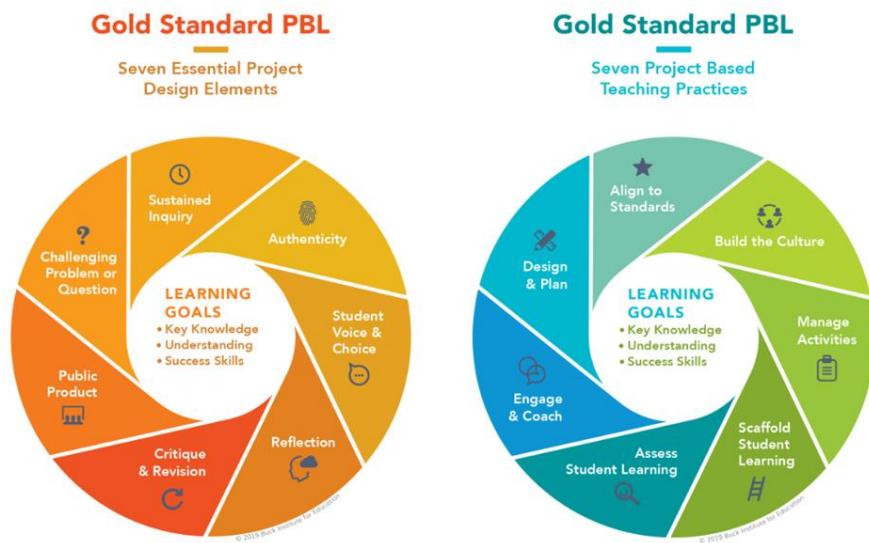
Proiektuetan oinarritutako ikaskuntzak ikasleak ikaskuntza-prozesuaren erdian jartzen baditu ere, irakasleek rol garrantzitsua betetzen dute (Buck Institute for Education, 2018). PBLak eskatzen du ikasleen partetik ezagutza, esfortzua, persistentzia eta auto-erregulatzeko gaitasuna. Irakaslearen rola izango da ikasleak prozesuan laguntzea, ikasteko aukerak sortuz, ikaslea gidatuz, pentsaraziz eta ezagutza berriak sortzen lagunduz. Hala ere, PBL metodologia erronka da irakasleentzat, eta formakuntza behar da edukiak irakasteko modu berriak eta proiektuak diseinatzeko, gelaratzeko zein kudeatzeko (Blumenfeld et al., 1991). Izan ere, metodologia honek eskatzen du irakasleak adituak izatea, ikasgaian, eta ezagutzea eta ulertzea ikasleen ikasteko moduak ezagutzea eta ulertzea.

Orokorrean, ikerketek baieztatzen dute PBLk hezkuntza tradizionalak baino emaitza akademiko eta ez-akademiko hobeak ematen dituela (Bell, 2010), eta eragin positiboa duela ikasleen motibazioan. Hala ere, ikasleen motibazioan modu positiboan eragiteko, Biggs-ek eta Tang-ek (2011) diote ezinbestekoa dela zehazten diren helburuak argiak eta zehatzak izatea ikasleei haien ikaste prozesuan aurrera egiten laguntzeko.

Ebaluazioa PBLren erronka nagusietako bat da, prozesua eta azken produktua ebaluatzeko hainbat tresna eraginkor erabili behar baitira (Aldabbus, 2018), hala nola hausnarketa pertsonalak, autoebaluazioa eta koebaluazioa (Bell, 2010). Ikasleen

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garapena ebaluatzeko bi ebaluazio mota nagusi bereizten dira: ebaluazio hezitzailea, ikaslearen ikaste-prozesua ebaluatzeko diseinatzen dena; eta sumatiboa, azken emaitza bakarrik ebaluatzen duena (Biggs eta Tang, 2011).

Biggs eta Tangek (2011) ebaluazio hezitzailea irakaskuntza on baten oinarria dela diote, ikaste-irakaste prozesua ebaluatzen laguntzen baitu. Ikasleen momentuko beharrei erantzuten eta hurrengo urratsak zehazten laguntzen du, eta modu horretan, irakasleak ikaste eta irakaste prozesuak egokitzeko aukera du. Hau da, prozesuan zehar ematen den feedbacka lagungarria da ikaslearen ikaste-prozesua eta irakaslearen praktika hobetzeko (Care et al., 2012). Ebaluazio hezitzailea erabat eraginkorra izan dadin, beharrezkoa da ikasleak ebaluazioan inplikatzea, bai beren ikaskuntzaren ebaluatzaile gisa, bai beste ikasle batzuentzak ebaluatzeko ere, autoebaluazioa eta koebaluazioa bereziki baliagarriak baitira ikasleek beren lanaren kalitateari buruz hausnar dezaten (Biggs eta Tang, 2011).

Autoebaluazioa egitea lagungarria da ikasleek beren ikaskuntza erregulatzen ikasteko, ikaste-prozesuaren jabetza eskuratzeko (Ertmer eta Simons, 2005), eta baita aurrera begirako praktikak hobetzeko. Koebaluazioak, bestetik, taldelana hobetzeko helburua du. Bai autoebaluazioa eta bai koebaluazioa garrantzitsuak dira proiektuan zehar ikasten dituzten ezagutzak eta ikaste-emaitzak zein konpetentziak ebaluatzeko, adibidez, talde-lanean aritzeko gaitasuna (Biggs eta Tang, 2011). Hala ere, koebaluazioa zaila eta estresagarria izan daiteke ikasle batzuentzat (Pope, 2001), oro har, ikasle onek beren burua gutxiesteko joera izaten baitute, ikaskideek egingo luketen balorazioarekin alderatuta, eta ikasle txarrek, berriz, beren burua gehiegi balioesteko (Lejk eta Wyvill, 2001).

Bestetik, ebaluazio batutzailea ikas-irakaste prozesua amaitu ondoren egiten da. Ebaluazio mota honen helburua da ikasleek zenbat ikasi duten neurtzea eta kalifikatzea (Biggs eta Tang, 2011). Ebaluazio batutzailea bakarrik egitea ez da eraginkorra (Fullan eta Langworthy, 2014). Gaitasun kognitiboak, intrapertsonalak eta interpertsonalak garatzen laguntzeko aipatutako bi ebaluazio motak modu koherentean eta osagarrian uztartu behar dira (Pellegrino eta Hilton, 2012). Ebaluazio hezitzailaren bidez, ikasleei beren ikaste-prozesuan aurrera egiten laguntzen zaie; eta modu horretan ebaluazio batutzaileko emaitzak hobetzen dira (Connors, 2021).

Azkenik, garrantzitsua da eztabaida eskatzen duten jarduerak ere diseinatzea, ikasitako edukiaren inguruko feedbacka ebaluatzeaz gain, beren pentsamendua eta iritziak modu

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egokian partekatzeko duten gaitasuna ere ebaluatu ahal izateko (Fullan eta Langworthy, 2014).

2.3.3. Diziplinartekotasuna

Hezkuntza arautua jakintza-arloetan antolatzen da, eta ikaskuntza jakintza-arlo horien baitan gertatzen da. Jakintza-arlo bakoitzari dagokion edukia ikasteaz gain, ikasleek zenbait gaitasun ere garatu behar dituzte. Gaitasun horietako batzuk arloko espezifikoak izango dira, eta beste batzuk, orokorrak. Astigarragak eta Carrerak (2019), gaur egungo hezkuntza sistemak eskatzen dituen konpetentziak garatzeko, beste gako batzuen artean, ezagutzen integrazioa aipatzen dute. Morinek (2010) defendatzen du ikasleak holistikoki garatu ahal izateko, eskolan ezagutza modu integralean irakatsi behar dela, eta ez jakintza-arloen arteko banaketa zurrunean; ezagutzak ez baitira objektu itxiak, baizik eta inguruearekin modu banaezinean lotutako entitateak, beren testuinguruan txertatzen badira soilik ezagut daitezkeenak. McPhail (2017) ere diziplinartekotasunaren alde agertzen da, baina honek proposatzen du bigarren hezkuntzan diziplinarteko proiektuak erabiltzea, ez curriculuma emateko bitarteko nagusi gisa, baizik eta jakintza-arloetan ikasitako ezagutzak diziplinarteko proiektuetan praktikan jartzeko aukera osagarri gisa. Hau da, adierazten du lehenik arloko ezagutzak ikasi behar direla, eta, gero, ezagutza hori sakontzeko diziplinarteko testuinguru batean aplikatu behar dela.

Jakintza-arloetako edukien integrazioa izendatzeko termino ugari erabiltzen dira, horien artean erabilienak ikaste interdiziplinarra (*interdisciplinary study*) eta curriculumaren integrazioa (*curriculum integration*) dira. Termino desberdinak erabiltzen badira ere, termino horiek guztiak ikaskuntza soziokonstruktibismoaren paradigman (Vygotsky, 1978) kokatzen dira, eta irakasgaiak uztartzeko moduari egiten diote erreferentzia (Corney eta Reid, 2007). Hainbat autorek diziplinartekotasunak dituen onurak jaso dituzte (Virtue eta Hinnant-Crawford, 2019), eta ondorioztatzen dute orain arte gailendu den jarduera memoristikoaren ordez, goi-mailako kognizioa aktibatzen duela, eta ezagutza konplexuekiko eta egituratu gabeko ezagutzekiko motibazioa pizten duela.

Curriculumaren integrazioaren ideia XXI. mendeko ikaskuntzari buruzko literaturaren asko landu den gaietako bat da (McPhail, 2017), eta ikusi da ikaskuntza pertsonalizatua izan dadin, diziplinen banaketa zurruna defendatzen duen ikuspegiarekin apurtu egin behar dela. Pertsonalizazio hori lortzeko funtsezko moduetako bat da eskolan proposatzen diren arazoak ebazteko jakintza-arlo desberdinetako ezagutzak integratzea. Adibidez, ikasleentzat esanguratsua eta erakargarria izan daiteke ikaskuntza jakintza-arloka egituratu ordez, "gai" edo "metakontzeptu" baten inguruan

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ikastea (Hammond, 2017). Ikuspegi horrek aukera ematen die ikasleei, besteak beste, ezagutza eraikitzeko, taldean lan egiteko eta errealitatearekin loturak egiteko (McPhail, 2017).

Curriculumaren integrazioan hiru kategoria nagusi bereizten dira. Hiru ikuspegien horien arteko desberdintasuna jakintza-arloen artean dagoen integrazio-maila da (San Isidro, 2018):

- Diziplina anitzeko (*multidisciplinary*): Gai bat hainbat diziplinetako ikuspegietatik aztertzea, diziplinak integratu gabe.
- Diziplinarteko (*interdisciplinary*): diziplinen integrazioari eta horien arteko interakzioari egiten dio erreferentzia.
- Diziplinaz haratagoko (*transdisciplinary learning*): diziplinen mugak gainditzen dituen prozesua, ezagutza berriak hainbat ikuspegitatik sortzeko

Bestalde, diziplinarteko konpetentzia ezagutza eta metodo desberdinak uztartzeko gaitasunari dagokio, hau da, diziplinartekoak diren arazoei aurre egiteko jakintza-arlo desberdinetan ikasitakoa integratzeko gaitasunari (Brassler eta Dettmers, 2017). Horregatik, diziplinen arteko irakaskuntza gako da ezagutzak transferitzen ikasteko (Pellegrino eta Hilton, 2012; Saavedra eta Opfer, 2012), ezagutzak, gaitasunak eta estrategiak egoera berrietan aplikatzeko aukera ematen baitie ikasleei (Fullan eta Langworthy, 2014; Saavedra eta Opfer, 2012).

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2.4. SUMMARY

This section discusses how societal changes have influenced educational changes. In recent years, society has undergone many changes in a rapid way, which have led to socio-cultural adaptations in the way people live today (Lozano and Herrera, 2013). As the world becomes increasingly complex, in order to cope with societal problems and challenges (Harari, 2018), individuals must develop the ability to adapt to a changing and uncertain reality (Garcés, 2020; Menéndez, 2017). Several authors listed a number of competences, coined as 21st century skills.

In order to respond to the needs of citizens and society in the 21st century, education must also undergo some changes (Care et al., 2012). In addition to developing such skills, students should also learn to apply and transfer those skills in different situations, which is called deeper learning (Pellegrino and Hilton, 2012). Furthermore, changes in the last few decades have required the development of teaching models that place the learner at the centre of learning (Bietenbeck, 2014). When students are allowed to experiment and actively participate in the learning process, they not only learn new information, but also relate it to previous knowledge, making the process more enriching and meaningful (Fallas, 2021). As a result, in order for students to develop such competencies, a methodological choice that promotes active learning, such as active methodologies, should be made, one of which is project-based learning (Bell, 2010).

In order to develop the competencies required by the current educational system, Astigarraga and Carrera (2018) highlight, among other things, the integration of learning. According to Morin (2010), in order for students to develop holistically, knowledge must be taught in schools in an integrated and interdisciplinar manner rather than in a rigid division of knowledge. Interdisciplinary competence is defined as the ability to combine various knowledge and methods, i.e. to integrate learning from various subject areas to address interdisciplinary problems (Brassler and Dettmers, 2017). Interdisciplinary teaching is thus essential for learning to transfer knowledge as it allows students to apply their knowledge, skills, and strategies in new situations (Pellegrino and Hilton, 2012; Saavedra eta Opfer, 2012).

3. Kapitulua:
ARLOETAKO ALAFABETATZEA

3. ARLOETAKO ALFABETATZEA

3.1. HIZKUNTZAREN ROLA IKASTE-IRAKASTE PROZESUAN

Hizkuntzak ikaste prozesuetan zein rol betetzen duen erdiguneko gai bihurtu da, eta gaur egun, nazioarteko hezkuntza testuinguru desberdinetan ez dago argi zein den jakintza-arloetan edukiak ikasteko hizkuntzak duen eginkizuna (Skinnari eta Nikula, 2017; Nikula et al., 2016). Ikuspegi desberdinetatik ikertu izan da auzia: Systemic Functional Linguistics (SFL), literacy studies, bi- and multilingual education studies (Skinnari eta Nikula, 2017). Nazioarteko azken probek (TIMS, PISA, PIRLS edo PIAAC) eta gaiari buruz diharduten hainbat autorek (Lorenzo eta Trujillo, 2017; Pavón eta Pérez, 2018) ikasleen komunikazio konpetentziaren maila baxuan jarri dute arreta ikasleen emaitza txarrak azaltzerakoan.

Hainbat dira hizkuntzak ikasleen ikaste prozesuan betetzen dituen rolak eta horiek hobeto ulertzeko, ezinbestekoa deritzogu lehenik eta behin hizkuntza nola ulertzen dugun azaltzea. Lan honetan, hizkuntzak ikaste-irakaste prozesuetan duen rola ulertzeko moduak Vygotskyren ikuspegi soziokulturala (1978) du oinarri. Vygotskyren lanaren ekarpenik esanguratsuenetako bat da pentsamenduaren eta hizkuntzaren arteko harreman banaezina dela. Autore honen arabera, hitzak eta beste zeinu batzuk dira gure eragiketa mentalak bideratzen dituzten bitartekoak. Teoria soziokulturalaren beste ideia nagusia da ikaskuntza oro testuinguru soziokultural batean gertatzen dela (Vygotsky, 1978). Hau da, ikaskuntza gertatzen da gizabanakoek komunitate baten praktiketan parte hartzen dutenean, komunitatearen tresnak, hizkuntza eta bestelako kultura-tresnak erabiliz (Pellegrino eta Hilton, 2012). Bi ideia horiek kontuan hartuta, bi dira hizkuntzak betetzen dituen funtzioak: soziala eta intelektuala.

Funtzio intelektualari dagokionez, ikuspegi soziokulturalak pentsamenduak eraikitzeko tresna gisa definitzen du hizkuntza (Vygotsky, 1978). Hau da, Vygotskyren arabera hizkuntza erabiltzea ekintza kognitiboa da, pentsamendua artikulatzeko eta honi forma emateko balio duena (Swain, 2006). Ideia horretan oinarrituta, Swain (2006) "languaging" terminoa erabiltzen hasi zen. "Languaging" hizkuntzaren bidez esanahiak eraikitzeko eta ezagutza sortzeko prozesuari deritzo, beraz, esan daiteke, hizkuntzak esanahiak eraikitzeko funtzioa ere baduela (Mohan et al., 2010; Swain, 2009). Lemke-k (1988) azaltzen du "esanahia" eta "pentsamendua" antzeko terminoak direla eta berbaratzearekin lotuta daudela zuzen-zuzenean. Gainera, hizkuntzaren izaera dialogikoaren ondorioz, esanahia kolektiboa ere izan daiteke (Matthiessen, 2009)

Bestetik, ikaskuntza dimentsio sozialean gertatzen da (Moate, 2010) hau da, ikasleek kognizioa hitzen bidez adierazten dute gizarte esferetan, eta besteekin elkarrekintzan ideiak eraikitzen eta birformulatzen dituzte garapen kognitiboan aurrera egiteko (Swain eta Lapkin, 2013). Izan ere, hizkuntzaren bidez komunikatzen gara gizakiok, eta giza jarduera guztiek hizkuntzaren erabilera eskatzen dute (Bakhtin, 1986; Lemke, 1988). Beraz, hizkuntzaren formak giza jarduera arloak bezainbeste dira: hizkuntza erabiltzen dugu inguruan ditugun gauzak deskribatzeko, galderak egiteko, azalpenak emateko, esanahiak negoziatzeko, ulermenak partekatzeko… eta beraz, egoera horietako bakoitzak mintzaira modu bat eskatzen du eta egoera sozial horrek berak baldintzatzen du erabiltzen den hizkuntza (Martin, 1992). Hau da, (Bakhtin,1986) teroriari jarraiki, hizkuntza erabiltzen den esfera bakoitzak enuntziatu mota egonkor samarrak garatzen ditu, *speech genres* deiturikoak. Esfera bakoitzak bere genero propioak ditu, esfera horren baldintza espezifikoei dagozkienak. Bakhtin-ek generoak bi multzotan banatzen ditu: alde batetik, oinarrizko generoak edo primarioak, horiek egunerokotasuneko elkarrizketan leudeke; eta bestetik, genero konplexu edo sekundarioak, kultur komunikazio baldintza konplexuagoetan sortzen direnak. Esanahiak eraikitzeko prozesua erabiltzen diren generoen araberakoa da, helburuak lortzeko prozesu sozialtzat hartzen baitira (Rose eta Martin, 2012).

3.1.1. Hizkuntzaren rol bikoitza: elkarrekintzan jarduteko eta arloetan ezagutza eraikitzeko

Lehen kapituluan esan dugun moduan, eskolaren funtzio nagusietakoa da ikasleek pentsamenduak eta ezagutzak eraikitzea (Dalton-Puffer, 2007). Funtzio hori betetzeko eskolan egiten diren ia ekintza guztiek hizkuntzaren erabilera eskatzen dute (Gibbons, 1991). Aipatu berri dugun hizkuntza ulertzeko modua kontuan izanda, ikaste-irakaste prozesuan ere hizkuntzak rol bikoitza duela diote hainbat autorek (Meyer eta Coyle, 2017; Coyle eta Meyer, 2021; Coyle, 2015):

Batetik, gogoratu behar da ezagutza sozialki eraikitzen dela hizkuntzaren bidez, eta ondorioz, ikaskuntza ere modu berean, sozialki, eraikitzen da (Wells, 1999; Mercer, 2002). Horregatik, elkarrekintza ikaste-irakaste prozesuen oinarria dela esan dezakegu (Walqui, 2006). Elkarrekintzaren bitartez ikasle eta irakasleen arteko bitartekaritza gertatzen da, hizkuntzak ahalbidetzen baitu irakasleek ikasleen pentsamendu eta ulermenean eragitea, elkarrekintzaren eta esku-hartze pedagogikoaren bidez ikasleen barne egitura kontzeptualak birkonfiguratuz (Coyle eta Meyer, 2021). Are gehiago, hizkuntzak ez du elkarregina bakarrik errazten, elkarpentsatzea (*interthink*) ere ahalbidetzen du (Mercer, 2002).

Eta bestetik, eskolan maneiatzen den ezagutza (*educational knowledge*) hizkuntzan gorpuztua agertu ohi da eta ondorioz, zaila da ezagutza horren jabekuntza irudikatzea hizkuntzaren bitartekaritza gabe (Dalton-Puffer, 2007). Horregatik, hizkuntza ikasleek ikasitakoaren lehen mailako adierazletzat hartzen da (Mohan et al., 2010), ikasleek edukiaren ulermena hizkuntzaren bidez azaltzen baitute eta hori da, hain zuzen ere, eskola testuinguruetan ebaluatu ohi dena (Schleppegrell, 2004). Beraz, esan daiteke ikaskuntzaren arrakasta ikasleek ezagutzak eta ulermena artikulatzeko duten gaitasunean islatzen dela (Van Kampen et al., 2021). Hala, "languaging becomes part of what constitutes learning" (Swain, 2006:98).

3.1.2. Hizkuntza elkarrekintzan jarduteko

"Enseñar implica conversar"

(Mercer, 2002)

Vygotskyren teoria soziokulturalak (1978) hizkuntza bitartekari eta pentsatzeko tresna gisa definitzen du, eta elkarrekintzak ikasleen garapenean eta ikaskuntzan duen garrantzia azpimarratzen du. Freirek *elkarrekintza dialogikoa* terminoa sortu zuen 90eko hamarkadan eta ondoren, (Alexander, 2018) terminoa garatu zuen. Elkarrekintza dialogikoak ikasleak beren pentsamendua partekatzera bultzatzen ditu, eta errazten du ikasleen ulermena hobetzea, horren garapena ebaluatzea eta ikasleei zailtasun eta erronkak gainditzen laguntzea. Aldi berean, irakasleei aukera ematen die ikasleek dituzten beharren diagnostikoa egiteko (Alexander, 2020).

Ikasleek batzuetan zailtasunak izaten dituzte ikaste prozesuan proposatzen zaizkien eskakizunei erantzuteko eta eginkizun horretan lagundu egiten zaie aldamiajearen (*scaffolding*) bidez, hau da, ikasleari lagundu egiten zaio zeregin bat arrakasta bete dezan (Mahan, 2020). Aldamiajea askotan ahozko elkarrekintzan gertatzen da eta ikasleari bere ekarpena osatzen edo garatzen laguntzen zaionean agertzen da (Walqui, 2006). Aldamiaje modu hori ulertzeko ikuspegi desberdinak daude, lan honetan ikuspegi soziokulturalean oinarrituko gara. Kontzeptuak psikologian du jatorria, baina 1970ean terminoa hezkuntzan erabiltzen hasi zen Bruner. Wood, Bruner eta Ross-ek (1976) aldamiajea definitzen dute ikasle eta irakaslearen arteko elkarrekintza gisa, non ikasleari bere gaitasunetik kanpo gertatzen den arazo bat ebazten laguntzen zaion.

Aldamiajeak lotura zuzena du Vygotskyren Garapen Hurbileko Eremuarekin (GHE). Vygotskyk (1978) honela definitzen du GHE: garapen-maila errealaren eta garapen-maila potentzialaren arteko distantzia da, non heldu baten zuzendaritzapean edo gaitasun handiagoko lankideekin lankidetzan problemak ebazteko gai den. Eremu hori da ikaskuntza-irakaskuntza gertatzen den jarduera une nagusia eta hortxe gertatuko da

aldamiajea (van Lier, 2004). GHEn lan egiteak esan nahi du ikasleak besteen laguntza jasotzen duela bakarrik lortu ezin duena lortu ahal izateko, hala gaitasun handiagoa duen beste (kide) baten laguntza jasotzean, ikaskuntza arrakastatsua gerta daiteke eta ikasleak jarduera konplexuagoetan parte har dezake (Walqui, 2006).

Van Lierren (2004) arabera, aldamiajea bi mailatan egin daiteke: maila makroan eta maila mikroan. Lehenak barnebiltzen ditu hizkuntza sistematikoki integratzen duten ikasketa plangintzak; bigarrenak, elkarrekintza aldamiajeari (*interactional scaffolding*) egiten dio erreferentzia, irakasleak gelan unez une ikasleari ematen dion laguntzari. Ildo beretik, Walquik (2006) hiru aldamiatze maila bereizten ditu: jarduerak egiten eta gaitasunak garatzen laguntzeko laguntza egiturak eskaintzea; gelan jarduera jakin batzuk aurrera eramatea ikasleei laguntzeko; eta elkarrekintzaren bidez eskaintzen den laguntza jarraitua. Autoreak azpimarratzen du hiru maila horietan sistematizazioa eta bat-batekotasuna beharrezkoak direla.

Azken maila horretan aldamiajea elkarrekintzaren bitartez gertatzen da. Elkarrekintza gelako ikaste-irakaste prozesuetan ikasle eta irakasle edo ikasleen artean ematen den hizkuntzaren erabilerari deritzo eta egunero gertatzen da irakaslearen eta ikasleen arteko ikasgelako jardueretan (Mercer, 2004; Wells, 1999). Ikasgelak inguramendu (*scenarios*) konplexuak dira, gauza asko gertatzen dira bertan aldi berean eta parte-hartzaile desberdinen artean (Dalton-Puffer, 2007). Zenbait autorek gela barruan gertatzen den hizketaldia erregistro desberdinetan gertatzen dela diote, Christie-k (2000) bi erregistro mota bereizten ditu: erregulatzailea (*regulative register*) eta hezitzailea (*instructional register*). Hizketaldi erregulatzaileak izaera monologikoa du eta ez du ikasleen etenik onartzen. Aldiz, hizketaldi hezitzaileak izaera dialogikoa du eta ikasle eta irakaslearen artean gertatzen da (Dalton-Puffer, 2007). Bi erregistro horiez gain, lan berean hizketaldi soziala *(social talk)* ere bereizten da, ohikoagoa dena Lehen Hezkuntzako geletan.

Gainera, Llinares et al. (2012) eta (Dalton-Puffer, 2007) autoreek diote erregistro bakoitzean behar den hizkuntza desberdina dela. Hala ere, zenbait momentutan, erregistro hezitzailea eta erregulatzailea gainjarri egiten dira eta ezin dira bereizi. Hala, ikaskuntza arrakastatsua den kasuetan bi erregistroek bat egin ohi dute, ikasleak parte hartzen du edukiaren inguruko ikaskuntzan (erregistro hezitzailean azaleratua) eta argi definituriko jarduerak egiten ditu aldi berean (erregistro erregulatzailean azaleratuak). Hizketaldi erregulatzailea, normalean, hasierako faseetan edo saioen arteko trantsizioetan gertatzen da, eta ondorioz, batzuetan, erregistro hezitzailea erregistro erregulatzailearen baitan txertatuta egoten da (Christie, 2002).

Irudia/Figure 6. Gelako erregistroak (Dalton-Puffer, 2007:30)
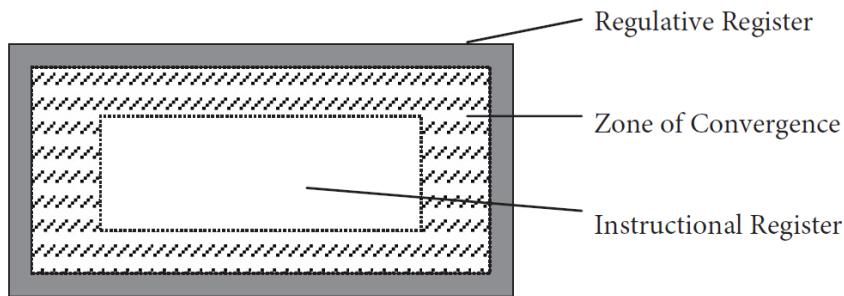
Christie-k (2002) definitzen duen erregistro hezitzailean, (Dalton-Puffer, 2007) sei ekintza tipo bereizten ditu:

- Gela osoko elkarrekintza: Irakasleak gidatutako irakasle eta ikasleen arteko elkarrekintza, irakaslea eta gela osoa solaskide gisa.

- Berdinkideen arteko elkarrekintza (ikasleek gidatua): Ikasleek bikoteka edo talde txikitan elkarrekin lan egitean datza, irakaslearen laguntza gutxirekin.

- Bakarkako lana: ikasleek bakarrik lan egiten dute, baina irakaslearen laguntza eskatu dezakete. Jarduera mota honek ez du berez hitz egitea eskatzen, baina irakasleari laguntza eskatzen zaionean, elkarrizketa sortzen da.

- Ikasleen monologoa: ikasleei denbora-tarte luzeagoetan hitza ematen zaien kasuak dira, adibidez, aurkezpenak egiten dituztenean edo lantalde bateko bozeramaile gisa jarduten dutenean.

- Irakasleen monologoa: curriculumeko edukia aurkezteko irakasleak ematen duten iraupen luzeko hitzaldia.

- Talde lana (irakasleak gidatua): irakaslea ikasle-kopuru txiki batekin biltzen da, zeregin batean elkarrekin lan egiteko.

Gelako elkarrekintza irakasle eta ikasleen arteko elkarrizketa edo hizketaldia baino gehiago da. Ikasgelako elkarrekintza erregistro hezitzailean gertatzen da, eta helburua da ikasleek ikasgelan modu aktiboan parte hartzea, ikasleek beren ideiak, ezagutzak eta arrazoitzeak adierazi eta garatu ditzaten, ahoz eta modu kolektiboan (Hennessy et al., 2021; Mercer, 2002). Esteve-k (2009) eta Alexander-ek (2018) gelan gertatzen diren elkarrekintzak hiru multzotan bereizten dituzte: irakaslearen eta ikasleen artekoa, berdinkideen artekoa, eta bakarkakoa. Goian zerrendatutako 6 ekintza tipoak hiru multzo horietan sailka litezke. Gela osoko elkarrekintza da gehien ikertu den elkarrekintza mota (Dalton-Puffer, 2007). Elkarrekintza mota hori da, hain zuzen ere, irakaskuntza dialogikoaren bereizgarrietako bat (Alexander, 2020).

Ikerketa asko egin dira ezagutzeko zein ezaugarri izan behar dituen gelako elkarrekintzak, ikasleen emaitzak positiboak izan daitezen (Howe et al., 2019). Irakasleak testuinguruak sortu behar ditu elkarrekintzaren bidez ezagutza eraiki ahal izateko eta testuinguru horiek sortzeko, irakasleek zenbait estrategia erabil ditzakete. Alexanderrek (2018) azpimarra jartzen die irakasleek galdera irekiak egin eta ikasleen usteen azaleratzea eta horien gaineko arakatzea sustatzeari, horretarako elkarrizketari denbora aski eskainiz. Howe et al.,-ek (2019) galdera irekiez gain, ekarpen luzeak, iritzi desberdinak, arakatzea edota ikuspegi metakognitiboa ere aipatzen dituzte. Gainera, garrantzitsua da ikasle guztiei ahotsa ematea; izan ere, ohikoa da ikasle gutxi batzuek gelako hizketa jardunaz jabetzea (Clarke, 2015). Estrategia horien bitartez elkarrekintza sustatzen da eta aldi berean aldamiajea, elkarrekintzaren bidez ikasleen parte-hartzea eta ulermena aldamiatzeko modurik ohikoena baita (Muhonen et al., 2016). Elkarrekintza aldamiajeatze (*interactional scaffolding)* estrategia horiek autore askok zerrendatu dituzte eta ez dago zerrenda bakar eta bateraturik. Ondoko taulan biltzen dira horietako batzuk:

Taula/Table 1. Elkarrekintza-estrategiak

Dafouz, Llinares eta Morton, 2010	Tang, 2019	Mahan, 2020	Lyster and Ranta, 1997	Walqui, 2006	Howe et al., 2019
IRF Questions Get students to elaborate Recast or correct Evaluation "Amplify" for the whole class	Mediation Probing for expansion Tranlating Evoking discussion Scaffolding (encouraging self-scaffolding / Holding scaffolding) Revoicing Probing Clarifying Withholding: holding back the answer	Comprehension strategies Drawing on previous knowledge Academic language development Supportive material Task-solving strategies Metacognition	Explicit correction Recasts Elicitation Metalinguistic clues Clarification requests Repetition	Modelling Bridging Contextualising Schema building Re-presenting text Developing metacognition	Open questions Elaboration of previous contribution Reasoned discussion of competing viewpoints Linkage and coordination across contributions Metacognitive engagement High levels of student contribution

Estrategia horietako batzuk errepikatu egiten dira autore desberdinen zerrendetan, eta estrategia berdinari errereferentzia egiteko termino desberdinak ere erabiltzen dituzte autoreek, adibidez, "*ask students to elaborate",* eta "*probing for expansion"*. Bi estrategia horietan ikasleei eskatzen zaie haien erantzunak garatzen jarraitzeko.

Ikasgelako elkarrekintzan gehien errepikatzen den eredua Initiation-Response-Evaluation (IRE) egitura da (Mortimer eta Scott, 2003). IRE edo IRF gelako

elkarrekintzan sortzen den irakasle-ikasle-irakasle txanden sekuentzia da. Hasierako fasean (I), irakaslearen helburua elkarrizketa hastea da ikasleak hitz egin dezan, ikasgelako elkarrekintzan parte hartzeko aukera emanez (Saswati, 2019) horretarako, irakasleak galderak egin ohi ditu batzuetan, eta beste batzuetan aginduak ere ematen ditu; ikasleek erantzun egiten dute (R); eta ondoren, irakasleak feedbacka ematen du ikaslearen erantzunaren gainean. Bi galdera mota bereiz ditzakegu: irakasleak erantzuna ezagutzen dituenak (*display questions*) eta irakasleak erantzuna ezagutzen ez dituenak (*referential questions*) (Wright, 2016). Farooq (2007) autorearen arabera bigarrenak dira garrantzitsuagoak, erantzun luzeago eta konplexuagoerak eragiten dituztelako. Saswati-k (2019) bi feedback mota desberdintzen ditu: solaskidetza feedbacka (*interactional feedback*) eta feedback pedagogikoa (*pedagogical feedback*). Lehenengoak ez du ebaluazio-asmorik, irakasleak ikasleen erantzunak komentatzen ditu, adostasuna edo desadostasuna adieraziz. Bigarrenak ikasleen erantzunak modu positiboan eta negatiboan ebaluatzeaz gain, ikasleei laguntza ematen zaie erantzunak hobetzeko edota garatzeko, eta horretarako hainbat estrategia erabili daitezke: eredu ona ematea, galdera bidez eskatzea, pistak ematea, zuzentzea, birformulatzea, beste hitz batzuekin esatea edo garatzea (McNeil, 2012; Saswati, 2019).

IRE/F egituraren erabilera kritikatua izan da, maiz galdera itxiak egin ohi dituztelako irakasleek, eta galdera mota horiek ikasleen erantzun zehatzak eta laburrak eskatzen dituzte, ondorioz, azken fasean feedbackerako aukera gutxi eskaintzen da (Alexander, 2018). Batzuek IRE eta IRF terminoak sinonimotzat erabiltzen dituzte, beste batzuek, aldiz, bereiztu egiten dituzte, IRE solaskidetza feedbackarekin lotuz, eta IRF feedback pedagogikoarekin. Zentzu horretan hainbat autorek IRE/Fren mugak azpimarratzen dituzte, E/F hirugarren txandan ikasleei arrazoiketarako tartea mugatzen zaielako (Alexander, 2020).

Tang-ek (2019) IRF eredu klasikotik ikasleak elkarrizketa esanguratsuetan inplikatzen dituzten aldamiaje estrategia eraginkorrak identifikatzera pasatzea proposatzen du. Zentzu horretan, irakasleek erraztaile izan behar lukete eta ikasgelako elkarrekintza ez litzateke euren menpe egon behar.

3.1.3. Hizkuntza arloetan ezagutzak eraikitzeko

Eskola jakintza-arloetan antolatzen da, eta aurreko atalean aipatutakoa birgogoratuz, jakintza-arlo horiek hizkuntzaren bidez irakasten dira eskolan (Schleppegrell, 2004; (Council of Europe, 2006). Are gehiago, zenbait autoreren ustez, hizkuntza da eskolako arlo guztietan pentsatzeko tresna garrantzitsuena, jakintza-arloetan komunikatzeko, edukiak ulertzeko eta horiek manipulatzeko balio baitu (Pavon eta Perez, 2017; Nikula

eta Moate, 2018). Horregatik, arlo horietako bakoitzean ezagutza eraikitzeko eta adierazteko ikasleak dagokion hizkuntza garatu behar du (Halbach, 2022). Zentzu horretan, Europako Kontseiluaren hezkuntza-politikek ere nabarmentzen dute hizkuntza dela ezagutzaren transmisioa eta eraikuntza errazteko baliabiderik esanguratsuena (Beacco et al., 2015).

Hezkuntza-testuinguruetan erabili ohi den hizkuntza eta eguneroko gizarte-testuinguruetan erabili ohi dena desberdinak dira (Beacco et al., 2015; Coffin, 2006; Cummins, 2021), eta hortaz, ikasle batek hizkuntza desberdina beharko du eskolako hizkuntza-eskakizun akademikoei eta eguneroko bizitzakoei erantzuteko. Modu horretan, *hizkuntza akademikoa* terminoa eskola-hizkuntza eguneroko hizkuntzatik bereizteko erabili izan da literaturan. Izan ere, Hizkuntzalaritza Sistemiko Funtzionalaren (SFL) arabera, hizkuntza akademikoa da "the language through which school subjects are taught and assessed" (Schleppegrell eta Hallaron, 2011:3). Hizkuntza akademikoa, oro har, gehiago lotu izan da idatzizko formekin ahozko formekin baino (Gibbons, 2003) eta, oro har, abstrakzio-maila handiagoarekin, gramatika-konplexutasunarekin eta dentsitatearekin, baita eduki-arlo bakoitzeko termino eta kontzeptu espezializatuekin ere (Achugar eta Carpenter, 2014; Schleppegrell, 2004).

Autore askok definitu izan dute hizkuntza akademikoa, baina Bailey eta Butler-en (2003) arabera, guztiek dute oinarrian Cummins-ek (1980) egindako Pertsonen arteko Komunikaziorako Oinarrizko Trebetasunen (BICS) eta Hizkuntza Akademikorako Gaitasun Kognitiboaren (CALP) bereizketa. BICS, edozein hizkuntzatako hiztun guztiek eguneroko testuinguru sozialean beren helburuak lortzeko hizkuntza erabiltzeko gaitasunari deritzo; eta CALP eskolan alfabetatzearekin lotutako hizkuntzaren alderdien garapenean dauden desberdintasun espezifikoei (Cummins, 1980, 2021). CALPen gaitasun nahiko ez izatea lotu izan da ikasleen oztopo akademikoekin (Cummins, 2008).

Eskolatzearen hizkuntza-eskakizun espezifikoak jorratzen dituzten ikertzaile batzuek zalantzan jartzen dute CALP/BICS bereizketa zurruna, elkarrekintzak eta hizkuntza akademikoa gehiegi dimentsionatzen direla iritzita (Cummins, 2021) eta aldi berean BISC eta CALP bereizketa sinplifikazio handiegia delakoan (Scarcella, 2003; Valdes, 2004). Konstrukto horiek euren elkarrekintza eta testuinguru diskrutsibotik atera izana dago kritika horietako askoren oinarrian, hala, azpimarratzen dute elkarrekintza testuinguruan bi nozio horiek ez dutela laguntzen (Cummins, 2008). Kritikak kritika hainbat autorek proposatu dituzte marko teoriko edota esku-hartze markoak bi nozio hauetan oinarrituz eta etxeko hizkuntzan zein eskolako hizkuntzan alfabetizazio gaitasun sendoa lortzearen garrantzia azpimarratzen dute (Cummins, 2021).

Edonola ere, bitartasunak inplikatzen duen BICS/CALP banaketa baino fenomeno konplexuagoa da eskola-hizkuntzari loturiko auzia. Gibbonsek (2007) BISC/CALP bereizketa continuum gisa irudikatzen du, hala, irakasleak eguneroko hizkuntzaren ezaugarrietatik abiatuta ikasleari arlo desberdinei loturiko patroiak eta errepertorio linguistikoak bereganatzen eta menperatzen laguntzen dio.

Hizkuntza akademikoa zehazte aldera, Lorenzo eta Trujillok (2017) aipatzen dute CALPak bi atal dituela: batetik, arloari dagokion hizkuntza espezifikoa eta bestetik hizkuntza akademiko orokorra. Bigarrena zeharkakoa da eta ikasgai guztietan jarduteko behar den hizkuntza akademikoari egiten dio erreferentzia. Ting-ek (2012) dio orokorrean hizkuntza akademikoa alde batera uzten dela arloetan, baina Beacco et al.,-ek (2015) azpimarratzen dute hizkuntza akademiko orokorra menperatzeaz gain, hizkuntza akademikoaren erabilera hori modu espezifikoan menperatu behar dela arlo eta diziplina bakoitzean. Arloko hizkuntza espezifiko hori, beraz, ikaskuntza akademikoaren parte bihurtzen da (Nikula eta Moate, 2018).

Hurrengo taulan jasotzen da batetik lau jakintza-arlo desberdinetako hizkuntza espezifikoa, eta jakintza-arlo guztietan komuna den hizkuntza akademiko orokorra.

Irudia/Figure 7. Arloko hizkuntzaren eta hizkuntza akademiko orokorraren arteko aldeak (Beacco et al., 2015:23)

Examples of subject-specific v. general academic language use in different content areas		
	Subject-specific language	General academic words and phrases
Language as subject	Imagery, alliteration, theme, metaphor, plot Stylistic devices This expression is ambiguous	That is, implied, contains, leads us to believe, teaches a message Therefore, as a result, consequently, consist of, on the assumption that …
History	Revolution, emancipation, right, oligarchy To stand up for one's own right, usurp power Rights and obligations	If … then, end up with, derive, take care of, thus, suppose, prove, confirm Hypothesis, variable, infer, results, dependent (on) To increase, to decrease, to stay even or to even out
Mathematics	Reciprocal, balance, proof, hypotenuse, obtuse, matrix The curve is (sharply) rising/falling	
Science	Mitosis, gravity, force, sublimation Global warming	

Ikasleek erabili behar dituzten ezagutzak aurreratuagoak eta espezializatuagoak diren heinean, hizkuntza gero eta abstraktuagoa eta metaforikoagoa bihurtzen da (Fang, 2012). Eskolako etapa desberdinetan zehar, jakintza-arloetako hizkuntza-eskakizunak

aldatuz doaz, eta ikasleek hizkuntzaren erregistro akademikoak erabiltzeko duten gaitasuna garatzen jarraitu behar dute (Cummins, 2021), nerabezaroan zehar eta, potentzialki, bizitza osoan zehar, gero eta gizarte-testuinguru gehiagotan aritu behar diren heinean. Hizkuntza akademikoaren ezaugarri horiek ikaskuntza-erronkak dakarzkie ikasle guztiei, irakaskuntza-hizkuntza edozein delarik ere.

Arloko hizkuntza (*Subject-specific language*) zuzenean lotzen da arloko alfabetatzea (*disciplinary literacy*) kontzeptuarekin. Eskolatzearen testuinguruan alfabetatzeak forma desberdinak hartzen ditu (Halbach, 2022). Shanahan eta Shanahan-ek (2008) hiru alfabetatze mota bereizten dituzte: oinarrizko alfabetatzea (*Basic literacy*), erdi-mailako alfabetatzea (*intermediate literacy*) eta arloko alfabetatzea (*disciplinary literacy*). Hurrengo irudiko piramideak alfabetatzearen garapenaren espezializazio gero eta zehatzagoa irudikatzen du (Shanahan eta Shanahan, 2008:44).

Irudia/Figure 8. Alfabetizazioaren garapena (Shanahan eta Shanahan, 2008:44)
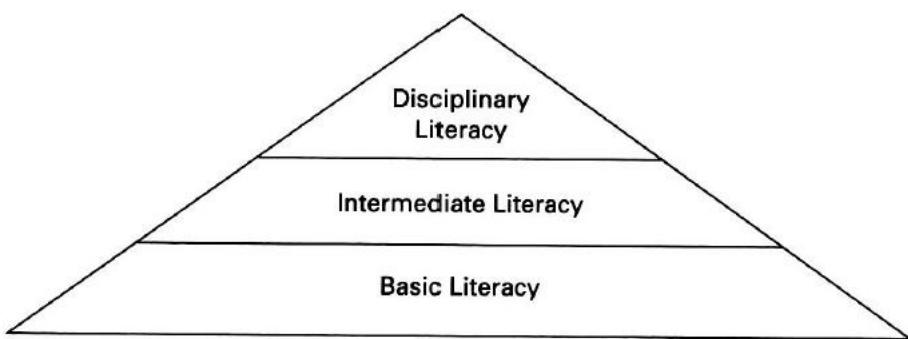
Piramidearen oinarrian **oinarrizko alfabetatzea** kokatzen da, horren baitan daude dekodetzea eta irakurketetan asko erabiltzen diren hitzen ezagutza. Oinarrizko alfabetatzea Haur Hezkuntza eta Lehen Hezkuntzako etapetan zehar garatzen da.

Bigarren maila batean, **erdi-mailako alfabetatzea** dago: zeregin asko aurrera eramateko behar diren alfabetatze-trebetasun komunak lirateke, hala nola, ulermen estrategia orokorrak, hitz arrunten esanahiak eta oinarrizko hitz-jarioa. Maila horretako alfabetatzea Lehen Hezkuntzan garatzen da.

Eta azkenik, piramidearen goiko aldean, **arloko alfabetatzea** daukagu. Kontzeptu horrek jakintza arloetan (matematikan, historian, zientzian, literaturan…) berariazkoak diren komunikazio modu espezifikoei dagozkien alfabetatze-trebetasunak izendatzen ditu.

Arloko alfabetatzeak diziplina horietan ezagutza sortzen, komunikatzen eta erabiltzen dutenek dituzten ezagutza eta trebetasunei egiten die erreferentzia (Shanahan eta

Shanahan, 2012). Arloko alfabetatzea izendatzeko hainbat termino erabili izan dira, ikuspegi, jatorri eta garaiaren arabera, besteak beste: *subject areas literacy*, *subject-matter literacy*, *disciplinary literacy*, *specific literacy*, *subject literacy*… (Moje, 2008). (Shanahan eta Shanahan, 2008) aipatzen dute zenbait autorek *Content area literacy* ere sinonimotzat hartu izan dutela; hala ere, *Content area literacy* ikasleek edozein diziplinatan testuak irakurri ahal izateko behar dituzten estrategia komunen multzoari deritzo (Fang, 2012; Shanahan eta Shanahan, 2012; Moje, 2008). Hau da, *Content area literacy-k* ez du diziplina espezifikoetako bereizgarrietan arreta jartzen, baizik eta ikasleei informazioa eskuratzeko behar dituzten tresnetan, diziplinaren izaera edozein delarik ere (Shanahan eta Shanahan, 2012).

Piramidean gora egiteak esan nahi du gero eta trebetasun eta errutina sofistikatuagoak eta, aldi berean, ez hain orokorrak ikastea, izan ere, ikasmailetan aurrera egin ahala, alfabetatzea eta testuak gero eta espezializatuagoak izaten dira (Shanahan eta Shanahan, 2008; Schlepegrell, 2004). Hori dela eta, autoreon arabera, arloko alfabetatzea bigarren hezkuntzan zehar garatzen da, diziplinetako eskakizunak erabakigarriago bihurtzen baitira Bigarren Hezkuntzan (Tang, 2016). Bigarren hezkuntzan, ikasleak gero eta konplexuagoak diren hizkuntza-formekin eta errepresentazioekin topo egiten hasten dira, diziplinaren berariazkoak direnak (Lemke, 1990). Horietan arreta jartzea ezinbestekoa da, diziplinetan txertatutako goi-mailako trebetasunak eta gaitasunak ez baitira ikasteko errazak eta, gainera, oso gutxitan irakasten dira (Shanahan eta Shanahan, 2008).

Mundu mailako azken curriculum erreforma eta *estandarren* aldaketa joerek arlo guztietako alfabetatzearen garapenean arreta jarri badute ere, oraindik ez dago argi arloko alfabetatzea praktikan nola irakatsi behar den (Tang, 2016). Argi dagoena da ikasle guztiek modu eraginkorrean ikas dezaten, hainbat arlotan alfabetatu behar direla eskolan, eta alfabetizazio horiek esplizituki irakasten ez badira, ikaskuntzan oztopoak izan ditzaketela (Coyle, 2020). Izan ere, neurri handi batean, ikasleak arloetan lortzen duen arrakasta hizkuntza-ezagutzen eta gaitasunen jabekuntzaren araberakoa izango da (Kidd, 1996).

Jakintza-arloak gizartean diziplina gisa onartuak daude eta horregatik transmititzen dira eskolan. Jakintza-arlo bakoitzak mundua ikusteko ikuspegi desberdinak eskaintzen ditu (Polias, 2006) eta prozesu historikoen emaitza dira. Bakhtinek (1984) gogorarazten digu giza-jardun bakoitzak badituela berezko generoak eta ezaugarri eta egoera zehatzei egokituta ekoizten duela hiztunak bere berbaldia. Autorearen hitzetan funtzio jakin batekin (zientifikoa, teknikoa, egunerokoa…) eta baldintza zehatz batzuei erantzunez

sortzen dira genero jakin batzuk, nahiko egonkorrak eta mugatuak diren esateko moduak. Zentzu horretan, ikuspegi soziokulturalari jarraiki, diziplinak praktika partekatuak dituzten komunitateak dira, zeintzuetan ezagutza etengabe sortzen, ulertzen eta berrikusten den. Praktika horietan erabiltzen diren hizkuntza formen bidez, garatzen dira diziplinotako teoriak, egiten dira interpretazioak eta sortzen dira testu espezializatuak (Fang et al., 2008). Ildo beretik, O'Brien, Moje eta Stewartek (2001) diote diziplinak diskurtsoz eta praktika kulturalez osatzen direla; hau da, diziplinak testu-mota jakin batzuk helburu jakin batzuekin irakurtzen, idazten, esaten… dituzten kulturak dira, eta, beraz, alfabetatze-praktika jakin batzuk eskatzen dituzte (O'Brien et al., 1995). Zentzu horretan, Mojek (2008) dio ikasleek erreferentziazko diziplina-komunitateetan, hau da, ikasgaietan, ezagutza nola eraikitzen den ere ezagutu eta ulertu behar dutela.

Hizkuntzalaritza Sistemiko Funtzionalak (SFL) jakintza-arlo desberdinetako berbaldiak ezaugarritu ditu eta desberdintasunak identifikatu dira (Fang et al., 2008; Halliday eta Martin, 2003); Hizkuntza-eredu edo gramatika egitura horiek, hiztegi teknikoaren ezberdintasunak ez ezik, diziplinen izaera eta xedea sostengatzen duten beste hizkuntza desberdintasun batzuk ere badituzte (Shanahan eta Shanahan, 2012), baita hizkuntza desberdintasun horietatik harago doazen alderdiak ere, ikasgaietan ezagutza eraikitzeko moduekin zerikusia dutenak (Nikula, 2015).

> "Language differs in the discourses of different subject areas due to differences in the epistemologies of the disciplines as well as differences in methodologies and pedagogies. Each subject area of schooling has its own expectations in terms of the genres that students will read and write, and each genre is constructed through grammatical resources that construe the disciplinary meanings" (Schlepegrell, 2004:113).

Jakintza-arlo guztietako alfabetatzeak ez dira maila eta sakontasun berarekin aztertu. (Shanahan eta Shanahan, 2012) zientzia eta historiaren alfabetatzeak aztertu zituzten. Ildo beretik, Europako Kontseiluak curriculumeko edukien irakaskuntzaren hizkuntza-dimentsioa aztertu zuen eta 5 dokumentu argitaratu ziren hainbat arlori dagokien hizkuntza-eskakizunak jasotzen dituztenak (Beaco et al., 2010): *"Language and School Subjects"*; "*Language for the Learning/teaching History*"; "*For the Learning/teaching Sciences*"; "*For Learning/teaching Literature*"; "*For Learning/teaching Mathematics*". Beste arlo batzuetako alfabetatzeak, aldiz, gutxiago ikertu dira. Azken hilabeteetan Salvador-Garcia et al.-ek (2022) hezketa fisikoaren alfabetatzea aztertzeko ikerketa bat egin dute, eta ondorioztatu da instrukzio testuak gailentzen direla.

Lan horiek guztiek baieztatzen dute hizkuntza testuinguru sozialetik banaezina dela (Cummins, 2021) eta testuinguruak definitzen duela esanahiak eraikitzeko behar den hizkuntza (Green, 1988). Eskolan, jakintza-arloek ezartzen dute testuingurua (Polias, 2006), eta beraz, arlo bakoitzak osatzen duen azpikulturan ekoiztu, ulertu, interpretatu beharko du ikasleak (Moje, 2008). Hau da, jakintza-arlo horien genero bereizgarrien hizkuntza-eskakizunak arloko kulturaren testuinguruaren parte direnez (Llinares, 2015), ikasleak eskolako arloetan osoki parte hartzeko, alderdi linguistiko, kognitibo eta hizkuntzari dagozkion alderdi soziokultural espezifikoak manipulatu behar ditu (Scarcella, 2003).

Horrek guztiak eragin zuzena izan du diziplina horien ikaste-irakaste prozesuetan (Pellegrino eta Hilton, 2012). Jakintza-arloetako ezagutza eta trebetasunak curriculumean jasotzen dira eta ikasleak bere hezkuntza arautuaren ibilbidean bereganatu eta garatu behar ditu (Nikula et al., 2016). Gainera, jakintza-arloetako irakasleek beren irakasgaiari dagozkion edukien hizkuntza-dimentsioa ezagutu behar dute, eta ikasleek hizkuntza eta edukiarekin lotutako helburuak lortu ditzaten estrategiak eta teknikak erabiltzen jakin behar dute (Beacco et al., 2015). Modu berean, arloko alfabetatzea garatzeko, edukiaz gain, diziplinen berezkotasunak ere menperatu behar ditu ikasleak. Gainera, diziplinako edukia, neurri handi batean, hizkuntzaren bidez eskuratzen eta ebaluatzen denez, funtsezkoa da diziplinak ikasterakoan hizkuntzan ere arreta jartzea (Fang, 2012). Izan ere, ikasgai batean alfabetatzeak esan nahi du batetik, jakintza-arloko ezagutza eraikitzeko erabiltzen diren askotariko generoen ekoizle bihurtzea (Van Kampen et al., 2020); eta bestetik, gero eta gaitasun handiagoa izatea ikasgai horri dagozkion ezagutzak estilo egokian adierazteko, komunikazio-moduen berariazko helbururak lortzeko egokiak diren generoak erabiliz (Meyer et al., 2018; Coyle eta Meyer, 2021; Morton, 2020; Beacco et al., 2015). Genero bat erabiltzeko, testuaren egituraz gain, berariazko testu baliabide, gramatika eta hiztegia ere ezagutu behar dira, testu edo genero tipiko bakoitzak bere "hizkuntza-arauak" baititu (Morton, 2020). Zenbait genero, hala nola narratiba, deskribapena, azalpena eta argumentazioa, orokorrak dira ikasgaien artean (aldaketa batzuekin), eta, beraz, esan daiteke horiek ikastea oso baliagarria dela, arloen artean transferitu daitekeen ezagutza baita (Morton, 2020). Hala ere, ikasleek ulertu behar dute jakintza-arlo bakoitzeko testu-generoen ezaugarriak desberdinak direla, arloko kulturaren araberakoak (Llinares, 2015; Polias, 2006).

Hainbat adituk urteetan landu dute eskolan alfabetatzea nola irakatsi daitekeen (Veel, 1997; Coffin, 2006; Halliday eta Matthiessen, 2004; Llinares et al., 2012) eta azpimarratu dute ikaskuntza prozesua arrakastatsua izan dadin alfabetatze horiek esplizituki irakatsi behar direla. Edukiaren ikaskuntzak hizkuntzaren ikaskuntza dakarrela oinarri hartuta,

eta arloko alfabetatzearen garapena sustatzeko, irakasgaien hizkuntza-eskakizun espezifikoek makro mailako aldamiajea eskatzen dute, *"systemic" scaffolding* or *"hard" scaffolding* deiturikoa (Beacco et al., 2015). Modu horretan ikasleei kontzeptuen ezagutza (*conceptual knowledge*) berriak eskuratzen laguntzen zaie, ikasgaiaren berariazko trebetasun, estrategia eta lan egiteko modu berriak garatzearekin batera (Kniffka et al., 2019). Berariazko lanketa horren faltan ikasleek ikaskuntzan oztopoak izango dituzte (Coyle, 2020; Shanahan eta Shanahan, 2008), alfabetatze horiek eguneroko hizkuntzatik aldentzen baitira. Azken urteetan sortu den Pluriliteracies Teaching for Learning (PTL) ereduak ere (Meyer, 2015) arloko alfabetatzeak jartzen ditu ikaskuntza sakonagoaren erdigunean, eta horiek lantzeko eta irakasteko eredu berri bat proposatzen du. Eredu horrek edukiaren eta hizkuntzaren arteko integrazioa jartzen du arloko alfabetizazioak lantzeko gakotzat. Izan ere, jakintza arloetan ezagutzak eraikitzeko, edukia eta hizkuntza beharrezkoak dira (Dalton-Puffer, 2007). Hurrengo atalean sakonduko da ikuspegi horretan.

Laburbilduz, jakintza modu aktiboan eraikitzeko eta irakasgaiaren alfabetatze espezifikoak sustatzeko, ikasleak edukia kontzeptualizatu behar du, ikasgaiaren kulturara egokituta. Irakasgaiaren Kulturak zehazten du nola erabiltzen den Kognizioa edukia Kontzeptualizatzeko eta nola erabiltzen den Komunikazioa ezagutza elkarrekin eraikitzeko (van Kampen et al., 2021), hurrengo atalean ikusiko dugun Coyle-ren (2007) 4C teoriarekin bat datorrena.

3.2. HIZKUNTZAREN ETA ARLOAREN ARTEKO INTEGRAZIOA

"Learning the content is equivalent to learning the language, and these two aspects are actually two sides of the same coin"

Tang (2019)

Dalton-Puffer et al. (2010) autoreen arabera, teoria soziokulturalak CLIL testuinguruetan ikaskuntza ulertzeko ikuspegia eta oinarria ematen du. Hizkuntza eta edukien integrazioaren azterketa orokorrago eta sakonago bat egin ahal izateko, ikuspegi soziokulturala Systemic Functional Linguistic (SFL) ikuspegiarekin osatzea gomendatzen da (Morton eta Llinares, 2017; Llinares et al., 2012). SFLk hizkuntza entitate sistemiko gisa ulertzen du, hizkuntzaren erabiltzaileek baliabide-lexiko gramatikal desberdinen artean aukera dezaketelako (Halliday eta Matthiessen, 2014). Beraz, bi teoria hauek osagarriak dira (Bauer-Marschallinger, 2022).

Hizkuntzaren eta edukiaren integrazioa soziologo, pedagogo eta hizkuntzalarien kezka orokorra izan da hainbat hamarkadatan (Nikula, et al., 2016). Bai SFL ikuspegian, eta

bai ikuspegi soziokulturalean hizkuntza modu berean ulertzen da, eta hizkuntzaren ikaskuntza eta erabilera ikasgelako helburu pedagogikoekin lotzen da (Nikula et al., 2013). Ikuspegi soziokulturalak (Vygotsky, 1978) eredu interesgarriak eskaintzen ditu ikasgelako diskurtsoan ezagutzaren eraikuntza aztertzeko (aldamiajearen ideia esaterako), eta SFLk (Halliday, 1978) xehetasunez deskribatzen du egoera bakoitzak eskatzen duen hizkuntzaren erabilera. Beraz, hizkuntzaren ikuspegia esanahi, funtzio eta testuinguruei lotuta dagoenez, SFL egokia da edukia eta hizkuntzaren integrazioa ulertzeko eta aztertzeko (Llinares eta McCabe, 2020). Azken bi hamarkadetan mundu osoko hezkuntza-testuinguru desberdinetan egindako ikerketek erakutsi dute SFL ikuspegia eraginkorra dela hizkuntzaren eta edukiaren analisi integratua egiteko (Nikula et al., 2013).

SFLk eta ikuspegi soziokulturalak defendatzen dute hizkuntza-egiturak irakasteak, aldi berean, irakasgai akademikoa irakastea dakarrela (Schleppegrell eta O'Hallaron, 2011; (Mortimer eta Scott, 2003), forma eta edukia banaezinak baitira (Kelso, 1995). Atalaren hasieran agertzen den aipuan Tang-ek (2019) ere aipatzen du, hizkuntza eta edukia txanpon beraren bi aldeak direla. Hala ere, bereizketa bat egiten du:

> "At a lower level of language, lexico-grammar is easier to delineate content from the language aspect: grammar, spelling, punctuation and noun phrases. However, at a higher level of language (text-level) that deals with the thematic patterns and genres of science, it is not so easy to make the distinction. Therefore, in scenarios that involve higher levels of language, it may not be feasible to separate content and language as distinct objectives or foci, for both analytical and pedagogical purposes" (Tang, 2019:11).

3.2.1. Hizkuntza eta edukiak integratzeko ikaste-irakaste metodoak

Hizkuntza eta edukiak integratzen dituzten metodo edo programa ugari daude: CLIL, murgiltzea, edukietan oinarritutako ikaskuntza (CBI), hezkuntza elebiduna… Europan CLIL da ezagunena. CLIL hezkuntza-ikuspegi duala da, non hizkuntza gehigarri bat erabiltzen den edukia nahiz hizkuntza ikasteko eta irakasteko (Coyle et al., 2010; Marsh, 2002). Cenoz et al.,-ek (2014) azpimarratzen dute zaila dela zenbait kasutan CLIL eta CLIL ez diren ikaste-testuinguruak bereiztea, CLIL ereduek duten aniztasunagatik, eta horiek edukiak eta hizkuntza integratzen dituzten beste programa batzuekin duten antzekotasunengatik, hala nola murgiltze ereduarekin; hala ere, Lasagabasterrek eta Sierrak (2011) diote bi horien artean alde nabarmenak daudela. Edonola ere, edukia eta hizkuntza gelako praktikan orekatzeko eta integratzeko moduari erreparatzea

garrantzitsua da bi programetan (Villabona eta Cenoz, 2022). Modu berean, Cenozek (2015) dio CLIL eta CBI programek ere ezaugarri berberak dituztela eta ez direla pedagogikoki desberdinak; horregatik, CLIL eta CBI sinonimotzat erabili izan dira sarritan, CLIL terminoa da Europan hedatuena izanik, eta CBI, berriz, Estatu Batuetan eta Kanadan. Beraz, ikus daitekeenez, CLIL modu askotara uler daiteke, eta ondorioz, nahasmena sor dezake irakurleen artean (Lasagabaster eta Sierra, 2011).

CLIL akronimoa termino generiko gisa erabiltzen da hizkuntza ikasgaiak ez diren beste ikasgai jakin batzuk irakasteko bigarren hizkuntza bat (atzerrikoa, zein estatuko beste hizkuntza ofizial bat) erabiltzen duten irakaskuntza mota guztiak deskribatzeko (Eurydice, 2006); eta horregatik, dozena bat hezkuntza-ikuspegi biltzen ditu: murgiltzea, hezkuntza elebiduna, hezkuntza eleanitza, besteak beste (Mehisto et al., 2008). Ikuspegi horien inplementazioan ez dago alde handirik, eta esan daiteke CLILen egin diren ikerketako ondorioak beste metodoetan ere kontuan hartu daitezkeela (Cenoz, 2015). Hala ere, metodoen artean badaude zenbait ñabardura orokor (Dalton-Puffer eta Nikula, 2014; Ruiz de Zarobe eta Cenoz, 2015), esaterako, murgiltze programetan hizkuntza beikularra edo irakaskuntza-hizkuntza ikasleen testuinguruan badago, hau da, etxeetan edo gizartean hitz egiten da. CLIL programetan, aldiz, CLILen irakaskuntza-hizkuntza ikasleen lehenengo hizkuntza ez den bestelako edozein hizkuntza izan daitekeen arren, CLIL programetan ingelesa bihurtu da atzerriko hizkuntza nagusia (Lasagabaster eta Sierra, 2011; Dalton-Puffer et al., 2010), eta ikasle askok hezkuntza formaleko testuinguruetan bakarrik dute hizkuntza horrekin harremana (Lasagabaster eta Sierra, 2011).

Coylen (1999) ustez, jakintza-arloak edukia eta hizkuntzaren bereizketatik harago doaz eta hori dela eta, hainbat mailatako integrazioa bereizteko eta CLILen pedagogien garapena bultzatzeko, 4C izeneko marko kontzeptuala garatu zuen ikuspegi holistiko batetik, eta teoria soziokulturalean oinarrituta, edukiaren (Content - jakintza-arloa), komunikazioaren (Communication - hizkuntza), kognizioaren (Cognition, ikaskuntza eta pentsamendua) eta kulturaren (Culture, norberaren eta bestearen kontzientzia soziala) arteko erlazioan oinarritzen da.

Irudia/Figure 9. 4C Markoa (Coyle, 2007:551)
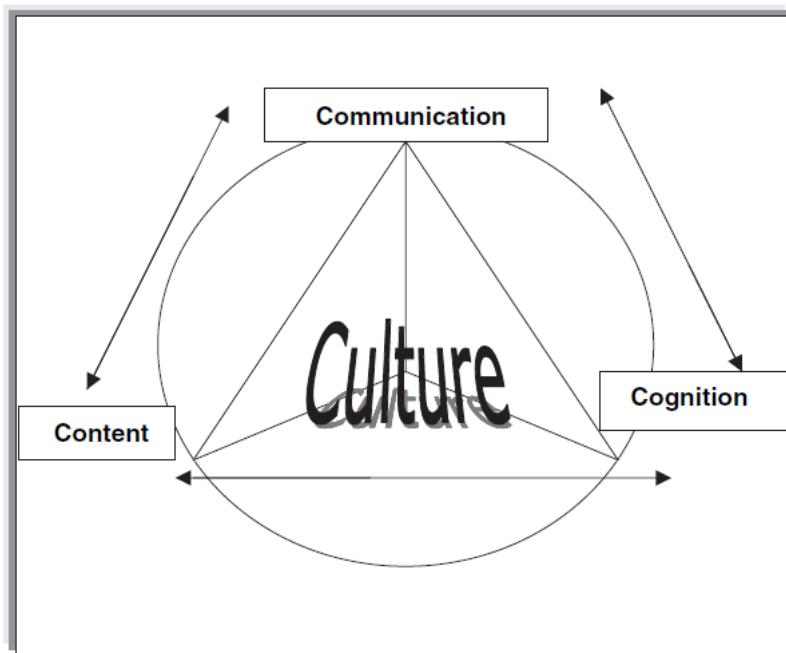
4Cs teoriak iradokitzen du CLIL eraginkorra izatea lortzen dela ezagutzan, trebetasunetan eta edukiaren ulermenean aurrera eginez, prozesamendu kognitiboan parte hartuz, komunikazio-testuinguruan elkarrekintzan arituz, hizkuntza-ezagutza eta -trebetasun egokiak garatuz, eta kulturarteko kontzientzia sakonago baten esperientziaren bidez (Coyle, 1999).

4C horien artean, komunikazioak (*Communication*) CLIL irakasleak eta ikasleak inplikatzen ditu Language Triptych edo Hizkuntza Triptikoa (Coyle, 2007) deiturikoan. Hizkuntza Triptikoa irudikatze kontzeptual bat da hizkuntzaren eta eduki helburuak elkarri lotuta adierazteko (Martin del Pozo, 2016), eta horregatik, kontuan hartzea funtsezkoa da hizkuntzaren eta edukiaren arteko integrazioa gertatu dadin. Hizkuntza triptikoak harreman ikuspegi batetik hizkuntza nola ikasten den deskribatzeko hiru ikaskuntza modu bereizten ditu: ikaskuntzako hizkuntza (*language of learning*), ikaskuntzarako hizkuntza (*language for learning*) eta ikaskuntza bitarteko hizkuntza (*language through learning*). Hiru hizkuntza mota horiek eduki helburuak eta hizkuntza helburuek lotzen dituzte (Martin del Pozo, 2016).

Irudia/Figure 10. Language Tryptich (Coyle et al., 2010)
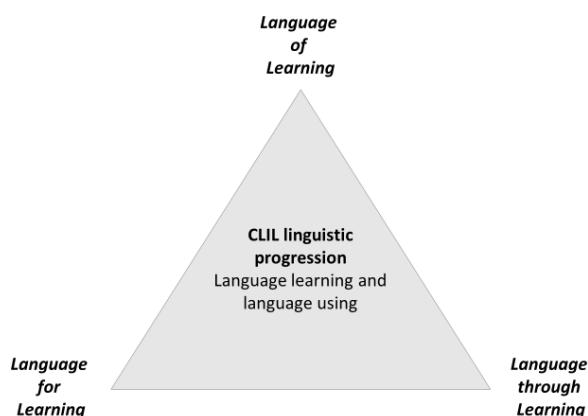
Mortonek (2020) horrela laburbiltzen du hizkuntza triptikoa osatzen duten hiru osagaiak edo alderdiak:

- Ikaskuntzako hizkuntza (*language of learning)* arlo bati buruz hitz egiteko eta idazteko beharrezkoak diren hitzei eta gramatikari dagokie, gehienetan terminologia espezifikoa. Hezkuntza elebiduneko programa gehienetan, hau izan da sarritan erabilitako hizkuntzaren kontzepzio bakarra.

- Ikaskuntzarako hizkuntza *(language for learning)* da ikasleek gelako jardueretan parte hartzeko behar duten hizkuntza. Adibidez, gai baten inguruan eztabaidatzeko ikasleek eman beharreko argudioak. CLIL testuinguru askotan, irakasleek ez diote arreta nahikorik jartzen ikaskuntzarako hizkuntzari, nola egin ez dakitelako edo eman behar duten edukia emateko denbora kentzen diela sentitzen dutelako.

- Azkenik, ikaskuntza bitarteko hizkuntza *(language through learning)* pentsatzeko trebetasunak (*thinking skills*) gelako jardueretan aplikatzean ikasten den hizkuntza berria da. Askotan zaila da aurreikustea, gerta baitaiteke ikasleek autonomoki lan egitea eta hori egitean hizkuntza berria ikastea.

CLILen akronomian "integrazio" hitza dagoen arren, "edukien eta hizkuntzen integrazioa" esamoldeak berak hizkuntzaren eta edukien bereizketa adierazten du (Dalton-Puffer, 2007), eta bereizketa horrek "hizkuntza" eta "edukia" zer den azaltzea eskatzen du, edukiaren eta hizkuntzaren arteko erlazioa argitzea edozein irakaskuntza eta ikaskuntza testuingurutarako beharrezkoa izanik (Nikula et al., 2016).

Edukien eta hizkuntzen irakaskuntzaren koordinazioaren garrantzia eztabaidaezina da, baina integrazio hori nola gelaratzen den ez dago hain argi (Pavón et al., 2015). Izan ere, orain arte aipatutako CLIL programek hizkuntzaren eta edukiaren integrazioaren oinarrizko ideia partekatzen dute, baina desberdin gelaratzen dira (Villabona eta Cenoz,

2022). Autore hauen arabera irakasleen *background* desberdinak, esperientzia, eta integrazioa ulertzeko moduak, besteak beste, izan daitezke CLIL programak desberdin aplikatzearen arrazoietako batzuk. Ruiz de Zarobek eta Cenozek (2015) ere aipatzen dute faktore soziokulturalek eta hezkuntzarekin lotutakoek eragina izan dezaketela, hala nola, programan parte hartzeko derrigortasuna, programen intentsitatea, edota hizkuntzarekin eta edukiarekin lotutako helburuak eta testuinguruak; izan ere, herrialde batetik bestera CLIL programetan desberdintasunak nabari daitezke, baita ikasgela batetik bestera ere.

Autore desberdinek *content-focused* edo *Hard CLIL*, eta *language-focused* edo *Soft CLIL* programak bereizten dituzte (Cenoz eta Villabona, 2022; Coyle, 2007). Lehenengoak esan nahi du helburu nagusia edukia dela, eta ez hizkuntza; eta bigarrenak, aldiz, helburua hizkuntza dela eta irakasgaiaren edukia hizkuntza-helburuaren mende dagoela.

Ildo beretik, Met-ek (1999), CBIn ere, mota desberdinak kokatzeko continuum bat proposatu zuen, continuumaren mutur batean edukia helburu duten programak kokatuz, eta hizkuntza helburu dutenak, beste muturrean.

Irudia/Figure 11. Edukia eta hizkuntzaren integrazioaren continuuma (Met, 1999)
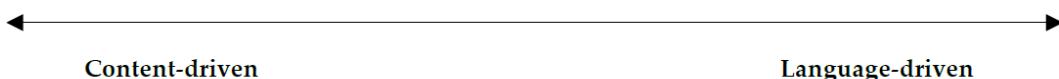
Beraz, integrazioa ulertzeko modu asko daude, horrek zaildu egiten du praktika. Integrazioa modu sakonean gertatzen ez denean, ikasleek hizkuntza akademikoan gabeziak dituztela ikusi da (Meyer, 2015). Berriki, azpimarratu da integrazio kontzeptua jakintza-arlo desberdinetan garatu behar den hizkuntza gaitasunetara birbideratu behar dela (Nikula eta Moate, 2018). Horrek eskatzen du eguneroko hizkuntzatik hizkuntza akademikorako progresioa lantzea, hau da, eguneroko hizkuntza zehatz eta partekatutik, hizkuntzaren erabilera abstraktu eta teknikorako continuumean bidea erraztea (Forey eta Polias, 2017).

3.2.2. Integrazioa eskolatze hizkuntza ikasleen lehen hizkuntza denean

> "L1 competence must most probably be among the first
> causes for overall learning déficits"
> (Lorenzo eta Trujillo, 2017:183).

Hizkuntzaren eta edukiaren integrazioa atzerriko hizkuntzan gehiago ikertu bada ere (CLIL), lehen eta bigarren hizkuntzak ere kontuan hartu behar dira eskolatze hizkuntzak (*languages of schooling)* direlakoen baitan (Lorenzo eta Trujillo, 2017; Beacco et al., 2010). Horrek esan nahi du alfabetatzearen garapenak lehen hizkuntzaren irakaskuntzaren erdigunea ere izan behar duela (Halbach, 2022). Hori da, hain zuzen ere, Europako Kontseiluko Hizkuntza Politika Sailak egindako ohartarazpena, eta hizkuntzek eskolatzean duten eginkizunaz ohartarazteko hainbat ekimen egin ditu azken urteotan. Ikerketek erakusten dute hizkuntzari eta edukiari dagozkion helburuak eta gaitasunak curriculumean txirikordatzen direla (Lorenzo eta Trujillo, 2017). "The language dimension in all subjects" (Beacco et al., 2015) izeneko proiektuak eskolatze-hizkuntza aparteko irakasgaitzat hartu beharrean, irakasgai guztien funtsezko osagaitzat ulertzea proposatzen du (Pavón, 2018).

Gainera, eskolako jakintza-arlo guztietan ezagutza eraikitzea eremu formalean sortutako diskurtso zientifiko, artistiko eta teknikoak behar bezala adierazteko gaitasunaren mende dagoelako ideian oinarrituta (Moje, 2008; Green, 1988; Schleppegrell, 2004; Beacco et al., 2015), "Languages of schooling" hizkuntza-politikako lan-ildoa sortzen da, curriculumaren, konpetentzia-mailen eta ebaluazioaren inguruko ekimenak bultzatzeko eta hezkuntza hobetzeko helburuarekin. Languages of schooling-ek hizkuntzari ematen dio lehentasuna hezkuntza prozesu guztietan (Beacco et al. 2015), eta helburutzat du eskolako jarduera guztietan alfabetatzeari garrantzia ematea (Lorenzo eta Trujillo, 2017). Languages of schooling-en garapen koordinatuak eragin zuzena du hizkuntza akademikoaren aurrerapenean; izan ere, irakasgaien alfabetatze espezifikoak sustatzearen onurak atzerriko hizkuntzaren bidez irakasten diren irakasgaiekin lotutako diskurtso akademikoa hobetzetik harago doazela nabarmentzen da, eta, hain zuzen ere, ikasleen lehen hizkuntzaren bidez irakasten diren irakasgaietara zabal daitezkeela (Pavón, 2018).

Coylek eta Meyerrek (2021) *language of schooling*-en erronketan sakontzeko elementu linguistiko espezifikoak (*Subject-Specific Language*), orokorrak (*Generic Academic Language*) eta hizkuntza arrunta (*Colloquial language*) landu beharra adierazten dute. Eta gainera, Hallet-ek (2012) dio hizkuntza akademiko eta arruntaren artean joan-etorriak egin behar direla.

Irudia/Figure 12. Languages of schooling osatzen duten alderdiak (Coyle eta Meyer, 2021:77)
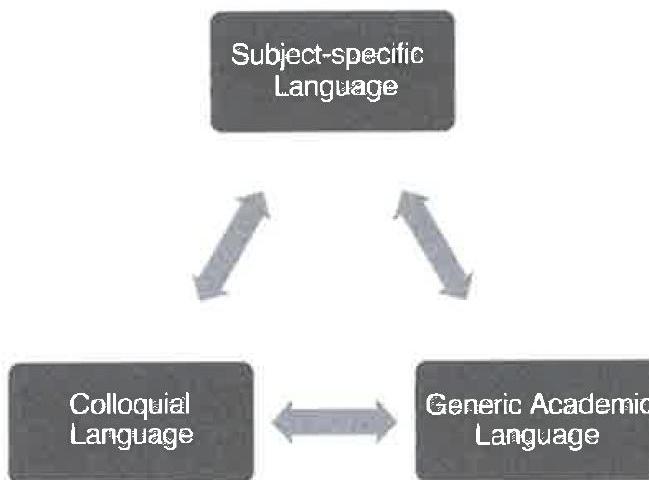
Hezkuntza eleanitzean egindako ikerketek adierazten dute, desberdintasunak desberdintasun, edukiak ikasteko moduak, egon daitezkeen oztopoak eta hizkuntza akademikoaren eskakizunak alderagarriak direla lehenengo zein bigarren hizkuntzan ikasi (Llinares eta Whittaker, 2010). Hala, CLILen egin diren integrazioari buruzko ikerketak katalizatzaileak izan dira, hizkuntzak (lehen, bigarren edo hirugarrena izan) edozein diziplinaren ikas-irakaskuntzan duen rolari buruzko kontzientziazioa areagotzeko (Llinares, 2015).

Ildo beretik, azpimarratzen da irakaskuntza-hizkuntza edozein delarik ere (lehen, bigarren edota enegarren hizkuntza) "language does not occur in a vacuum, and their natural occurence in education is a vis a vis the content areas" (Lorenzo eta Trujillo, 2017:182). Horregatik, irakaskuntza-hizkuntza lehen hizkuntza duten ikasleei ere irakatsi egin behar zaie erregistro eta kultura horietan komunikatzen. Hala ere, batzuetan jakintzat ematen da ikasleek lehen irakaskuntza-hizkuntza ezarritako helburuak lortuko dituztela, eta hizkuntza horren bidez irakasten diren irakasgaien alfabetatze akademikoak automatikoki garatuko dituztela soilik irakaskuntza-hizkuntza ikasleen lehen hizkuntza delako (Pavón eta Perez, 2018).

Irakaskuntza-hizkuntza edozein delarik ere, komunikazioa ikaskuntzarako bide bat da (Lorenzo eta Trujillo, 2017). Ikasleen lehenengo hizkuntza-gaitasunean (L1) zailtasunak izatea ikaskuntzaren defizitaren arrazoietako bat dela diote Lorenzok eta Trujillok (2017). Ikasle batzuen ikaskuntza-emaitza txarren arrazoia ikaskuntza-arazoen edo eraginkortasunik gabeko ikaskuntza-estilo eta estrategia batzuen ondorioa dela pentsa liteke, nahiz eta ziurrenik hizkuntza-gaitasun akademiko desegokiaren ondorio izan (Pavón, 2018).

Hurrengo atalean PTDL markoa aurkeztuko da, atal honetan aurkeztu diren hizkuntzaren eta edukiaren integrazioak sortzen dituen oztopo eta zailtasunei aurre egiteko sortu den markoa, zeinak arloko alfabetatzea jartzen duen ikaskuntza sakonagoaren erdigunean, eskolatze-hizkuntza edozein delarik ere.

3.3.   PTDL MARKOA

3.3.1. PTDL markoaren jatorria

Tradizionalki hizkuntzakoak jotzen ez diren jakintza-arloetan, hala nola matematika, gizarte-zientziak, artea edo zientzia esperientalak, irakasgaiaren edukian jarri izan da arreta (Gibbons, 1991). Oro har, ez hizkuntza irakasleek ez irakasgaietako irakasleek ez diote arretarik jartzen hizkuntzak ikaste prozesuan duen eginkizunari (Coyle, 2015). Horrek ekarri du hizkuntza eta edukiak integratzen dituzten ereduetan integrazioaren kontzeptua modu desberdinetan ulertzea eta inplementatzea (Nikula et al. 2016), eta ondorioz, ikasleek hizkuntza akademikoan gabeziak izatea (Meyer eta Coyle, 2017), lehenengo zein bigarren hizkuntzan.

Aurreko atalean ikusi dugu hizkuntza akademikoan gabeziak izateak ikaste prozesuan zailtasunak izatea dakarrela. Hutsune horri aurre egiteko, eta ikasleek arlo guztietan ikaskuntza sakonagoa[1] lortzeko helburuarekin, The Graz Group izeneko taldeak, Europako Kontseiluko Hizkuntza Modernoen Europako Zentroak finantzatutako CLIL aditu eta ikertzaile taldeak, Pluriliteracies Teaching for Deeper Learning (PTDL) eredua sortu zuen (Meyer eta Coyle, 2017).

> "A pluriliteracies approach acknowledges that learning a subject is about so much more than simply learning content. It is based on the idea that education is a developmental activity. Therefore, learning a subject is not about reciting facts but about learners deepening their conceptual understanding which may eventually lead to the development of transferable skills and to new ways of thinking" (Meyer, 2015:2)

PTDL markoak, arloetan ikasitakoa hizkuntzara ekartzeak garapen kontzeptuala laguntzen duelako ideian oinarrituta, (Coyle eta Meyer, 2021) eta arloko alfabetatzea (*subject-specific literacy*) ikaskuntzaren erdigunean jarriz, ikaskuntza sakonagoa lortzea du helburu (Meyer, 2015; Coyle, 2015). Izan ere, arloko alfabetatzeak funtsezkoak dira ikaskuntza sakonagoa lortzeko eta trebetasun transferigarriak garatzeko (Meyer et al.,

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[1] PTDL markoan ingelesez hasieran *deep learning* erabiltzen zen eta ondoren *deeper learning* nagusitu da kontzeptu gisa ikaskuntza sakona(goa)ri erreferentzia egiteko.

2015). Markoak ikaskuntza sakonagoaren prozesuan eragina duten alderdiak jasotzen ditu, atal honetan zehar aurkeztuko direnak, hala nola, ikaskuntza sakonagoa garatzeko aktibatzen diren prozesu kognitibo diskurtsiboak, eta ikaskuntza sakonagoa sustatzen duten faktoreak, esaterako ikasleen eta irakasleen atxikimendua (Coyle eta Meyer, 2021).

Pluriliteracies modeloaren ekarpenetako bat da marko honek edozein ikasgai edozein hizkuntzatan irakasteko balio duela (San Isidro, 2018), eta beraz, egokia izan daiteke lehenengo, bigarren zein hirugarren hizkuntzan ikasten duten ikasleak dauden testuinguruetarako ere (Coyle et al., 2017).

PTDL markoa ondo ulertzeko, lehenik eta behin ikaskuntza sakonagoa lortzeko ikasleek egin behar duten prozesua azalduko da, eta ostean, PTDL modeloa osatzen duten alderdi guztiak aurkeztuko dira.

3.3.2. Ikaskuntza sakonagoa helburu

Lehenengo kapituluan ikusi dugu ikasleek bizitzarako prestatzeko hainbat gaitasun garatu behar dituztela eskolan. Gainera, eskolan garatzen dituzten konpetentzia horiek bizitzako testuinguru desberdinetan kontzienteki aplikatzeko, hau da, transferitzeko, gaitasuna ere garatu behar dute, eta transferentzia kontziente horri Pellegrino eta Hilton-ek (2012:5) ikaskuntza sakonagoa deritzo: "the process through which an individual becomes capable of taking what was learned in one situation and applying it to new situation (i.e. transfer)."

Beraz, ikaskuntza sakonagoa lortzeko ikasleek jakintza arloei dagokien konpetentziak eta edukiak testuinguru desberdinetara transferitzeko gaitasuna garatu behar dute (Coyle eta Meyer, 2021), hau da, sortzen diren arazoei eta galderei erantzuteko garatutako ezagutza noiz, nola eta zergatik aplikatu behar duten jakin behar dute. PTDL markoaren arabera, ezagutzaren transferentzia hori egiteko gaitasuna, jakintza-arloetan ezagutza eraikitzeko gaitasunaren araberakoa izango da. Izan ere, ezagutzen transferentzia gertatzeko ezinbestekoa da transferituko den hori barneratuta izatea (Lantolf eta Poehner, 2014).

Vygotskyn oinarrituta, Meyerrek (2015) ezagutza internalizatzeko prozesua hiru fasetan gertatzen dela azaltzen du.

Irudia/Figure 13. Barneratze prozesua (Meyer, 2015)
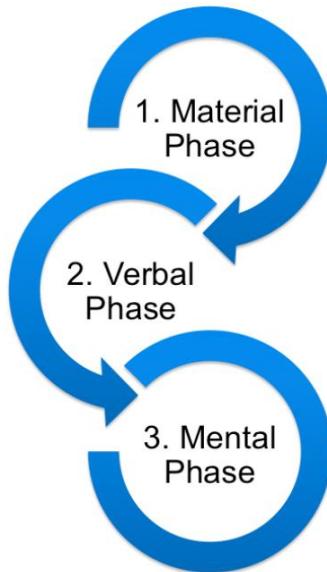
Hasteko, ezagutza berriarekin topo egiten dugunean azaleko mailan gaudela esaten da (*surface level*) (Lantolf and Poehner, 2014), ikaskuntza beti azaleko mailatik hasten baita (Meyer, 2015). Ezagutza edo eduki berri hori ulertzeko, eduki berrien eta aurretik ikasitakoaren artean loturak egitea beharrezkoa da. Loturak egiteko fase horr fase materiala (*material phase*) deritzo. Behin ideien arteko loturak eginda daudenean, ikasleek ulertu duten hori hitzez adierazi behar dute (ahozko fase aedo *verbal phase*). Berbalizatzea diogunean beste pertsona bati kontatzea izan daiteke edo nork bere buruari (Coyle eta Meyer, 2021). Izan ere, "Learners gain control over a concept when it is used through language" (Coyle eta Meyer: 48). Berbalizazio horrek kontzeptuaren abstrakziora eramango du ikaslea. Abstrakziora iristeak esan nahi du ikaslea fase mentalean (*mental phase*) dagoela eta ondorioz, eraikitako ezagutza testuinguru desberdinetan erabiltzeko gaitasuna garatu duela, hau da, ikaskuntza sakonagora iritsi dela.

Beraz, ikasleak ez dira ikaskuntza sakonagora automatikoki iritsiko. Arloko alfabetatzeak garatzeko behar diren gaitasun kognitiboak ez ezik, ikaskuntza sakonagora iristeko ikasteko testuinguruak ikuspegi holistikoago batetik sortu behar dira (Coyle eta Meyer, 2021). Hau da, ezagutzak eraikitzeko eta horiek berbalizatzeko behar diren gaitasun kognitiboez gain, kontuan hartu behar dira ere ikasle zein irakasleen gaitasun ez kognitiboak eta garapen pertsonala.

3.3.3. Aurretiazko ezaugarriak Deeper Learning Agendan

Meyer et al. (2018) Biggs-en 3P ereduan (Biggs, 1989) oinarrituta, ikaskuntza sakonago baterako *ikerketa-agenda (research agenda)* bat proposatu zuten (13. irudia). 3P ereduak edozein ikaste- eta irakaste-prozesutan eragina duten faktoreak biltzen ditu (Freeth eta Reeves, 2004). Meyer et al.-ek (2018) diote irakasleen eta ikasleen aurretiazko esperientziek, jarrerek eta pertzepzioek (Presage) eragina dutela, besteak beste, irakasleak irakaste prozesuan zehar hartzen dituen erabakietan, materiala diseinatzerakoan, bai eta zehaztutako zereginetan ikasleek modu aktiboan parte hartzeko jartzen duten gogoan ere (Prozesuak), horrek guztiak ikaskuntzaren kalitatean eraginez (Produktua).

Irudia/Figure 14. Deeper Learning Agenda (Meyer et al., 2018:253)
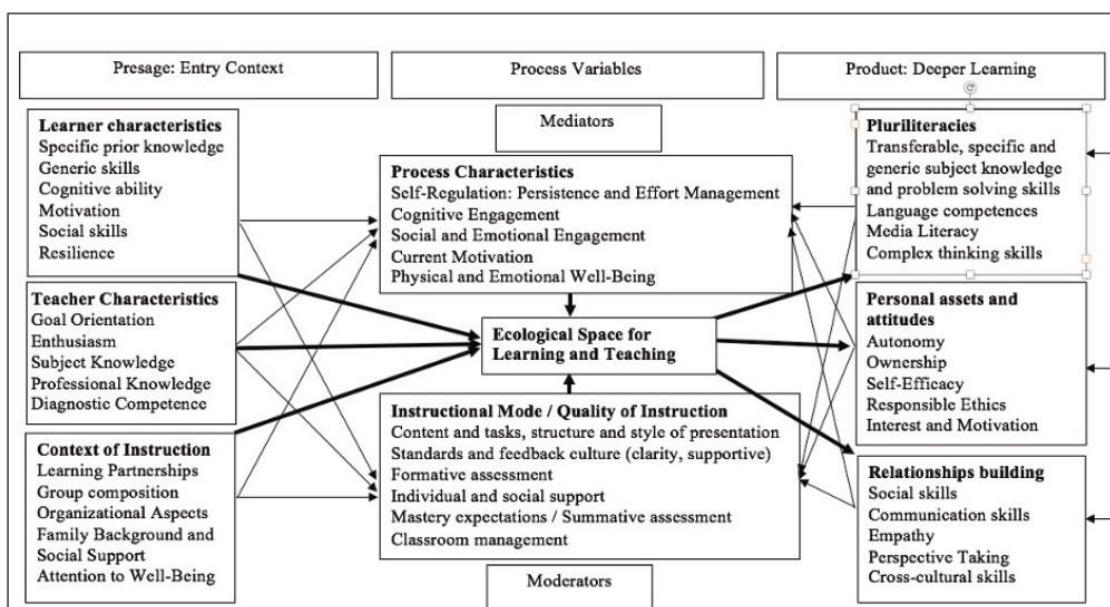
Eredua 3 fasetan egituratzen da: *presage*, prozesua eta produktua. Fase bakoitza hainbat faktorek osatzen dute, eta, faktore horiek aldi berean, beste faseetako faktoreekin, eta baita fase berdineko faktoreen artean txirikordatuta daude; hau da, presage-eko faktore batzuek eragin zuzena izango dute produktuan, baina baita presage-eko beste faktore batzuengan ere. 3P eredua ikaskuntza hobetzeko ikuspegi gisa erabil daiteke, eta garrantzitsua da eredua osatzen duten alderdi guztiak kontuan hartzea irakaskuntzaren hobekuntza diseinatzean (Biggs, 1989). Izan ere, sistema interaktiboa da, eta beraz, Presage-a, Prozesua eta Produktuan aldaketak egonez gero, sistema osoari eragingo lioke (Biggs, 1993).

Ikasle eta irakasleek ikaskuntzaren potentzial ekologikoa partekatzen eta ulertzen dutenean, ikaskuntzarako eta irakaskuntzarako espazio partekatuak sortzen dira, eta horrek modu positiboan eragiten du ikaskuntzaren kalitatean (Meyer et al., 2018).

Deeper learning agendan aurretiazko ezaugarriak (*presage*) azaltzen dira. Ezaugarri horiek ikaskuntza prozesua hasi aurretik dauden faktoreak dira (Zhang, 2000), eta horiek eragina dute ikaskuntza prozesuaren diseinuan, garapenean eta ikaste-emaitzetan (Biggs, 1993; Freeth eta Reeves, 2004), hau da, irakasleek eguneroko errutinan hartzen dituzten erabakietan (Meyer et al., 2018). Askotan presage-ak duen eraginari ez zaio arreta nahikoa jartzen (Freeth eta Reeves, 2004), baina irakaskuntzaren eta ikaskuntzaren kalitatea eta eraginkortasuna hobetzeko, ikasgeletan irakasle eta ikasleen artean gertatzen dena ulertzea izan behar da abiapuntua (Whitehead, 1968).

3P modeloaren lehenengo fasean kokatzen diren faktoreak hiru kategoriatan sailkatzen dira: ikasleen ezaugarriak, irakasleen ezaugarriak eta testuinguruaren ezaugarriak (Freeth eta Reeves, 2004). Irakaslearen ezaugarriek, ikasleen ezaugarriekin eta irakaskuntzaren testuinguruarekin konbinatuta eta elkarreraginean, eragina dute ikasteko sortzen diren espazioetan (*learning spaces*) (Schiefele eta Schaffner 2015). Izan ere, gelako ekosistema ikasleek, irakasleek eta irakaste-testuinguruak osatzen dute (Biggs, 1993).

Irakasleen prestakuntzak, esperientziak eta sinesmenak irakasleek aldez aurretik duten ezagutzaren parte dira, eta plangintzan eta gelan hartzen diren erabakietan eragiten dute. Irakaskuntza prozesua irakasleen usteetatik abiatuko da, eta hori ulertzeko ezinbestekoa izango da irakasleen usteak ezagutzea, irakasleen prozesu mentalek irakasleek ikasleekiko dituzten jarreretan eta egitekoetan eragiten baitute. Ezaugarri eta uste horien eraginez, irakasleek modu zehatz batean jokatuko dute ikasgelan eta guzti horrek eragin zuzena izango du irakaste-prozesuan (Ahmad, 2008). Irakasleek ikasleekiko dituzten pertzepzioek ere eragina izango dute gelan (Freeth eta Reeves, 2004), baita ikasleek ikasteko duten gaitasunari buruz dituzten pertzepzioek ere eragingo dute ikasleek ikasgelan duten portaeran, erabaki metodologikoetan, eta duten inplikazioan (Freeth eta Reeves, 2004). Modu berean, ikasleek irakaskuntzaren testuinguruari buruz dituzten pertzepzioek zuzenean eragiten dute ikasleen aurreko jarreretan (*predispositions*), bai eta hartu behar dituzten erabakietan ere (Biggs, 1993).

Beraz, hezkuntza-esperientziak sakonago ulertzeko, ikasle eta irakasleen ahotsak ezagutzea funtsezkoa da (Lourenço et al., 2017). Irakasleen ahotsak entzuteak irakasleek ikaskuntza sakonagoa lortzea helburu duen testuinguru batean irakasten

dutenean nabarmentzen dituzten aurretiazko baldintzak (*presage*) identifikatzea ahalbidetu lezake.

Orain arteko ataletan azaldu da PTDL markoaren barruan ikasle eta irakasleen rolak zeintzuk diren, zein ezaugarri izan behar dituen bakoitzak, eta ikaskuntza sakonagoa sustatzeko testuinguruak nolakoak izan behar diren azaldu bada ere, hurrengo lerroetan presage-a osatzen duten ikasleen ezaugarriak, irakasleen ezaugarriak eta irakaste-testuinguruaren ezaugarriak zehatzago deskribatuko dira.

3.3.3.1. Ikasleen ezaugarriak

Ikaskuntza sakonagoaren prozesuan, ikasleen zenbait ezaugarrik arreta berezia hartzen dute, hala nola, ikasleek dituzten aurrezagutzek, erresilientziak, motibazioak, zeharkako gaitasunek (*generic skills* edo *soft skills* ere deituak), gaitasun kognitiboek eta gaitasun sozialek. Izan ere, ikasleen ezaugarriek eragin zuzena dute ikaste-prozesuetan, irakaslearen jardunean, eta ondorioz, emaitza akademikoetan (Garro et al., 2020).

Lehenengo atalean ikusi dugun moduan, azken hamarkadetan XXI. mendean bizitzeko ikasleek garatu behar dituzten konpetentzien eta gaitasunen irakaskuntzan jarri da arreta. Gaitasun kognitiboez gain, ikasleen generic skillsak and social skillsak ere ezinbestekoak direla ikaskuntza sakonagoa eta ondorioz arrakasta akademikoa lortzeko; gaitasun horiek Pellegrinok eta Hiltonek (2012) bereizten dituzten cognitive, intrapersonal eta interpersonal domainekin lotzen dira (1. atalean definituak).

Gaitasun horiek guztiek garatzen laguntzeko, eskoletan ikasleei zailtasunen aurrean erresilienteagoak izaten ere laguntzen zaie (OECD, 2016). Erresilientzia egoera zailei, erronkei edo zailtasunei aurre egiteko gaitasuna da (Cahill et al., 2014), eta ikaste-prozesuan eragina duen beste gakoetako bat da. Erresilientzia garatzeko, ikasleek hainbat esperientzia konplexuri egin behar diete aurre. Ungar et al.,-ek (2014) adierazten dute badirela zenbait froga esateko eskolek ahalmen handia dutela ikasleen hazkundean eta garapenean positiboki eragiteko, eta beraz, eskolak eragin esanguratsua izan dezakeela erresilientziaren garapenean. Bandurak (1997) autoefikaziaren kontzeptuarekin lotzen du erresilientzia, errendimendu akademikoa ikasleen erresilientziaren adierazletzat jo baitaiteke.

Beraz, ikasleen aurrezagutzek, helburuek, sinesmenek eta ikasgelara ekartzen dituzten esperientziek modu zuzenean eragiten dute ikasleen ikaste-prozesuan. Ikaskuntza sakonagoaren prozesuan, ezinbestekoa izango da ikasleek jasotzen duten informazio berria antolatzea eta aurretik eraikitako ezagutzarekin integratzea, aurretik sortutako

egitura mentalak osatuz eta berriak sortuz (Novak, 2002; Pellegrino, 2017). Izan ere, modu isolatuan irakasten diren edukiek ez dute laguntzen ikaskuntza sakonera iristen (Biggs, 1989).

Azkenik, motibazioa beharrezkoa da orain arte aipatutako konpetentziak garatzeko. Motibazioa ikasleak ikasgai jakin batekiko (matematika, zientziak edo hizkuntzak, esaterako) edo ikasgai multzo batekiko (adibidez, diziplina arteko proiektuak) duen interesa da, eta prozesu kognitiboak eta afektiboak barne hartzen ditu (Keller et al., 2017). Ikaslea motibatuta badago, modu aktiboan hartuko du parte bere ikaste-prozesuan (Biggs, 1989). Hainbat autorek aipatzen dute ikasleek sakonago ikasten dutela landutako gaiak beren bizitzarekin eta interes pertsonalekin lotura badute, arazoak taldean ebazten badira, eta arreta ikasleak garatzen ari diren ezagutzetan eta konpetentzietan jartzen bada, ez bakarrik azken kalifikazioan. Hainbat autorek ikasleen motibazioan modu positiboan eragiten duten alderdiak aipatzen dituzte. Esaterako, Brooks et al.-ek (2012) diote ikasleak zenbat eta seguruago eta konprometituago egon, orduan eta motibatuago egongo direla baldintza akademikoak betetzeko, eta Biggs eta Tangek (2011) helburu argiak zehaztea ere beharrezkoa dela ikasleen motibazioan eragiteko. Beraz, ikasleek ikaskuntza sakonagoa lortzea nahi bada, motibazioa sustatu behar da.

3.3.3.2. Irakasleen ezaugarriak

Jakintza-arloei dagozkien ezagutzak irakasteaz gain, ikusi da gaitasun intrapertsonalak eta interpertsonalak ikasgelan irakatsi eta ikas daitezkeela (Pellegrino eta Hilton, 2012). Izan ere, gazte askorentzat, eskola da gaitasun eta trebetasun horiek garatzeko leku bakarra. Horregatik, irakasleek ere zenbait gaitasun garatu behar dituzte ikasleei aipatutako gaitasunak garatzen lagundu ahal izateko, esaterako: motibazioa, ikasgaiaren ezagutza (*subject knowledge*), ezagutza profesionala (*professional knowledge*), helburuetarako orientazioa (*goal orientation*) eta diagnostikorako gaitasuna.

Irakasleek beren jakintza-arloari dagokion ezagutza sakona behar dute edukia modu eraginkorrean irakatsi ahal izateko (Biggs eta Tang, 2011). Horrez gain, bereziki garrantzitsua da irakasleek XXI. mendeko gaitasunak arlo independente gisa ez ulertzea, baizik eta ikasgai guztietan txertatu beharreko gaitasun gisa (Larson eta Northern, 2012). Gainera, Meyer et al.-ek (2015) diote arloko hizkuntzan arreta jartzea ezinbestekoa dela irakasgaien alfabetatze espezifikoa garatzeko; eta beraz, irakasleek beren jakintza-arloetako edukia menperatzeaz gain, arloari dagozkion testu-generoak

eta funtzio kognitibo diskurtsiboak ere menperatu behar ditu. Ildo beretik, Cammaratak eta Tedickek (2012) ezinbestekoa ikusten dute irakasleek hizkuntzak jakintza-arloaren ikaskuntzan eta irakaskuntzan betetzen duen rola ezagutzea. Askotan jakintzat ematen da irakasleek ezagutza hori badutela, baina autoreek adierazten dute irakasle gehienek ez dutela hizkuntza eta edukia integratzeko behar den hizkuntza-ezagutzarik.

Dalton-Puffer et al., (2018) autoreen arabera FKDak eta metahizkuntzaren azterketaren inguruan egin diren ikerketek erakutsi dute ikasle eta irakasleek horrekoki duten kontzientzia falta. Lan honetan bi metahizkuntza bereizten dira: aurretiazkoa (*pre-emptive*) eta ondorenekoa (*reactive*). Lehenengoak jarraian hizlariak erabiliko duen ekintza kognitibo diskurtsiboa aipatzeari egiten dio erreferentzia (Basturkmen, 2002). Eta bigarrenak, aldiz, aurretik erabilitako ekintza kognitibo diskurtsiboari (Dalton-Pufer et al., 2018). Lan horretan aipatzen denez, egindako ikerketa gutxietan irakasleek metahizkuntza gutxi erabiltzen dutela ondorioztatu da eta ikasleek ia ez dutela erabiltzen. Hu-k (2011) gaineratzen du metahizkuntza egitea eta hori egiteko beharrezko baliabideak izatea oso garrantzitsua del ikasleentzat.

Hala ere, irakaslearen rola gaiari buruzko ezagutzak izatetik harago doa. Hau da, irakaslearen zeregina ez da soilik ikasleei ezagutzak eta esanahiak eraikitzen laguntzea (Coyle eta Meyer, 2021), baizik eta prozedurazko ezagutzak eta alderdi pragmatikoarekin lotutakoak ere beharrezkoak dira (Leinhardt et al., 1995), *professional knowledge* deiturikoak. Irakasleen ezagutza pedagogikoak eragina du ikasleen ikaste-prozesuan eta errendimenduan (Ahmad, 2008). Beraz, irakaslearen rolak gaitasun pedagogikoa ere eskatzen du; horrek esan nahi du irakasleak irakaskuntza-estrategia desberdinak izan behar dituela, eta ikasleak ikaskuntza-progresioan non dauden diagnostikatzeko gaitasuna izan behar duela (Fullan eta Langworthy, 2014). Diagnostikorako gaitasuna irakasleek ikasleak behatzeko eta aztertzeko duten gaitasunari deritzo, hau da, ikasleen beharrak identifikatzeko gaitasunari, ikasleen ikaste-prozesua ahalik eta eraginkorrena eta esanguratsuena izan dadin (Pajares, 1992). Autore honek azpimarratzen du ikasleen gaitasunak identifikatuz bakarrik har daitezkeela erabaki pedagogikoak eta metodologikoak. Laburbilduz, irakasleek diagnostikatzeko kompetentzia garatuta izan behar dute, ikasleekin komunikazio egokia erabili ahal izateko, ikasleen progresioa aldamiatzeko, eta feedback-erako estrategiak aproposak erabiltzeko (Coyle eta Meyer, 2021). Modu honetan, irakasleek ezagutza profesionala garatzen doazen heinean, gidatzaile, erraztaile eta aktibatzaile rolak hartzen ditu (Fullan eta Langworthy, 2014).

Bestetik, motibazioa ikasleentzat funtsezkoa den bezala, irakasleek ere lanerako gogoa sentitu behar dute (*enthusiasm*). Poza, lilura, harrotasuna, harridura eta gogoa irakasteko motibazioaren arrazoietako batzuk dira, eta ikusi da, irakasleek autonomia eta autoeraginkortasuna dutenean, motibatuago daudela eta egokitzeko erronkei aurre egiteko gai direla (Skaalvik eta Skaalvik, 2014).

Azkenik, irakaskuntza eraginkorraren (*effective teaching*) ezaugarri dira ikaste-helburu argiak, ikasleen progresioa irakasteko eta neurtzeko moduekin lerrokatuta egon behar dutenak (Fullan eta Langworthy, 2014; Biggs eta Tang, 2011). Izan ere, helburu argiak dituen eta ikasleen progresioa ebaluatzen duen testuinguru antolatu bat eskaintzea garrantzitsua da ikasleen motibazioan eragiteko eta ikuspegi sakonak garatzeko (Biggs eta Tang, 2011).

3.3.3.3. Eskolatze testuingurua

XXI. mendeko konpetentzien garapenaren ardura hezkuntza sistema osora hedatzen da. Hezkuntzaren helburuak aldatzen ari dira, eta horrek dakar ikasteko testuinguruak, metodologiak eta ebaluatzeko estrategiak ere aldatzea (Silva, 2009). Ikasleek ikaskuntza sakonagoa lortzeko, ikasleei testuinguru errealak (Larson eta Miller, 2011) eta positiboak eskaini behar zaizkie, ezagutzen ikaskuntzara bultzatzen dutenak, eta gaitasun intrapersonal eta interpersonalen garapenean laguntzen dutenak (Pellegrino eta Hilton, 2012). Horrez gain, irakasleek jarduerak eta testuinguruak eraiki behar dituzte, ikasleek beren ikaste-prozesua aztertu eta ulertu dezaten (Garro et al., 2020).

Atal honetan ikaste-testuinguruari lotutako alderdi nagusiak aztertzen dira: ikaskuntza partekatua (*learning partnerhips),* taldearen osaera (*group composition*), antolamendu-alderdiak (*organizational aspects*), ongizatea (well-being), eta familia-ingurunea eta gizarte-laguntza (*family background eta social support*).

Mentoring rola duten irakasleek ikasleekin batera ikaskuntzaren aktibatzaile gisa jarduten dute (Fullan eta Langworthy, 2014). PTDL ereduak eskatzen du ikasleen eta irakasleen artean ikaskuntza partekatua (*learning partnership*) sortzea, ezagutzak eraikitzeko zein komunikatzeko eta garapen pertsonalaren prozesuetan elkarrekin aritzeko (Coyle eta Meyer, 2021). Ikasleek ikaste-prozesuetan aktiboki hartu behar dute parte zer eta nola ikasi behar duten erabakiz (Meyer et al. 2018). Horretarako irakasleek ikasleak seguru sentituko diren testuinguruak eskaini behar dituzte (Meyer et al., 2018), eta ikaskideekin elkarreragiteko eredu berriak sortu behar dituzte.

Ikaste-prozesua partekatua denean, eta ikasleek beren ikaskuntzaren ardura hartzen dutenean, ikasleen ongizatea hobetu egiten da (Fullan eta Langworthy, 2014). Ikerketek erakusten dute ikasleen ongizateak eragin zuzena duela ikasleen garapenean, hauen motibazioan eta lorpenetan eta osasunarekin lotura estua duela. Weintraub eta Erez (2009) autoreek ikasleen ongizatea lotzen dute ikasleek eskolara joateko duten gogoarekin, ikasle eta irakasleekin dituzten harremen positiboekin, eskolarekiko sentimendu positiboak erakustearekin eta fisikoki ondo sentitzearekin (Coyle eta Meyer, 2021). Eta Meyer et al. (2018) ongizatearen, motibazioaren, errendimenduaren eta autoeraginkortasunaren arteko erlazioaren garrantzia azpimarratzen dute.

Orain arte aipatutako alderdi guztiek antolakuntza-alderdiak (*organizational aspects*) kontuan hartzea eskatzen dute, hala nola espazio fisikoen antolaketa eta irakasleen arteko koordinazioa. Gainera, ikaskuntza sakonagoa helburu duten geletan proiektu eta jarduera asko talde-lanean egiten dira (Fullan eta Langworthy, 2014). Taldekatzeak egiteko aukera desberdinak daude (Pellegrino eta Hilton, 2012): talde heterogeneoak, ikasleen aniztasuna kontuan hartuta egiten direnak; eta homogeneoak, ezaugarri edo gaitasun berdinak partekatzen dituzten ikasleez osatutako taldeak. Bietan, taldekatzeak egiterakoan, taldekide guztien artean rolak banatzen dira: taldeko liderra, idazkaria, eta denbora kudeatzen duena, esaterako. Rol horiek betetzeko, ikasleek ezaugarri interpertsonalak behar dituzte ezagutzak modu kooperatiboan eraikitzeko, eztabaidatzeko eta elkarri feedbacka emateko, besteak beste (Huberman et al., 2014).

Azken alderdiari dagokionez, family backgroundak and social supportak ere eragina izan dezakete irakaskuntzaren testuinguruan (Biggs, 1989). Ikasleen estatus sozioekonomikoa eta curriculumetik kanpoko esperientziak kontuan hartu behar dira ikaste-irakaste testuinguruak diseinatzerakoan (Biggs, 1989). Izan ere, familiek eta ingurune sozialek ikaskuntzaren motibazioan eragiten dute; izan ere, beste pertsona batek ikaslearen emaitza akademiko onak baloratzen baditu, hezkuntzak garrantzia har dezake ikaslearentzat (Biggs eta Tang, 2011). Azkenik, familia-testuinguruetatik eratorritako ezagutzak ikasleen prior knowledge-aren ezaugarri pertsonalen parte dira, eta, beraz, kontuan hartu beharko dira hezkuntza-testuinguruetan.

3.3.4. Pluriliteracies Teaching for Learning (PTL) eredua

Pluriliteracies ikuspegia aurreko kapituluan azaldutako 4Cen (edukia, kultura, kognizioa eta komunikazioa) teorian oinarritzen da (Meyer et al., 2015). 4Cen teoria edukia eta hizkuntza baino harago doazen elementuak integratzeko garatu zen, baina ez du zehazten lau elementu horien integrazioa nola egin behar den. Pluriliteracies Teaching for Learning (PTL)[2] ereduak hutsune horri erantzuten dio, eta horrela integratzen ditu 4Cak osatzen dituzten lau kontzeptuak:

> "C-Content in and by itself is meaningless unless it is conceptualised. To actively construct knowledge and to promote subject-specific literacies, learners need to conceptualise content in ways that are appropriate to the subject C-Culture. As has been discussed previously, it is this subject C-Culture that determines how the C-Cognition is put to use in the way that C-Content will be conceptualised and how the C-Communication is used to (co-)construct knowledge" (Meyer et al., 2015:51).

PTLk arloko alfabetatzea kokatzen du ikaskuntza sakonagoaren erdigunean. Arloko alfabetatzea garatzeko eredua (14. irudia) bi continuum-ez osatzen da (Meyer et al., 2015): kontzeptualizazioaren continuuma (*conceptualising continuum*), eta komunikazioaren continuuma (*communicating continuum*). Eredu horren bidez erakutsi nahi da ikasleak gero eta konplexuagoak diren ezagutzak eta esanahiak eraikitzen dituela, hizkuntza erabiltzen eta garatzen duen bitartean (Coyle, 2015).

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[2] PTL eredua (Meyer eta Coyle, 2017) bi continuumez osatzen da: conceptualising eta communicating continuum. 2018an PTL eredua garatu egin zen, eta PTDL sortu zen, lau ardatzez osatzen dena.

Irudia/Figure 15. Pluriliteracies Teaching Eredua (Meyer eta Coyle, 2017:205)
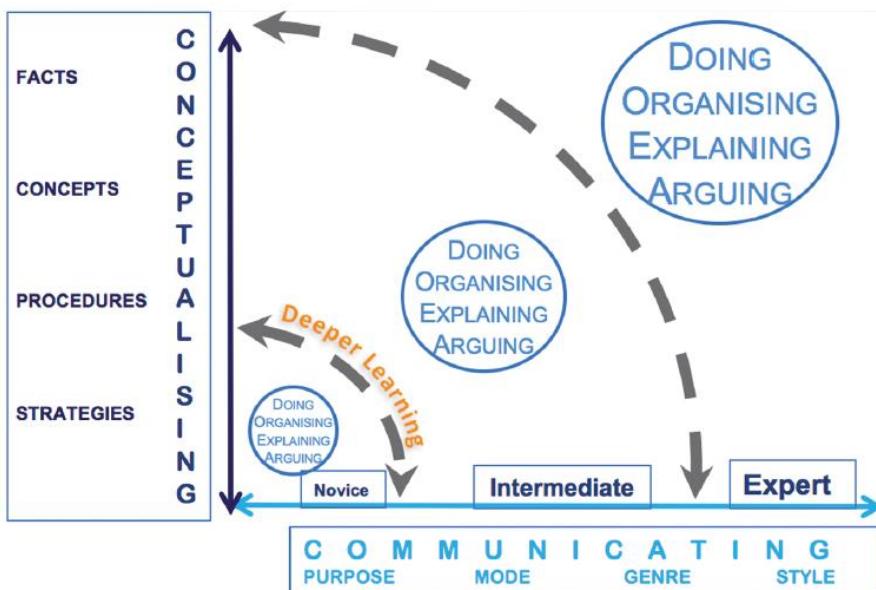
Irudian arloko alfabetatzea osatzen duten elementuak agertzen dira. Ikaste-prozesu sakonagoak ikasleek beren ulermena hizkuntzaren bitartez adierazten dutenean lortzen dira, kontzeptualizazioaren continuuma eta komunikazioaren continuumak lotuz (Meyer et al., 2015).

Kontzeptualizazioaren continuumari dagokionez, ezagutza bakarrik ez da nahikoa ikasgai edo diziplina batean aurrera egiteko. Edukiak ikasteak dakar kontzeptuak, datuak (*facts*) eta prozedurak ezagutzea eta ulertzea, ostean horiek erronka berrien aurrean praktikan jarri ahal izateko (Coyle, 2015). Pluriliteracies markoak tresnak eskaintzen dizkie irakasleei ikasleei ezagutza modu progresiboan garatzen lagundu diezaieten, eta modu berean, ikasleei ere estrategiak irakatsi behar zaizkie jakintza-arlo bakoitzean ohikoak diren zeregin gero eta konplexuagoak ebazteko gaitasuna garatu dezaten (Meyer et al., 2015).

PTDL markoan garrantzi handia hartzen du progresioaren kontzeptuak. Pellegrinok eta Hiltonek (2012:219) honela definitzen dute progresioa: "descriptions of successively more sophisticated ways of thinking about a topic that can follow one another as children learn about and investigate a topic over a broad span of time". Jakintza-arloko ulermenaren progresioa mugatua izango da, ikasleak arloko alfabetatzea garatzen ez badu. Hau da, edukiak, kontzeptuak eta datuak (*facts*) gero eta konplexuagoak izango dira eta ondorioz, horiek komunikatzeko behar den hizkuntza ere gero eta konplexuagoa izango da (Novak, 2002; Meyer et al., 2015).

Pluriliteracies terminoak, ikasleek hizkuntza batean baino gehiagotan alfabetatzeko gaitasuna adieraztzeaz gain, semiotika plurimodalak (*semiotic plurimodals*) menperatzea ere eskatzen du (Meyer et al., 2018; Coyle eta Meyer,2021). Izan ere, jakintza-arloen alfabetatzean hizkuntza idatzia gailentzen den formatua bada ere (Polias, 2006; Mohan et al., 2010), mundu digitalak izan duen inpaktua eta garapena kontuan izanik, ezagutza adierazteko eta zabaltzeko formatuak anitzak eta hibridoak dira, hau da, idatzizko testuez gain, audio, bideo edo grafiko bidez ere adierazten da ezagutza (Cazden et al., 1996), eta ondorioz, XXI. mendeak herritar alfabetizatu aniztunak eskatzen ditu, bai hizkuntzei dagokienez (*pluriliterate*), eta baita formatuei (*multiliterate*) dagokienez ere.

Hori horrela, PTL ereduari jarraituz, ikasleek arloetako ezagutza komunikatzeko gaitasuna garatu behar dute egoerari edo testuinguruari erantzuteko dagokion formatuan (ahoz, idatziz, grafiko edo irudi, taula, marrazki bidez), dagokion genero eta estiloa (formala edo informala) erabiliz eta komunikazio helburua kontuan hartuz (Meyer et al., 2021). Izan ere, Mohan eta Beckett-ek (2003) diote generoak ekoiztu ahal izateko, edukia eta hizkuntza beharrezkoak direla. Ikaslea, genero eta formatu desberdinak erabiltzeaz gain, gai izan behar da formatu eta genero desberdineko testu gero eta konplexuagoetatik informazioa interpretatzeko (Meyer et al., 2015). Horregatik, jakintza-arloetan alfabetatzeko, informazioa jakintza-arloari dagokion formatu guztietan eskaini behar da, eta ikasleak formatu horietatik informazioa interpretatzen eta formatu horietan ezagutza adierazten trebatu behar dira, formatu desberdinen artean joan-etorriak eginez (Nikula et al., 2013).

Eredu honek azpimarratzen du ikasleek bi continuumen arteko loturak egin behar dituztela. Lotura horiek arku forman irudikatzen dira irudian, eta ikasgai baten barruan ezagutzak eraikitzeko eremuetan parte hartzean gertatzen dira: egin, antolatu, azaldu eta eztabaidatu (*doing, organizing, explaining* eta *arguing)* (Meyer eta Coyle, 2017). Ekintza horiek Veel-ek (1997) proposatu zituen zientziako arloan ezagutza nola eraikitzen den aztertuz. Meyer et al.,-ek (2015) diote dio lau eremu horiek direla edozein jakintza-arlotan ezagutza eraikitzeko bidea. Ildo beretik, Poliasek (2006) eta Veel-ek (1997) diote lau eremu horien bitartez erakusten dela ezagutzaren eraikuntzaren progresioa.

"*Egin*" eremuaren helburua da teorikoki ikasitakoa zehaztea eta aplikatzea. "*Antolatu*" eremuan, irakasgaiaren edukiak idatzi eta sailkatu behar dira, eta egindakoaren ikuspegi orokorra izateko balio du. Ondoren, ikasleak bildutako informazioa ebaluatu behar du, ulertu ahal izateko. "*Azaldu*" ezagutza edo gertaerak definitzean eta azaltzean oinarritzen da, eta esanahien artean loturak egiteko balio du. Azkenik, ikaskuntzaren

ekintzarik konplexuena "argudiatzea" da. Hemen, ikasleek gai izan behar dute galderak argitzeko, kontzeptuak abstraitzeko eta beren argumentazioa behar bezala aurkezteko (Berg, 2020).

Beraz, PTL modeloak irudikatzen du continuum komunikatiboa (*communicating continuumean*) aurrera egin ahala ikasitakoa komunikatzeko behar den hizkuntza gero eta konplexuagoa izatea eskatzen zaiela. Hau da, irakasgaiaren berariazko ikaskuntzaren lau alderdi horietan parte hartzean (egin, antolatu, azaldu, argudiatu), ikasleek ezagutzaren continuumean aurrera egiten dute, irakasgaiaren alfabetatze espezifikoaren garapenean aurrera egiten duten bitartean, hasiberritik aditura (Meyer eta Coyle, 2017; Meyer et al., 2015; Coyle eta Meyer, 2021). Hau da, ezagutza gero eta modu konplexuagoan eta egokiagoan adierazten ikasi behar dute (Coyle, 2020). Hasiberri batekin alderatuta, ikasle aurreratuago batek gai jakin bati buruzko datu gehiago jakin beharko lituzke, irakasgaiaren eduki espezifikoaren ulermen kontzeptual sakonagoa izan beharko luke eta irakasgaiaren prozedurak eta estrategia espezifikoak hobeto menderatu beharko lituzke (Meyer eta Coyle, 2017).

Pellegrinok eta Hiltonek ere (2012) diote hasiberriek datuak (*facts*) unitate isolatu gisa gordetzeko joera dutela, ahalegin kontzientea egin behar dutela prozedurak aplikatzeko, eta problemak ebazteko estrategia orokorrak erabiltzen dituztela. Adituek, berriz, interkonektatutako sare batean gordetzen dituzte edukiak, oinarrizko prozedurak automatizatuz, eta ondorioz, ez dute ahaleginik egin behar prozedurak aplikatzeko; gainera, arazoak ebazteko estrategia espezifikoak erabiltzeko joera dute.

Ezagutza mota eta eremu (*domain*) desberdinek esateko modu desberdinak eskatzen dituzte. SFLk aipatzen dituen genero eta erregistroez gain, The Graz Group-eko autoreek azaltzen dute beste unitate txikiago batek (mikro-generoek) ondo funtziona lezakeela genero konplexuagoak eraikitzeko eta, bi continuumen arteko loturak eginez aurrera egiteko (Meyer et al., 2015; Meyer eta Coyle, 2017). "Mikro-genero" horiei "funtzio kognitibo diskurtsiboak" (FKD) esaten zaie, eta ikaskuntzaren dimentsio kognitiboak zein komunikatiboak integratzen dituzten funtzioak dira (Dalton-Puffer, 2013). Modu horretan, FKDek funtsezko zeregina betetzen dute ikaskuntza sakonagoaren prozesuan, FKDek diskurtso akademikoa egituratzen baitute (Dalton-Puffer, 2013).

Gainera, generoak beti ez dira egokiak edukia eta hizkuntza edozein testunigurutan integratzeko, batez ere arreta ahozko elkarrekintzan jartzen den saioetan (Bauer-Marschallinger, 2022). Kasu horietan erabilgarriagoak izan daitezke FKDak, unitate

txikiagoak baitira, eta generoek baino aletze xeheagoa azaltzen dute (Dalton-Puffer, 2013). FKDak konbinatuz testu luzeagoak eta espezifikoagoak sortu daitezke, eta horrek aukera ematen dio irakasleari ikasleen beharretara eta testuingurura malgutasun handiagoz egokitzeko (Meyer eta Coyle, 2017; Nashaat-Sobhy, 2018). Hurrengo irudian jasotzen da eremu bakoitzari dagozkion generoa eta FKDak.

Irudia/Figure 16. Funtzio kognitibo diskurtsiboak, operadoreak eta dagozkion generoak (Graz Group, 2015)

Label	Communicative Intention	Operators	Knowledge & Activity Domain	Corresponding Genres
Report	I tell you about something external to our immediate context on which I have a legitimate knowledge claim	Report, inform, recount, narrate, present, summarize, relate	Doing	- Experiments & Protocols - Lab Reports - Investigations - (Auto-) Biographical, Historical Recount - Historical Report
Describe	I tell you details of what can be seen (also metaphorically)	Describe, label, identify, name, specify	Organizing	- Descriptions - Comparisons - Compositions - Classifications - Historical Account
Classify	I tell you how we can put up the world according to certain ideas	Classify, compare, contrast, match, structure, categorize, subsume		
Explain	I give you reasons for and tell you cause/s of X	Explain, reason, express cause/effect, draw conclusions, deduce	Explaining	- Temporal explanations - Factorial/consequential explanations - Theoretical explanations
Define	I tell you about the extension of this object of specialist knowledge	Define, identify, characterize		
Explore	I tell you something that is potential/hypothetical	Explore, hypothesize, speculate, predict, guess, estimate, simulate, take other perspectives	Arguing	- Arguments (analytical, hortatory) - Discussions
Evaluate	I tell you what my position is vis a vis X.	Evaluate, judge, argue, justify, take a stance, critique, recommend, comment, reflect, appreciate		

Beraz, laburbilduz, Pluriltieracies Teaching for Deeper Learning ereduari dagokionez, jakintza-arloetan modu progresiboan alfabetatzeko, ikasleak eremu bakoitzari dagozkion testu-genero, eta funtzio kognitibo diskurtsibo jakin batzuk menperatu behar ditu (Dalton-Puffer, 2013; Meyer et al, 2015; Coyle eta Meyer, 2021).

Atal honetan aipatutako hainbat ideiek arreta sakonagoa behar dute, esaterako FKDak, eta FKD eta generoen arteko harremanak.

3.3.5. Funtzio kognitibo diskurtsiboak (FKD)

Hizkuntza ikaskuntzaren lehen mailako ebidentzia da (Mohan et al., 2010) eta ikaskuntza prozesua arrakastatsua izan dadin, ikasleek beren ezagutza eta ulermena modu egokian artikulatzeko gaitasuna garatu behar dute (van Kampen et al., 2020). Prozesu kognitiboak, pentsamendua bezala, zuzenean behatu ezin direnez (Morton, 2020), prozesu kognitiboak hizkuntzaren bidez azaleratzen dira, FKDen bidez hain zuzen (Dalton-Puffer, 2016). Funtzio kognitibo diskurtsiboen (FKD) konstruktoa Dalton-Pufferrek (2013) garatu zuen bi ikuspegitan oinarrituta: hizkuntzalaritza aplikatuan (*applied linguistics*) eta arloko hezkuntzan (*subject-specific education*). Autoreak honela definitu zituen FKDak:

> A zone of convergence between content and language pedagogies [...] as the cognitive processes involving subject-specific facts, concepts and categories are verbalized in recurring and patterned ways during the event of co-creating knowledge in the classroom. (Dalton-Puffer 2013: 216).

Bi ikuspegi horien bidez, curriculumeko jakintza-arlo guztietan jasotzen diren hizkuntza-eskakizunetan jartzen da arreta, jakintza-arloen eta hizkuntzaren pedagogiaren artean loturak eginez. Izan ere, orain arte arloetako irakasle askok uste izan dute ez dagokiela haiei hizkuntzaren lanketa (Evnitskaya, 2019; Morton, 2020). Mortonek (2020) dio, jakintza-arlo guztietako helburu gehienak ekintza kognitibo espezifikoak deskribatzen dituzten aditzen bidez adierazten direla, hala nola definitzea, ebaluatzea, azaltzea, deskribatzea… Eta gehitzen du, FKDak diziplinetako ikaste-helburu kognitiboen errepresentazio linguitsikoak izateaz gain (Dalton-Puffer, 2013), FKDek ikasleen alfabetzatze-maila ebaluatzeko ere balio dutela (Morton, 2020).

FKDak, beraz, edukiak, ezagutzak eta pentsamendu abstraktua edo kognizioa integratzen dituzten hitzezko errutinak dira (Dalton-Puffer, 2016). Ideia hau bat dator Zydatiss-en (2010) funtzio diskurtsiboen azalpenarekin:

Irudia/Figure 17. Eduki, pentsamendu eta hizkuntzaren arteko interdependientzia (Zydatiß, 2010:142)
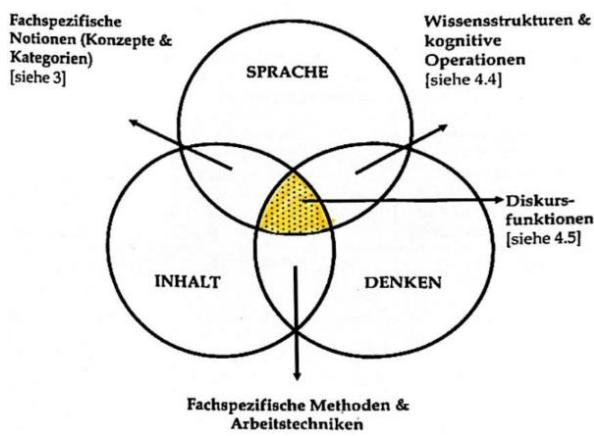
Mortonek (2020) Zydatiss-en iruditik *denken* maila (kognizioa) *literacy*-rengatik ordezkatu zuen, eta FKDak jakintza-arloetako edukiaren, jakintza-arloei dagozkien alfabetatzeen, eta ezagutza eta pentsamenduak adierazteko erabiltzen den hizkuntzaren arteko zubi gisa irudikatu zituen (Morton, 2020). Azalpen honekin saihesten da CLILen azaleratzen den edukiaren eta hizkuntzaren arteko bereizketa.

Irudia/Figure 18. Ezagutza, alfabetatzea eta hizkuntzaren arteko erlazioa (Morton, 2020:9)
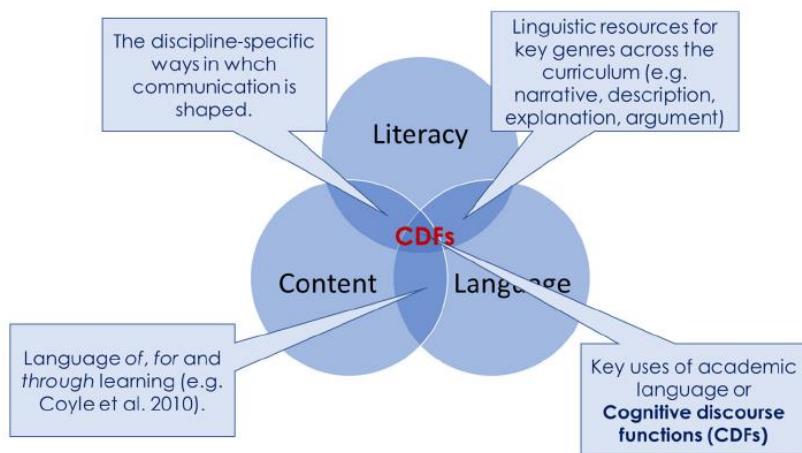
Funtzio kognitibo diskurtsiboen kontzeptua ez da berria. Urteetan zehar, hainbat autorek funtzio kognitiboak eta diskurtsiboak identifikatu dituzte. Ondorioz, hainbat marko sortu dira, eta horrek eragin du antzeko kontzeptuak izendatzeko etiketa desberdinak erabiltzea. Ikaskuntzaren dimentsio kognitiboa aztertzeko egin diren lanen artean, Bloomen taxonomia izan da hedatuena (Bloom, 1956), eta munduko leku askotan jarduerak diseinatzeko eta ikasketa-planak garatzeko balio izan du (Dalton-Puffer,

2013). Bloomek sei funtzio proposatzen ditu, konplexutasun kognitiboaren arabera hierarkiko ordenatuta, eta bi multzotan sailkatuta: behe mailako pentsamendu trebetasunak (*Lower Order Thinking Skills)* (gogoratu, ulertu, aplikatu) eta goi-mailako pentsamendu trebetasunak (*Higher Order Thinking Skills*) (aztertu, ebaluatu, sortu). 2001. Urtean Anderson eta Krathwohl-ek Bloomen taxonomiaren berrikuspena egin zuten. Berrikuspen horretan ekintza kognitiboen hierarkia lausotu eta bi dimentsioz osatutako matrizea proposatu zuten autoreek: ezagutzaren dimentsioa (*knowledge dimension)* eta prozesu kognitiboak (*cognitive process)*. Anderson eta Krathwohl-ek guztira 19 prozesu kognitibo identifikatu zituzten, horietako bakoitza Bloomen taxonomiako sei mailetako bati lotua. Ildo beretik, Biggsek eta Tangek (2011) ikaskuntzaren dimentsio kognitiboa adierazten duten aditzen hierarkia egituratu bat aurkeztu zuten unibertsitate mailako ikaste-emaitzak formulatzeko.

Bestetik, Europako eta AEBetako beste hainbat adituk ere derrigorrezko hezkuntzak dakartzan hizkuntza-eskakizunak aztertu dituzte. AEBn, Bailey-k eta Butler-ek (2003), Cumminsen BICS eta CALP bereizketan oinarrituta, jakintza-arlo desberdinetan agertzen diren hizkuntza-eskakizunak identifikatu zituzten, hala nola, azalpenak, deskribapenak eta konparaketak.

Europan, Europako Kontseiluak burututako "Language in Other Subjects" (Beacco et al., 2010) izeneko proiektuan hainbat jakintza-arloren hizkuntza-eskakizunak aztertu ziren, besteak beste, zientzia, matematika, geografia edo historia. Proiektu horren barruan, Beaccok (2010) 25 eragiketa kognitibo baino gehiago aipatu zituen (aztertu, inferitu, ilustratu, sailkatu, deskribatu, konparatu, azaldu, besteak beste), eta eragiketa kognitibo horietako bakoitzaren hizkuntza eskakizunak zehaztu zituen. Ildo beretik, testuinguru germaniarrean Vollmerrek (2010), beste aditu batzuekin batera, funtzio diskurtsibo akademikoen zerrendatik abiatuta, aditz zerrenda bat egin zuen, prozesu kognitiboen eta horien errepresentazio diskurtsibo gisa ulertu behar dena. Autore askok eta askok funtzioen zerrenda ugari argitaratu dituzte, eta orokorrean, esan daiteke, gehienak bat datozela hizkuntza akademikoaren funtzioetan arreta jartzea modu egokia dela edukiak ikasteko behar den hizkuntza-eskakizuna zehazteko (Bauer-Marschallinger, 2022).

Dalton-Pufferrek literaturan identifikatu diren *academic language functions* horiek aztertu eta zerrenda bakarra egin zuen. Funtzio batzuk errepikatu egiten dira autoreen zerrenda desberdinetan, beste batzuk, aldiz, autore batek edo bik bakarrik aipatzen dute. Guztira 54 aditzez osatutako zerrenda egin zuen, Dalton-Puffer (2013) lanean jasota dagoena. 54 funtzio horiek helburu komunikatiboaren arabera antolatu zituen, 7 kategoria sortuz: *report, describe, define, classify, explain, explore* eta *evaluate*. Ostean, CLASSIFY

kategoria CATEGORISE bihurtu zen (Evnitskaya eta Dalton-Puffer, 2020). Lan honetan CATEGORISE erabiliko da.

Hurrengo irudian ikus daiteke FKDak antolatzeko 7 FKD motak, kategoria bakoitzaren asmo komunikatiboa, eta kategoria osatzen duten aditzak. Sailkapen honek ez du FKD moten arteko hierarkiariarik adierazten funtzioen konplexutasunari dagokionez, konplexutasun-maila eragiketaren testuinguruaren araberakoa delako, eta hierarkia hori zehazten duen oinarri zientifikorik ez dagoelako (Dalton-Puffer et al., 2018).

Irudia/Figure 19. Funtzio kognitibo diskurtsiboak (Dalton-Puffer, 2018)

underlying basic communicative intention	CDF TYPE	performative verbs
I tell you how we can cut up the world according to certain ideas	CLASSIFY	*classify, compare, contrast, match, structure, categorize, subsume*
I tell you about the extension of this object of specialist knowledge	DEFINE	*define, identify, characterize*
I tell you details of what I can see (also metaphorically)	DESCRIBE	*describe, label, identify, name, specify*
I tell you what my position is vis a vis X	EVALUATE	*evaluate, judge, argue, justify, take a stance, critique, comment, reflect*
I tell you about the causes or motives of X	EXPLAIN	*explain, reason, express cause/effect, draw conclusions, deduce*
I tell you something that is potential (i.e. non-factual)	EXPLORE	*explore, hypothesize, speculate, predict, guess, estimate, simulate*
I tell you something external to our immediate context on which I have a legitimate knowledge claim	REPORT	*report, inform, recount, narrate, present, summarize, relate*

FKD konstruktoaren sailkapena konplexua da. Kategoria horietako bakoitzaren izena etiketa bat baino ez da, eta beregain hartzen ditu beste hainbat aditz ere, aditz operatiboak (*operative verbs*) deiturikoak. Hau da, DEFINE kategoriak ez du *definitu* bakarrik esan nahi, kategoria horretan dauden aditz guztiak baizik. Bestalde, taulan ikusten den moduan, kategoria batzuk beste batzuk baino aditz gehiagoz osatzen dira. EVALUATE kategoria zortzi aditzek osatzen dute, eta DEFINE kategoria hiruk. Kontuan hartu behar da halaber kategoria batzuen arteko mugak lausoak direla, eta ondorioz, zenbait kasutan, gerta daiteke aditz bat kategoria batean baino gehiagotan kokatzea (Dalton-Puffer, 2013). Modu berean, FKD batzuk beste batzuekin gainjarri daitezke, esaterako, sailkapenak definizioen parte dira (Dalton-Puffer 2013).

Bestalde, FKDak bi mailatakoak izan daitezke: atal maila (*episode level*) eta oinarrizko maila (*basic level*) (Dalton-Puffer et al, 2018). Lehenengoak asmo komunikatibo bati dagozkion diskurtso-tarte zabalagoak dira; eta bigarrenak, FKD laburragoak, atal

mailako funtzioaren helburua indartuz eta osatuz. Hau da, atal maila (edo makro-generoak) oinarrizko mailako (mikro-generoak) FKDek osatzen dute (Dalton-Puffer et al., 2018). Mailakatze horrekin lotuta, Kröss-ek (2012) aipatzen du FKDak genero gisa funtzionatzen dutela batzuetan, eta baita sekuentzia (*move*) gisa beste batzuetan. Hau da, FKD batzuk, azalpenak adibidez, generoak (azalpen testu bat) edo FKDak (esaldi bat) izan daitezke, luzeraren arabera. FKD eta generoen arteko harremana konplexua da, baina laburbilduz, Pluriliteracies Teaching modeloan funtzio kognitibo diskurtsiboek mikro-genero izaera hartzen dute, eta, diskurtsoaren beste funtzioekin batera, makro-generoak osatzen dituzte (Coetzee-Lanchmann, 2007).

Azken urteetan hainbat ikerketa egin dira FKD mota zehatzen inguruan (Lechner, 2016; Evnitskaya, 2019; Nashaat-Sobhy eta Llinares, 2020; Whittaker eta McCabe, 2020). FKD batzuek beste batzuek baino arreta handiagoa jaso dute, adibidez, DEFINE eta EXPLAIN (Dalton-Puffer, 2016), eta egindako ikerketa guztiek FKDen deskribapen zehatzagoa egiten lagundu dute:

KATEGORIZATU (CATEGORISE): Sailkapenak eta kategorizazioak egitea arloko alfabetatzearen parte garrantzitsu bat da (Dalton-Puffer, 2016). Anderson eta Krathwohl-ek (2001) diote Ikasgai guztietan kategoriak erabiltzen dira elementu berriak kokatzeko eta horiek interpretatzeko, eta termino espezifikoen eta gertaeren arteko loturak sailkapenen bidez egiten direla. Sailkapenak egiteko sailkatuko denaren ezaugarri esanguratsuenen identifikazioa egin behar da. Sailkapenak askotan "X da Y", "X Yren atal da", or "X Yri dagokio" formakoak izaten dira (Evnitskaya, 2019), eta Trimble-ek (1985), aldiz, hiru sailkapen mota bereizten ditu: osoa, partziala eta osatu gabea.

DEFINITU (DEFINE): Definizioak oso garrantzitsuak dira idazketa akademikoan (Dalton-Puffer, 2016). Definizioen egitura formula baten bidez laburbildu daiteke: definitu nahi den hitza (*definiendum*), dagokion mota (*definiens*), eta, ondoren, ezaugarri espezifikoak. Definizioaren barruan mota zehazten denez, CATEGORISE FKDa DEFINEren parte bihurtzen da. Definizioak konplexuagoak izan daitezke beste informazio eta zehaztapen mota batzuk gehituz (Trimble, 1985). Definizioak osatzeko formula ez da oso konplexua, "an X is an Y" eta ostean ezaugarriak jartzen dira, adjektiboak edo erlatibozko esaldiak izan daitezkeenak. Ahozko elkarrekintzan erabiltzen diren definizioak, idatzizkoan erabiltzen direnak baino sinpleagoak dira (Dalton-Puffer, 2016). Ahozko elkarrekintzan askotan kategoria ez da aipatzen, eta beste batzuetan definizio osoen ordez sinonimoak edo antonimoak ematen dira.

DESKRIBATU (DESCRIBE): Objektu, entitate, pertsona, egoera, gertaera edo prozesu baten kanpo- eta barne-ezaugarriei buruzko informazioa ematean datza (Dalton-Puffer, 2016). Deskribapenek hainbat forma hartzen dituzte testuinguru eta jakintza-arlo desberdinetan (Dalton-Puffer, 2016). Trimblek (1985) hiru deskribapen mota bereizten ditu: fisikoa (ezaugarri materialak eta kanpokoak); deskribapen funtzionala (gailu edo erakunde baten asmoa eta haren zatiak nola kohesionatzen diren). Deskribapen mota hau EXPLAINekin gainjartzen da maiz.

EBALUATU (EVALUATE): Jarrera bat hartzea, erabakiak justifikatzea eta norberaren iritziak argudiatzea esan nahi du (Dalton-Puffer, 2016). Ebaluatzea goi-mailako pentsamendu-trebetasuntzat hartzen da (Anderson eta Krathwohl, 2001). Hau da, funtzioak konplexutasunaren arabera hierarkizatzen dituzten autoreek funtzio hau konplexutasun handiko funtziotzat hartzen dute (Bloom, 1956; Anderson eta Krathwohl, 2001). FKD hau ez da asko ikertu, eta ikerketetan erakusten da funtzio hau gutxi erabiltzen dela elkarrekintzan (Kröss, 2014). Halere, curriculumetan pisua handia hartzen duen funtzioa da eta horregatik, Beacco et al.-ek (2010) elkarrekintzan protagonismo gehiago izan beharko lukeela dio.

AZALDU (EXPLAIN): Hiru azalpen mota bereizten badira ere, FKD konstruktuaren barruan, AZALDU FKDa bi modu nagusitan erabiltzen da (Dalton-Puffer, 2016): batetik, asmo edo motiboen berri emateko (X mozkortuta zegoelako Y gertatu zen); eta bestetik, gertaera baten arrazoia edo jatorria argitzeko. Funtzio honen komunikazio-asmoa honela definitzen da: "I give you reasons for and tell you about the cause/s of X" (Dalton-Puffer, 2013: 234). Definizio hau bat dator EXPLAINek Bloomen taxonomian egiten den funtzio honen definizioarekin (Anderson eta Krathwohl, 2001; Bloom et al., 1956). Bestalde, AZALDU aditza beste diskurtso kognitiboen hiperonimo gisa erabiltzen dela ikusi da (Dalton-Puffer, 2016).

ESPLORATU (EXPLORE): Esplorazioak funtsezko zeregina betezen du diziplinetako edukien eraikuntzan, funtzio hau ere, goi-mailako pentsamendu-gaitasuntzat hartzen baita. Andersonek eta Krathwohlek (2001), adibidez, hipotesiak egitea eta alternaribak sortzea konplexutasun maila altuenean kokatzen dute. Hizkuntza ikuspegitik, ESPLORATZEAK egitura lexikogramatiko konplexuak eskatzen ditu, hala nola aditz modalak, adberbioak eta baldintzazko esaldiak (Dalton-Puffer, 2016). Esploratzeak esan nahi du suposizio edo iragarpen bat egitea, baldintza jakin batzuk betetzen badira zerbait nolakoa izango den edo nolakoa izango litzatekeen jakiteko. Hipotesiak eta iragarpenak egitea dira FKD mota honetan gailentzen diren aditzak (Dalton-Puffer, 2016).

KONTATU (REPORT): FKD honek zer gertatu zen, noiz, nork egin zuen eta zein egoeratan kontatzea du helburu. KONTATZEA zeregin pedagogikoetan egiten den oinarrizko funtzioa da, adibidez ikasle batek taldean egindako lana aurkezten duenean.

2013an Dalton-Pufferrek FKD konstruktoa garatu zuenetik, hainbat ikerlariren arretagunea izan da (Dalton-Puffer et al., 2018; Doiz eta Lasagabaster, 2021; Breeze eta Dafouz, 2017; Bauer-Marschallinger, 2019, 2022; Dalton-Puffer eta Bauer-Marschallinger, 2019; Evnitskaya, 2019; Evnitskaya eta Dalton-Puffer, 2020; Lorenzo, 2017; Morton, 2022), eta ikerketa guzti horiek konstruktoa garatzen lagundu dute. Dalton-Puffer et al., (2018) lanean azken urteetan Austrian egin diren bost ikerketa jasotzen dira: Kröss (2014); Hofmann eta Hopf (2015), Brückl (2016), Bauer-Marschallinger (2016) eta Lechner (2016).

Bigarren atalean azaldu den bezala, gelan, prozesu kognitiboak elkarrekintzaren bidez koeraikitzen dira (Dalton-Puffer, 2013). Prozesu kognitiboak modu egokian adierazteko gaitasuna ez da automatikoki garatzen, baizik eta esplizituki irakatsi behar da, bai ikasleen lehen hizkuntzan eta baita bigarrenean ere (Meyer, 2010; Coyle et al., 2018). Bauer-Marschallinger-ek (2022) eta Tedick eta Lyster-ek (2019) CDFak idatziz nola aldamiatu daitezkeen ikertu dute, baina orain arte ez da ikerketarik aurkitu gelako elkarrekintzan ikasleek erabiltzen dituzten FKDen aldamiajea nola egin behar den aztertzen duenik. FKDak aldamiatzeko modu bat izan daiteke Coylek eta Meyerrek (2021) aipatzen dituzten *upscaling* eta *downscaling* kontzeptuak. FKDen konplexutasuna ikasleen beharretara egokitzean datza, FKDa sinpletuz edo konplexutasuna igoz. Ikasleei ezagutzak hizkuntzaren bidez komunikatzen irakasteak, hobeto azaltzen ez ezik, edukia hobeto ulertzen lagunduko die (Coyle eta Meyer, 2021).

3.3.6. Ikaskuntzaren ikuspegi holistikoa

> "deeper learning is not only a matter of constructing and communicating or demonstrating knowledge"
>
> (Coyle eta Meyer, 2021)

PTDL markoaren arabera, arloko alfabetatzea garatzeko behar diren gaitasun kognitibo eta linguistikoak ez ezik, ikaskuntza sakonagoa lortzeko ikaste-testuinguruak ikuspegi holistikoago batetik sortu behar dira (Coyle eta Meyer, 2021; Meyer et al, 2018). Hau da, lortu nahi diren ikaste-emaitzak eta alfabetatzea ikasleen beharrekin, indarguneekin eta interesekin lotu behar dira, ikasleak seguru eta lasai sentitu daitezen gelan arriskatzeko, akatsak egiteko, eta beren ikaste-prozesua gidatzeko (Parsi, 2015).

Irakaskuntzaren eta ikaskuntzaren ikuspegi holistikoago eta ekologikoagoa (van Lier, 2010) eskaintzeko, ezinbestez hartu behar dira kontuan parte-hartzaileen ezaugarriak eta horiek ikaste-irakaste prozesuan duten rola (Meyer et al., 2018). Horregatik, autore hauek aurretik azaldu den PTL eredua osatu zuten, eta bi ardatz berri gehitu zizkioten: garapen pertsonalerako mentoring-a (*mentoring learning for personal growth*) eta konpromisoa eta lorpena sortzea eta sustatzea (*generating and sustaining commitment and achievement*). Modu horretan 4 ardatzez osatutako PTDL eredua ikaste-irakaste integratu batera iritsi dira (Meyer et al., 2018):

Irudia/Figure 20. Pluriliteracies Teaching for Deeper Learning (Meyer et al., 2018)
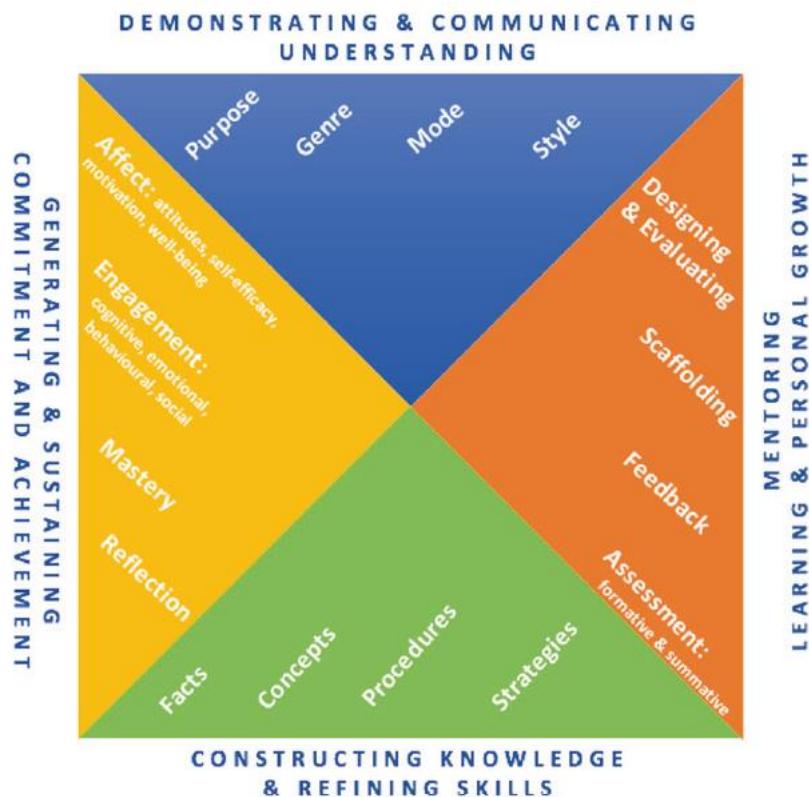
Ikuspegi honek erakusten du urrundu egin behar dugula norabide bakarreko irakaskuntza eredutik, eta horren ordez, irakasle zein ikasleek ezagutzaren eraikuntzan eta ikaste-helburuen eta prozesuen negoziazioan elkarrekin parte hartu behar dutela (Coyle eta Meyer, 2021). Hortaz, ereduak ikasle zein irakasleen gaitasun ez kognitiboak jasotzen ditu; batetik, ikaslearen atxikimendua eta horrek errendimenduan duen eragina, autoeraginkortasun akademikoa eta norberaren sinesmen eta balioak batetik; eta mentoring dimentsioa bestetik (Meyer et al., 2018).

Lehenengo bi ardatzak goian azaldu eta sakondu direnez, hurrengo lerroetan beste bietan jarriko dugu arreta: garapen pertsonalerako mentoring-a eta konpromisoa eta lorpena sortzea eta sustatzea.

3.3.6.1. Konpromisoa eta lorpena sortzea eta sustatzea

Ikaskuntza sakonagoa lortzeko garapen kognitiboa bakarrik lantzea ez da nahikoa, ikasleak ikaskuntza sakonagorako pentsamoldea (*deeper learning mindset*) garatu behar du. Horrek lagunduko die modu jarraitu eta iraunkorrean lan egiten, erronketan gogotsu parte hartzen, ikaskideekin elkarlanean aritzen, eta beren ikaskuntza erregulatzen (Coyle eta Meyer, 2021). PTDL markoak jasotzen duen bezala, ikaslearen pentsamoldeak *(learner mindset)* eta faktore afektiboek funtsezko lau arlok osatzen dute: afektua (ikaslearen ongizatea, jarrera, motibazioa eta autoefikazia); atxikimendua (*engagement*) (emozionala, kognitiboa, soziala, jarrerazkoa); menderatzea (*mastery*); eta hausnarketa. Lau aspektu horien garapena erronka handia da irakasle zein ikasleentzat (Meyer et al., 2018; Coyle eta Meyer, 2021). Hala ere, atal honetan, ikasleengan jartzen da arreta.

Esan bezala, faktore afektiboen barruan sartzen dira: ongizatea, motibazioa, autoefikazioa eta jarrera. Pellegrino eta Hiltonen (2012) esanetan, faktore afektiboak edo ez-kognitiboak gero eta esanguratsuagoak dira XXI. mendeko ikaskuntzan; eragin zuzena baitute ikaskuntzaren kalitatean (Meyer et al., 2018). Hala ere, horien eraginak ez du erabateko inpaktua izango, alderdi afektiboa ezagutzaren progresioarekin lotu ezean, adibidez, ikaste-irakaste eredu integratu baterako baldintza egokiak eskainiz (Meyer et al., 2017).

Baldintza horien artean, ikasleek sentimendu positiboak izatea ezinbestekoa da ikaskuntza sakonagoa lortzeko; estresak eta zinismoak, berriz, azaleko ikaskuntzara garamatzate (Biggs, 1989). Ildo beretik, Morcom-ek (2015) dio harreman afektiboak eraginkortasunez lan egin ahal izateko aurrebaldintza direla, eta irakaslearen zeregina dela harreman horiek indartzeko espazio afektibo partekatuak sortzea. Horretarako, garrantzitsua da irakasleak gelako giroa berotzea Biggsek (1989), ikasleak eroso sentitu daitezen, eta zereginetan interesa izan dezaten (Biggs, 1989). Izan ere, ikasleak zenbat eta seguruago sentitu eta atxikimendu handiagoa izan, orduan eta motibatuago egongo dira eskakizun akademikoei erantzuteko (Brooks et al., 2012).

Bestetik, norberaren prozesuaren inguruan hausnartzea ikasteko modu bat izateaz gain, ikaste-helburu bat ere baita, eta horretarako, ikasleek haien ikaste-prozesuaren inguruan hausnartzeko tarteak behar dituzte (Meyer et al., 2015). Ideia hau

autoefikaziarekin lotzen da. Ikerketa askok erakusten dute ikasleek emaitza hobeak lortzen dituztela beren gaitasun intelektualak mugatuta ez daudela uste badute. Hau da, ikasleek arazoak konpontzeko eta zereginak osatzeko gaitasuna dutela uste dutenean, gogo eta pertzeberanzia handiagoz egiten diete aurre zailtasunei (Bandura, 1997), autoefikaziak ikasleen motibazioan modu positiboan eragiten baitu (Pajares, 2006). Motibazioan eragina duen beste arrazoi nagusietako bat da azken produktua gelakideen aurrean, gurasoen aurrean edo lagunei aurkeztu behar izatea. Beraz, ikasleak animatu behar dira beren proiektuak aurkeztera, eta proiektuen inguruan beste pertsona batzuekin hitz egitera (Aldabbus, 2018).

Atxikimenduari dagokionez, lau motatakoa izan daiteke: kognitiboa, emozionala, soziala eta jarrerazkoa. Atxikimendu sozialak ikaskideen arteko, eta ikasle eta irakasleen arteko harremanei dagokie; jarrerazkoak ikasleek gelako ekintzetan parte hartzeari; emozionalak ikasleek eskolarekiko, irakasleekiko eta ikaskideekiko dituzten sentimendu afektiboei egiten diete erreferentzia; eta azkenik, atxikimendu kognitiboak ikasleek gelako jardueretan konpetentziak garatzeko eta ideia konplexuak ulertzeko kontzienteki erabiltzen dituzten estrategia sofistikatuei eta autoerregulazio gaitasunari (Tang et al., 2022).

Atxikimendua ikaskuntza sakonagoaren oinarria da (Coyle eta Meyer, 2021), eta zeregin edo jarduera baten aurrean ikasleak erakusten duen parte-hartze aktiboaren maila adierazten du (Pietarinen et al., 2014). Wang et al.-ek (2016) nabarmentzen dute dimentsio sozialak, emozionalak, kognitiboak eta jarrerazkoak elkar eragiten direla, eta ikaskuntzarekiko ohiturak eta jarrerak garatzera eramaten dutela. Adibidez, ikasleen atxikimenduari buruzko ikerketek adierazten dute atxikimendu emozionalak atxikimendu kognitiboan eragiten duela. Jardueren diseinuak eragin handia izan dezake ikasleen atxikimenduan (Coyle eta Meyer, 2021), Chi et al.,-ek 2012 erakusten dute irakasleek edukiarekiko atxikimendua handitu dezaketela ulermen sakonagoa sustatzeko ikasleen rol pasiboaren ordez atxikimendu interaktiboa edo konstruktiboa sustatzen duten atazak diseinatuz.

Ezagutzak eta trebetasunak menderatzea (*mastery*) da irakaskuntza eta ikaskuntzaren helburu nagusia (Meyer et al., 2018). Anderson eta Krathwohlen arabera (2001), *mastery*ak pertsona batek arazo bat konpondu behar duenean eragiketa mentalak aktibatzeko duen gaitasuna deskribatzen du. *Mastery*-ak lorpena eta arrakasta dakar, eta hau garatzeko, funtsezkoa da ikasleak jarduera bat egiteko jarraitutako prozesua ulertzera bultzatzen dituen zereginak eskaintzea (Coyle eta Meyer, 2021).

Azkenik, norberaren hausnarketa egitea ikaste-helburu eta ikaste-objektua da aldi berean (Meyer, et al., 2018). Ikaskuntza arrakastatsua izan dadin, ikasleak jakin behar du bere buruarentzat egokiak diren helburuak ezartzen, ikaskuntza planifikatzen eta zailtasunei aurre egin ahal izateko estrategiak hautatzen (Heemsoth eta Heinze 2016). Hausnarketa sustatzea aberasgarria izan daiteke esanguratsuak diren hainbat aspektu indartzeko, hala nola, interesa, ikasten jarraitzeko gogoa eta norberaren trebetasunak eta gaitasunak hobetzeko motibazioa, erronka berriak aurre egiteko norberarengan konfiantza izatea, eta estrategia eta trebetasun metakognitiboak erabiltzea (Lüftenegger et al. 2017). Horretarako, ikasleek aukerak eskaini behar zaizkie garatu dituzten estrategien erabilirerari buruz kritikoki hausnartzeko (Meyer et al., 2015).

Aipatutako faktore guztiak elkarrekiko mendekoak dira. Ongizatearen, motibazioaren, arrakastaren (*achievement)* eta irakaslearen autoeraginkortasunaren arteko harreman konplexuak alderdi guztiak kontuan hartzea eta orekatzea eskatzen du. Alderdi bat deskuidatuz gero, litekeena da sistema osoari modu negatiboan eragitea; adibidez, ikasgelan laguntza emozionalik ez badago, irakaslearen eta ikaslearen ongizatea ahuldu egingo da, eta horrek errendimendu akademikoan modu negatiboan eragin dezake. Aitzitik, alderdi bat indartzen bada horrek beste alderdi batzuetan eragin positiboa izango du (Meyer et al., 2018).

3.3.6.2. Garapen pertsonalerako eta ikaskuntzarako mentoring-a

PTDLk eskatzen du ikaskuntza feedback egokiaren, ebaluazioaren eta hazkunde pertsonalaren bidez aldamiatzea (Meyer et al., 2018). Horretarako, irakasleek testuinguru egokiak diseinatu behar dituzte, eta aukerak eskaini ikasleek gaitasunak garatzeko, eta bai kontzeptualizazioaren eta komunikazioaren continuumetan aurrera egiteko (Meyer et al, 2015).

Mentoringak, azaleko ikaskuntzatik ikaskuntza sakonagora pasatzeko, ikasleen eta irakasleen arteko elkarlana eskatzen du (Meyer et al., 2018). Ikasle eta irakasleen artean ikaskuntzak eta erronkak diseinatzeak aukera ematen ie ikasleei beren aurrerapena etengabe ebaluatzeko eta hausnartzeko (Fullan eta Langworthy, 2014). Gainera, ikasleek euren buruarengan konfiantza irabazten dute edukian eta hizkuntzan aurrera egiten dutela esaten duen feedbacka jasotzen dutenean.

Pluriliteracies Teaching for Deeper Learning ereduan ikaslearen garapena lortu nahi da ikaskuntza sakonagoa aldamiatuz. Aldamiajea egiterakoan ikaskuntzaren eremu guztiak hartu behar dira kontuan: afektiboa, kognitiboa, motor-sentsoriala eta soziala (Dettmer, 2005), eta maila eta momentu desberdinetan egiten da: zereginak eta jardueran

diseinatzerakoan (*pre-teaching*); irakasten den bitartean (*process feedback and support*), eta irakaskuntzaren ostean (*product feedback, assessing for deeper learning*).

Aldamiajearen prozesuan ikaslearen esku jartzen dira ezagutza eta jakintza eraikitzeko lagungarriak diren materialak eta baliabideak, praktikaren bitartez ikasleek ezagutza bereganatu eta konpetentziak eta gaitasunak garatzera iritsi daitezen (Meyer, 2015). Ikasleei prozesu horiek automatizatzen laguntzeko feedback egokia emateko testuinguruak sortu behar dira (Anderson et al., 1995), eta hizkuntzaren automatizazioa bultzatzen duten jarduerak txertatu, betiere transferentziaren prozesua zainduz eta kontuan hartuz (Segalowitz, 2003).

PTDL markoan feedback-a ikaskuntzaren helburuen, zereginen eta emaitzen arteko funtsezko lotura da (Coyle eta Meyer, 2021). Hattie-k eta Timpereley-k (2007:81) honela definitzen dute feedbacka: "information provided by an agent regarding aspects of one's performance or understanding". Hattie-k eta Timpereley-k (2007) proposatutako ereduan lau feedback maila bereizten dira: task, process, self-regulation, self level (Coyle eta Meyer, 2021). Erregulazioaren eta prozesuaren gaineko feedbacka esanguratsuenak dira zereginak sakon prozesatzeari eta menderatzeari dagokionez. Baina "feedback aimed to move students from task to processing to self-regulation is considered to be the most effective" (Coyle eta Meyer, 2021: 111).

Bestetik, errubrikak feedbacka emateko tresna nagusietako bat da. Errubrikak ikasle eta irakasleen artean eraikitzea proposatzen da, definitutako helburuak, prozesuak eta zereginen emaitzak garden egiten dituelako, ikasleak ezagutza berria definitzen eta zehazten duten prozesuetan inplikatzen dituelako eta zereginak arrakastaz egitera eramaten dituelako (Coyle eta Meyer, 2021).

Azkenik, ebaluazio hezitzailearen barruan (ikus 2.3.2. atala) irakaslearen ebaluazioa, berdinkideen arteko koebaluazioa eta autoebaluazioa uztartu behar dira. Horiek egiteko ikaskideen parte-hartze aktiboa behar da (Meyer et al., 2018).

3.3.7. Ikas-materialaren ezaugarriak

Material didaktikoak hezkuntza-testuinguruan irakaskuntza eta ikaskuntza errazten duten bitartekoak eta baliabideak dira, ikasleak ezagutzak eraikitzeko prozesuan ikaste-prozesuak gidatzeko eta orientatzeko diseinatzen direnak (Schwartzman, 2013). Ikerketek iradokitzen dute materialek ikasleen ikaskuntzaren eta errendimenduaren kalitatean modu positiboan eragin dezaketela, ikasleen ikaskuntza areagotuz (Glewwe

et al., 2011). Gainera, Torresen eta Garcíaren arabera (2019), material didaktikoek irakasleentzako tresna lagungarri gisa ere balio dute.

PTDL markoaren helburua ikasleek jakintza-arlo desberdinetan ikaskuntza sakonagoa lortzea izanik, material didaktikoak ikaskuntza sakonagoa sustatu beharko du. Hau da, arloko alfabetzatzeak eta horien ikaste-prozesu sakonagoak sustatzeko, materialak lagundu behar du arlo bakoitzari dagokion kulturan edukiak eraikitzen, eta eduki horiek hizkuntzaren bitartez interpretatzen (Schartz, 2017). Izan ere, materiala hizkuntzaren lanketari dagokionez egokia izateak ez du esan nahi edukiari dagokionez ere egokia izatea, eta alderantziz; horregatik, Mortonek (2013) material didaktikoa hizkuntza eta edukiaren arteko integrazioa kontuan hartuta diseinatzearen garrantzia nabarmentzen du.

Pluriliteracies markoa garatu zuen taldeak irakasleentzako erabilgarriak izan daitezkeen baliabideen biltegi bat sortu zuen, eta bertan kimika, geografia eta historiarako diseinatu diren materialak bildu dira (ECML, 2020). Connolly-k (2019) kimikako arloan kausa-efektu erlazioak aldamiatzeko materialak sortu zituen, Pluriliteracies Teaching for Deeper Learning markoa (Meyer eta Coyle, 2017) eta kimikako oinarrizko kontzeptuak kontuan hartuz (Leisen, 2013). Bestetik, Bauer-Marschallingerrek (2022) batxilergoko CLIL testuinguruetan historia irakasteko materialak garatu zituen, FKDen kontzeptua oinarri gisa hartuta.

Connollyk (2019) egindako azterketan ikusi zuen azterketarako diseinatutako materiala erabili zuen talde esperimentalak kontrol-taldeak baino emaitza hobeak lortu zituela bai edukiaren eta baita arloko alfabetzatzeari dagokionez. Modu honetan ondorioztatu zuen zenbait ezaugarri dituzten materialek ikaskuntza errazten dutela, adibidez, *misconceptionak* gainditzen laguntzen dutenak, edo arloko hizkuntzaren autoerregulazioa sustatzen dutenak. Alderdi horiek eta PTDL markoko ideia nagusiak kontuan hartuta, Conollyk (2019) PTDL markoan kokatzen diren material didaktikoek izan behar dituzten bost ezaugarri nagusiak jasotzen ditu:

1. Edukia, hizkuntza eta metakognizioaren progresioa *(Progression in terms of content, language and metacognition): PTDL* markoaren atalean azaldu den bezala (3.1.1), progresioaren ideia ikaskuntza sakonagoa lortzeko gakoetako bat da. PTL eredua osatzen duten kontzeptualizazio eta komunikazioa continuumetan aurrera egiteko ikasleek ezagutzak gero eta modu konplexuagoan eta egokiagoan adierazten ikasi behar dute (Coyle, 2020), hasiberritik aditura (*novice-expert*). Bi continuumen artean loturak egiteko eta arloko arloko alfabetzatzea garatzeko, lau *ekintza tipoen* zehar

FKDak eta generoak erabiltzea proposatzen dira. Hau da, materialak gero eta konplexuagoak eskaini behar ditu (Meyer et al., 2015) eta arloari dagozkion FKD eta generoen bidez ezagutzak komunikatzeko eskatu.

2. Hizkuntza teknikoaren eta edukia lotzen arloari dagozkion datuen bitartez *(Linking technical language and content learning to concrete facts concrete subject matter):* Oro har, zientziaren diskurtsoa teknikoa dela ondorioztatu da, eta gizarte-zientziena, berriz, abstraktuagoa (Beacco et al., 2015). Ikaskuntza sakonagoa lortzeko, ezinbestekoa izango da ikasgai guztietan hizkuntza akademiko egokia erabiltzea (Meyer et al., 2015), eta horrek jakintza-arlo bakoitzak berariaz duen hizkuntza menperatzea suposatzen du. 3.2.2 atalean aipatu den bezala, hizkuntza arruntaren erabilerak hizkuntza akademikoa garatzen laguntzen du, horregatik, materialak eguneroko hizkuntzaren eta hizkuntza akademikoaren arteko joan-etorriak sustatu behar ditu, baita edukia adierazten den formatu desberdinen artean ere (Nikula et al., 2013). Izan ere, Pluriliteracies ereduak azpimarratzen du ikaslea gai izan behar dela arloetako ezagutzaren berri emateko erabiltzen diren formatu desberdinetatik informazioa eskuratzeko, eta ikasleak formatu horietan ezagutza adierazten trebatu behar ditugula (Meyer et al., 2015).

3. Gatazka kognitiboak sortu eta ezagutza okerrak landu (*Creating cognitive conflicts and addressing pre- or misconceptions):* Gatazka kognitiboek potentzial handia dute ikaskuntzan, aurretik sortutako eskemak berregituratzen baitira, eta gatazka horiek gertatu ezean ezagutza berriak nekez integratuko dira aurretik sortutako eskemetan, asimilazio eta kontzeptu okerrak (*misconceptions*) sortuz (Bonnet, 2004). Kontzeptu okerrek eragin negatiboa daukate ikaskuntzan (Chang et al., 2007), eta ikasteko zailtasunak areagotu egin daitezke (Beerenwinkel et al., 2007). Taldean lan egiten duten ikasleek gatazka kognitiboak gainditzeko aukerak dituzte: kontraesan bat argitzen saiatzean, hasierako ikuspuntuetatik ezagutza-maila altuago bateko ikuspuntu batera iritsi daitezke (Laborde, 1994). Beraz, ikasleen progresioa nahi badugu, materialak aukera eman behar du kontzeptu okerrak identifikatzeko, eta horiek berariaz lantzeko (Biggs, 1989).

4. Aldamiatze multidimensionala (*Multidimensional scaffolding):* Pluriliteracies Teaching for Learning modeloan ikaslearen garapena lortu nahi da ikaskuntza sakonagoa aldamiatuz. Horretarako, ikaslearen esku jarri behar dira ezagutza eta jakintza eraikitzeko lagungarriak diren materialak eta baliabideak, modu autonomoan ezagutza bereganatu eta konpetentziak eta gaitasunak garatzera iritsi daitezen (Meyer, 2015). Prozesu horiek automatizatzeko, hizkuntzaren automatizazioa bultzatzen duten

jarduerak ere txertatu behar dira (Segalowitz, 2003). Aldamiajearen prozesuan feedback-ek eta hausnarketek pisu handia hartzen dute. Ebaluazioari dagokionez, materialak ebaluazio hezitzailea proposatu behar du (ikus 2.3.2 atala). Ebaluazio hezitzailean ebaluazio mota desberdinak koordinatzen dira, autoebaluazioa, koebaluazioa eta irakaslearen ebaluazioa esaterako. Hiru ebaluazio mota hauek uztartzeak ezagutzaren eraikuntzan eta ulermenean lagunduko du (Meyer et al., 2018).

5. Ikasleen ezaugarri afektiboak eta atxikimendua sustatu. (*Encourage affective student characteristics and engagement):* atxikimenduaren inguruko teoria atal honetan jaso da. Atxikimendu emozionala eta kognitiboari dagokienez, Pellegrinok eta Hiltonek (2012) diote ikasleen interes, testuinguru eta munduko arazo eta gertaera errealek motibatzen dituzela ikasleak. Beraz, materialak proposatzen dituen jarduerek ere lotura izan behar dute ikasleen errealitatearekin. Gainera, irakaslearekin batera ikaste-helburuak zehazteak, ikasleen autoerregulazio gaitasunean laguntzen du, eta ondo eginez gero, eragina izan dezake ikasleen autoefikazian. Azkenik, materialak erantzunak kontrastatzeko aukera eskaini beharko luke; izan ere, azken emaitza gelakideen aurrean aurkeztu aurretik erantzunak egiazta baditzakete, ikasleen ongizatea hobea izango da emaitza aurkeztu behar duenean (Connolly, 2019).

3.4.   SUMMARY

Two of the roles that language plays in the learning process have been pointed in this section. On the one hand, Vygotsky's sociocultural theory (1978) defines language as a mediating and thinking tool, emphasising the importance of interaction and scaffolding in learners' development and learning. On the other hand, school is organised into areas of knowledge that are taught in school through language (Schleppegrell, 2004; Vollmer, 2007).

As the knowledge required of learners becomes more advanced and specialised, language becomes more abstract and metaphorical (Fang, 2012), and literacy and texts become increasingly specialised as they progress through the grades (Shanahan and Shanahan, 2008; Schlepegrell, 2004). Thus, according to these authors, disciplinary literacy develops throughout secondary education, since disciplinary demands become more determinant in secondary education (Tang, 2016).

In this vein, Systemic Functional Linguistics (SFL) has described discourses in various subject areas and identified differences (Fang et al., 2008; Halliday and Martin, 2003; Veel and Coffin, 1996; Rothery, 1994). In order for students to become literate in school

subjects, they must become producers of the various genres with which the knowledge of the field of knowledge is constructed (van Kampen, 2020).

In general, neither language teachers nor subject teachers pay attention to the role of language in the learning process (Coyle, 2015). Understanding and implementing the concept of integration in models that integrate language and content has been done in different ways (Nikula et al. 2016), with the resulting deficits of learners in academic language (Meyer and Coyle, 2017), both in first and second languages (Vollmer, 2008).

It is sometimes assumed that because the language of instruction is the learners' first language, they will automatically achieve the objectives set for the language of instruction and develop the academic literacies of the subjects taught through this language (Pavón and Pérez, 2018). According to Lorenzo and Trujillo (2017), one of the causes of learning deficits is difficulties in students' first language proficiency (L1). As a result, regardless of the language of instruction, "the vehicle of communication is a conduit for learning," whether it is an L1 or an L2 (Lorenzo and Trujillo, 2017).

In order to ensure that academic language does not hinder the learning process, and to help achieve deeper learning, the Graz group, funded by the Council of Europe's European Centre for Modern Languages, developed the Pluriliteracies Teaching for Deeper Learning (PTDL) model (Meyer and Coyle, 2017).

Meyer et al. (2018) proposed a research agenda for deeper learning based on Biggs' 3P model (Biggs 1999). The 3P model encapsulates the elements that influence any learning and teaching process (Freeth and Reeves, 2004). Meyer et al. (2018) assert that teachers' and students' prior experiences, attitudes, and perceptions (Presage) influence, among other things, the decisions that the teacher makes throughout the teaching process, the design of the material, and the mindset that students put into active participationin the defined tasks (Processes), all of which have an impact on the quality of learning.

Deeper learning requires learners to develop the ability to transfer subject area competences and content to different contexts (Coyle and Meyer, 2021), i.e. knowing when, how, and why to apply the knowledge developed to answer problems and questions that arise. The ability to perform this knowledge transfer will be dependent on the ability to construct knowledge in the subject areas. Thus, PTDL prioritises subject-specific literacy as the foundation for deeper learning (Meyer, 2015).

The PTL model, which is made up of two continuums (Meyer, 2015): the conceptualising continuum and the communicating continuum, aims to demonstrate how learners construct increasingly complex knowledge and meaning as they use and develop language from novice to expert level (Coyle, 2015). Learners should develop the ability to communicate their domain knowledge using the corresponding mode (oral, written, graphic or picture, table, drawing), genre, and style (formal or informal) to respond to the situation or context while taking the communicative goal into account (Coyle and Meyer, 2021).

In addition to the genres and registers mentioned in SFL, The Graz Group authors explain that another, smaller unit (micro-genres) could be useful in constructing more complex genres and in linking two continuums (Meyer et al., 2015; Meyer and Coyle, 2017). These "micro-genres" are known as "cognitive discursive functions" (CDFs), and they integrate both cognitive and communicative aspects of learning (Dalton-Puffer, 2013). As CDFs structure academic discourse, they play an important role in the deeper learning process (Dalton-Puffer, 2013).

To provide a more holistic and ecological view of teaching and learning (van Lier, 2010), a more integrated teaching and learning PTDL model composed of four axes was developed (Meyer et al., 2018), a new model that adds two more axes to the PTL model: "*mentoring learning for personal growth*" and "*generating and sustaining commitment and achievement*".

Because the goal of the PTDL framework is that students achieve deeper learning in various subject areas and through various languages, teaching materials should also encourage deeper learning. In other words, the material must contribute to the construction of content in the culture corresponding to each subject area, as well as its interpretation and linguistic processing, in order to promote subject-specific literacies and deeper learning processes (Schartz, 2017). Conolly (2019) lists the five main characteristics that learning materials within the PTDL framework should have, which are: Progression in terms of content, language and metacognition; Linking technical language and content learning to concrete facts concrete subject matter; Creating cognitive conflicts and addressing pre- or misconceptions; Multidimensional scaffolding; Encourage affective student characteristics and engagement
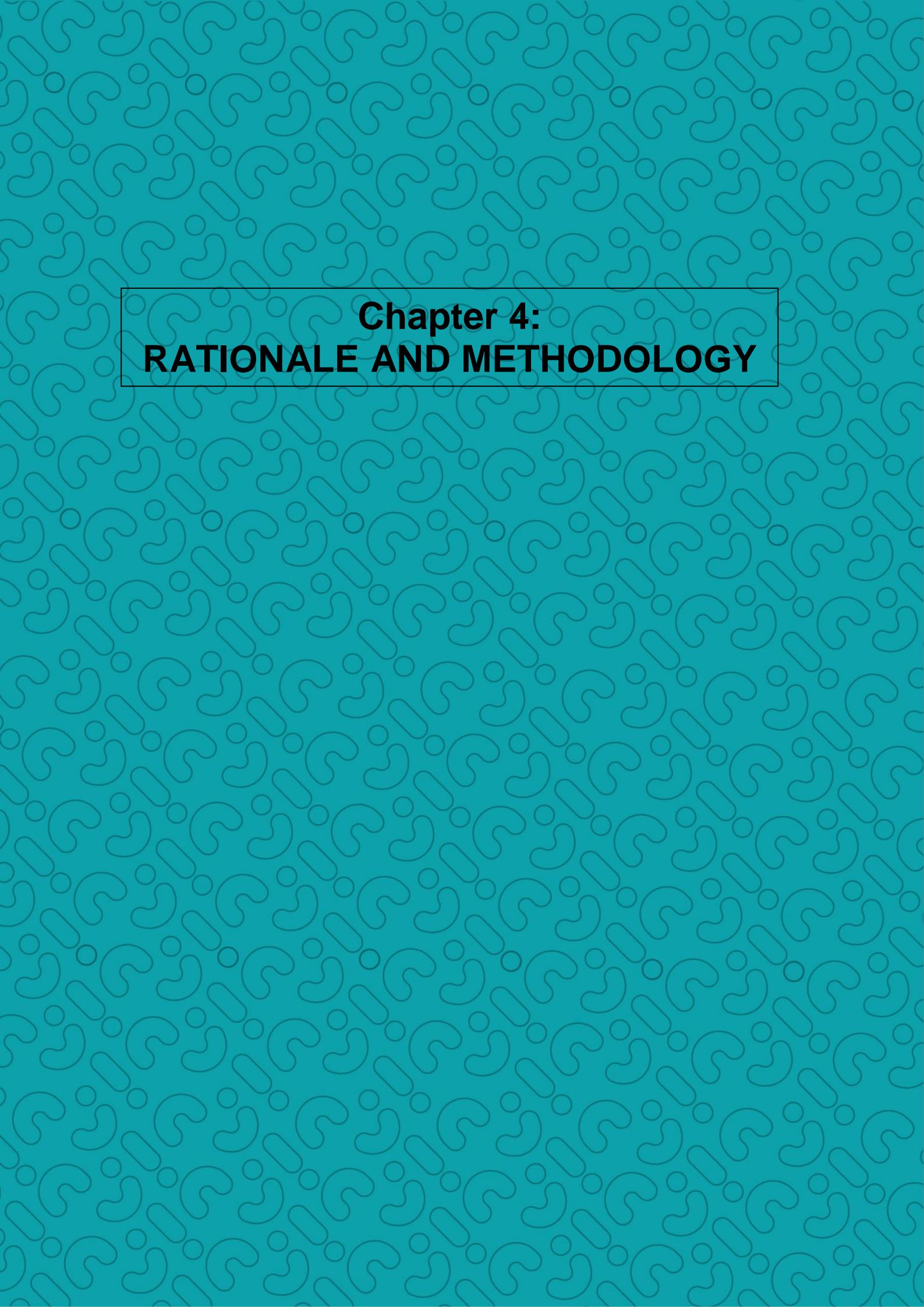
Chapter 4:
RATIONALE AND METHODOLOGY

4. RATIONALE AND METHODOLOGY

4.1.   RATIONALE FOR THE PRESENT STUDY

As presented in the first chapter of the theoretical framework, the changes that have occurred in society over recent decades have resulted in education having to adapt. Among other things, the focus has been placed on the aim of learners developing various competences. To this end, active methodologies are proposed, in which students are the protagonists of their learning process. In addition, interdisciplinarity, which helps to give meaning to the contents learnt and relate them to everyday life, is encouraged so that knowledge can be taught in an integrated way (Morin, 2010) and in order to put into practice what has been learnt in the subjects (Mc Phail, 2017).

In the second chapter of the theoretical framework it is argued that in addition to active (and interdisciplinary) learning, subject area literacy is key to deeper learning. It is pointed out, however, that subject area teachers do not pay attention to subject area content and language integration, resulting in a lack of attention to the role of language in subject areas. The PTDL framework proposes a model to ensure integration in the subject areas. For this purpose cognitive discourse functions are proposed.

In the BAC, where students have to develop proficiency in three languages, and many students learn in a language which is not their L1, interdisciplinary projects have not been studied from this perspective. For this thesis, the PTDL framework has been chosen because it places subject-specific literacy at the centre of deeper learning, along with other aspects. Within the PTDL framework, different disciplines (mathematics, history, science, etc.) have so far been studied. To our knowledge, there is little research on how subject-specific literacies should be worked on in interdisciplinary projects using the PTDL framework.

In this thesis a qualitative case study which involves a multidisciplinary project in upper-secondary school will be carried out. According to Shanahan and Shanahan (2008), as students move up through the school, literacies in subject areas become increasingly complex and specialised. Moreover, the challenge is increased when the language of schooling is a minority language and the L2 of many pupils. This study aims at understanding how the integration of language and subject area can be developed through multidisciplinary projects.

As seen, the identification of curricular and pedagogical planning, participant perspectives, and classroom practices are major factors to consider when integrating

content and language (Nikula et al., 2016). It is these three aspects that are presented in the present study. The views of students and teachers will be considered, whilst the material designed by the teachers will be examined and, finally, the way in which the CDFs are used in the student-teacher interaction will be analysed.

4.2.   OBJECTIVES AND RESEARCH QUESTIONS

This doctoral thesis aims to examine how subject-specific literacies are addressed in a multidisciplinary project with special focus, firstly, on teachers' and students' views regarding the features of the project, secondly, on the presence of subject-specific literacy in the teaching material and, thirdly, through the analysis of how CDFs are scaffolded in teacher-student interaction.

In order to do so, the following research questions are proposed.

RQ1. How do teachers and students involved in a multidisciplinary project describe the entry context of the project?

> RQ 1.1 How do teachers and students involved in the project describe students' characteristics?

> RQ 1.2 How do teachers and students involved in the project describe teachers' characteristics?

> RQ 1.3 How do teachers and students involved in the project describe the context of instruction?

Teacher and student perspectives on the project not only aid in understanding the complexities of the project, but also in interpreting the characteristics of the teaching material and classroom practices. As explained in the theoretical framework, Meyer et al. (2018) contend that prior experiences, attitudes, and perceptions (Presage) of teachers and students influence not only the decisions made by the teacher during the teaching process, but also the design of the teaching material and the level of active student participation (Processes), and hence, have an impact on the quality of learning.

Thus, in order to better understand the presage of the project, it was considered essential to know the point of view of both students and teachers. Therefore, interviews were conducted with students and teachers participating in the project with regards to the characteristics that make up the presage of the project. The 3P model's presage phase involves the three elements that influence any learning and teaching process, which

include student characteristics, teacher characteristics, and context of instruction (Freeth and Reeves, 2004).

RQ2. How is subject-specific literacy worked on in the teaching material?

RQ 2.1 To what extent does the teaching material designed for the project meet the criteria proposed by the PTDL framework?

RQ 2.2 How does the teaching material meet the criteria related to subject-specific literacies?

There is a scarcity of materials for teachers that integrate content and language (Morton, 2013). According to Meyer et al. (2015:45) this might be due to the fact that "a deeper understanding of how the integration of content and language can actually be conceptualised has only recently begun to emerge".

Textbooks contain numerous explanations, descriptions and definitions which reflect and exemplify their corresponding academic linguistic functions. It is reasonable to expect, therefore, that a close examination of textbook language will reveal the linguistic forms through which students are expected to perform the key functions related to different subjects (Kidd, 1996). Dalton-Puffer (2013) states that the CFD construct (see section 3.3.5) could be useful for the analysis of the language demands in teaching materials.

RQ 3. How are Cognitive Discourse Functions scaffolded in teacher-student interaction?

RQ 3.1 How much evidence of CDFs is there in teacher-student interaction?

RQ 3.2 How is teachers' meta-talk in the teacher's discourse concerning the CDFs?

RQ 3.3 What strategies do teachers use to scaffold CDFs in the classroom?

In the third research question, focus will be placed on CDFs within subject-specific literacies. as they are key for the development of subject-specific literacies, and little is known about the scaffolding of CDFs.

So far, CDFs have been less researched in the oral mode than in the written mode. Dalton-Puffer (2013) claims that in order to understand how cognition is verbalized within classroom interaction, classroom talk between the teacher and students needs closer examination (Dalton-Puffer, 2013). Dalton-Puffer et. al, (2018) also point to the need for

research that addresses the explicit attention that is paid to CDFs in the classroom. Therefore, since knowledge is co-constructed in interaction through CDFs the presence and role of CDFs in teacher-student interaction has been analysed.

Moreover, this study takes place in a context where, as Dalton-Puffer et al., (2018: 22) state "it will be highly interesting to take the CDF analysis to classrooms taught in the main language of a specific education system, which may be the first but also the second language of students (but usually the first language of teachers)".

Furthermore, classroom-based research in such an environment provides opportunities for examining CDFs and their value for teaching (Bauer Marschallinger, 2021; Dalton-Puffer 2013, 2016; Dalton-Puffer et al., 2018; Dalton-Puffer & Bauer-Marschallinger, 2019).

4.3.   THE CONTEXT OF THE STUDY

This case study, which consists of the analysis of a multidisciplinary project composed of 6 subjects: mathematics, economics, physical education, Basque language arts, history and English language arts, was conducted in the first year of upper-secondary education at a school in the province of Gipuzkoa, in the Basque Autonomous Country (BAC).

Following compulsory secondary education, upper-secondary education is a two-year stage (16-18 years) where students choose a field of study: Science, Humanities and Social Sciences or Art. Upon completion of this stage, students take an exam that grants them admission to university. As indicated by a study carried out in 2021, 97.9% of students who attend secondary education also attend upper-secondary education (Eusko Jaurlaritza, 2021).

4.3.1. Sociolinguistic Situation in the Basque Country

There are seven historical territories in the Basque Country, which are divided into three political regions. BACs or Basque Autonomous Communities (composed of Biscay, Gipuzkoa and Alava) and Navarre Foral Communities (Navarre) are ruled by the Spanish State, while Labourd, Lower Navarre, and Soule, which compose Euskal Hirigune Elkargoa or Northern Basque Country, are controlled by France. In the Basque Country, Basque is a minority language but it does not have the same status in all provinces (Cenoz and Gorter, 2015). It is only official in the Basque Autonomous Community (Gipuzkoa, Bizkaia and Araba) and in the northern part of Navarre. Both Spanish and

Basque are co-official languages in these regions, whereas French is the only official language in northern Basque Country.

The sociolinguistic survey conducted in 2016 (Eusko Jaurlaritza, 2016) shows that 33.9% of the population in the BAC is bilingual in Basque and Spanish, and the remainder is either receptive competent in Basque (19.1%) or does not speak Basque at all (47%). Gipuzkoa, where the study took place, is the province with the highest percentage of Basque speakers. Based on the data collected for young people between 15 and 19, which corresponds to the age at which the present study was conducted, 89.20% of 32.036 young people are bilingual, 5.59 % have receptive competence, and 5.22% do not speak Basque. In all provinces, the younger the population, the higher the percentage of Basque speakers. Measures taken in education, including the implementation of language models, have contributed to the Basqueisation (*euskalduntze*) of children and young people (Eusko Jaurlaritza, 2016).

4.3.2. Multilingualism in the Basque Education System

Since Basque was declared an official language of the BAC in 1979, a number of special language policies have been implemented to increase the use of Basque in various sectors such as administration, health, private companies... education being the most successful sector (Cenoz and Gorter, 2019). The 1982 Basque Normalisation Law established that students should develop linguistic competence at school in both languages, Basque and Spanish. As a result, the multilingual models A, B, and D were created by Decree 138/1983 (EHAA, 1983). All three models include three languages as part of the curriculum: the minority language, Basque; Spanish; and a foreign language, English. In all three models, foreign language is a compulsory subject, but the number of hours required for Basque and Spanish varies. In the A model, Spanish is the primary language of instruction, with Basque and English being taught as subjects. In the B model, most subjects are taught in Basque, but some are also taught in Spanish and English is included as a subject. Finally, in the D model, the language of instruction is Basque, and Spanish and English are taught as subjects.

The majority of students in the Basque Autonomous Community study in the D model (Eusko Jaurlaritza, 2021), which means that Basque is the primary language of instruction, regardless of whether they speak Basque or Spanish as their first language.

There are several factors that affect the sociolinguistic situation of the Basque language, including the location of the school, the type of school, and the educational model. The

study takes place in a D model school where Basque is the language of instruction. All schools in this region are D model schools.

For pupils with Basque as a second or third language, Model D is a Content Based Instruction (CBI) model of total immersion, since they study in the official language of the territory, which is not their native language, whereas model D is a maintenance type of bilingual education for those with Basque as their first language (Cenoz, 2015). Teaching in a minority language can be challenging at times. The Basque education system has faced a number of challenges over the past 50 years (Zalbide and Cenoz, 2008), one of which is the development of teaching materials. As soon as Basque became the language of instruction, no school materials in Basque were available. In 1982, the Department of Education launched the EIMA (Basque School Materials) program to develop quality educational materials in Basque. A great deal of work has been done since then in the development of materials and textbooks in Basque, such as guides, workbooks, teacher training materials, dictionaries, etc. Also in 1981, the IRALE programme for teacher literacy and Basque language instruction was launched.

Multilingualism with a minority language is one of the hallmarks of Basque education. According to García-Azkoaga and Idiazabal (2015), education systems that include minority languages must necessarily be multilingual. Over the last 30 years, several steps have been taken towards multilingualism, such as Basque curriculum decrees that have been calling for a coordinated integration of languages, resulting in some changes to the curriculum. The LOGSE of 1990, for example, suggested integrated language teaching to encourage interaction between languages, i.e. for students to put into practice what they have learned in one language in other languages, as well as to have a common vision of the languages being taught, a common methodological framework, shared objectives and joint planning (Guasch, 2008). Cummins (1980; 2021) argues that in order to use languages correctly, it is essential to identify and share the characteristics and aspects of languages that are common to all languages. Moreover, in 1991 Ikastolen Elkartea created the Eleanitz project (Elorza and Muñoa, 2008), with the aim of developing a multilingual model and enhancing pupils' communicative ability in English. A major component of this initiative was the early teaching of English, as well as the teaching of some subjects through English in the last years of primary education and in secondary education, using the CLIL approach. Despite the success of this multilingual project (Eleanitz proiektua), many questions and debates have arisen in relation to CLIL around the world, for example, who should teach these subjects, the English-speaking subject teacher or the English teacher (Villabona, 2020).

Some years later, the Basque Government developed the *Eleaniztasunerantz* project (Eusko Jaurlaritza, 2017), which provides schools participating in the project with resources to develop their own language projects to promote multilingualism with Basque at its core. It has been observed by Pavon and Perez (2017) that school projects do not only ensure the acquisition of true competence in official languages and foreign languages, but they also assist teachers in effectively dealing with the different linguistic profiles of students. As part of the Language Project, schools must analyze their sociolinguistic context and make all decisions regarding languages, both in terms of use and teaching, including the linguistic approach and pedagogical choices. As a result of the language project (Perez-Lizarralde and Garro, 2018), pedagogical decisions relating to languages will be made.

Diagnostic evaluations conducted in recent years (ISEI-IVEI, 2018) indicate that while pupils' proficiency levels in Spanish and English have improved, proficiency levels in Basque have deteriorated (especially in comprehension). Therefore, one of the main challenges facing the Basque education system in terms of language teaching is improving results in Basque (ISEI-IVEI, 2018). The School Council of the Basque Country urges the Department of Education to intensify collaboration and support between language subjects and non-language subject teachers, in order to use strategies for the comprehension of specific texts from different fields of knowledge, to enrich their own comprehension and to design more meaningful tasks. Heziberri 2020 (Eusko Jaurlaritza, 2014) and the Council of Europe recognize the importance of promoting a holistic and integrated perspective on languages. Language and content must be integrated regardless of whether the language of instruction is a student's first language, second language, or a foreign language. Eusko Jaurlaritza (2014) points out that at school, the teaching-learning processes of curricular areas are the most common and natural situations in which language is used, and that it is therefore advisable to integrate language and content. The responsibility therefore lies not only with the language teacher, but also with the teachers of other subjects.

4.3.3. Curriculum of the BAC: Heziberri 2020

Within the next few months, a new curriculum will be implemented that emphasises multidisciplinarity. However, Heziberri 2020 (Eusko Jaurlaritza, 2014) was still in effect at the time the thesis was written. Heziberri 2020 was the result of several years of work led by the Department of Education. Its aim was to design a plan to improve the Basque

education system. A strategic plan for education and training for 2020 was developed on the basis of the strategic lines established in Europe, the report by UNESCO's International Commission chaired by Jacques Delors ("Education holds a treasure"), as well as our educational system's results to date, along with the challenges faced by the Basque educational system (Eusko Jaurlaritza, 2014).

The BAC curriculum also demands that education go beyond mere transmission of knowledge, as outlined in the first chapter of the theoretical framework (see Pellegrino and Hilton, 2012; Fullan and Langworthy, 2014). As a result of this demand, the curriculum (Eusko Jaurlaritza, 2014) describes the exit profile of students, namely the competencies that students are expected to possess by the end of compulsory education and upper-secondary education, which correspond to the skills of the XXI century (see section 2.3). In order to obtain this exit profile and to provide students with opportunities to develop such competences, the objectives and contents to be worked on at each stage are listed, as well as some methodological and assessment guidelines. In addition to the contents, achievement indicators can also serve as guides. This means that each school must adapt to its Educational and Curricular Project in addition to its own students' characteristics.

Two types of competences are distinguished in the curriculum: basic transversal competences, the competences necessary to effectively solve problematic situations in all areas and situations of personal, social, academic and working life (Eusko Jaurlaritza, 2014, 2015) and subject-specific basic competences.

The focus of the present thesis is on the role of language; therefore, amongst the transversal basic competences, the "verbal, non-verbal, and digital communication competence" is directly related to language, particularly verbal communication. Throughout the curriculum, language is defined as a means of expressing and interpreting ideas, thoughts, feelings, facts, and opinions. It is also used for interacting through language in a variety of environments, including personal, social, academic, and other spheres, which is in line with the language perspective explained in the theoretical framework (see section 3.1).

According to the curriculum (Eusko Jaurlaritza, 2014), in order to participate effectively in today's society, it is necessary to master the use of all forms of expression of verbal, audiovisual and non-verbal language, including texts and images, written, printed and their electronic versions, to understand them, use them and critically evaluate them (:30), which is consistent with the PTDL framework (Meyer et al., 2021). The curriculum defines

communication competence as a crucial transversal competence. Its development requires the cooperation of all subjects both in collecting information and in performing mental operations during the learning process.

Languages in the classroom (Basque, Spanish and English) can be analyzed on two levels: on the one hand, as subjects, and on the other hand, as languages of instruction, which may vary according to the model. In order to compensate for the imbalance in its social use, the curriculum recommends that Basque be given preferential treatment. In addition, it is recommended that each school adapt its Language Project and Curriculum Project to the sociolinguistic conditions of its locality. To achieve multilingual competence, the integrated treatment of languages (Guasch, 2008) is proposed. As students progress through the curriculum, they must attain adequate proficiency in the two official languages, Basque and Spanish, in a variety of communicative situations, within a wide range of contexts, and with increasing levels of formality and complexity. In addition, basic English skills must be developed in order to be able to apply them to more limited situations in day-to-day life. In order to guarantee the achievement of multilingualism, Heziberri 2020, based on the European reference framework, specifies the linguistic level that pupils must attain by the end of secondary education and upper secondary education: students must achieve a B2 in Basque and Spanish as well as a B1 in a foreign language by the time they finish secondary school.

It is also explicitly stated in the curriculum of upper-secondary education that students should develop scientific, technical, cultural, and literary discourses in upper-secondary education (EHAA, 2016). Considering the curriculum requirements at each stage and subject, a number of actions related to the use of language can be identified. As can be seen in the following table, there are a number of language-related goals and tasks included in the curriculum. The extracts have been translated into English from Basque, and the CDFs (Dalton-Puffer, 2013) have been highlighted in bold.

Taula/Table 2. Extracts from the curriculum (EHAA, 2016)

SUBJECT	CONTENT
MATHEMATICS	Mathematical language, with its abstraction, precision and specific characteristics of simplifying reality, is an essential tool for understanding, analysing and interpreting reality and social phenomena, which are increasingly complex. To pose and solve problems about mathematics or social reality, **formulating**

hypotheses, selecting and using different strategies, **reasoning** the resolution process, **justifying** the results and applying them to new situations in order to be able to act more efficiently in the face of the challenges of today's society.

To use a rational discourse as a method of judgement and decision in problems, justifying procedures, adequately linking arguments, reinforcing their own reasoning, critically analysing those of others, showing a flexible, open and critical attitude.

To use the mathematical tools and expressions of one's own language (numbers, tables, graphs, functions, most commonly used symbols, etc.) with autonomy and creativity, understanding and using mathematical themes, scripts and expressions to express one's own thoughts clearly and coherently.

HISTORY

Analyze, **explain**, and situate relevant contemporary world events in time and space in order to assess their significance in the historical process and their current consequences.

Correctly use the basic **concepts, terms** and techniques of history, by analysing, **comparing** and unifying different information. **Express and communicate the subject related contents, both orally and in writing, and selecting and interpreting historical data and information expressed in different languages and mode.**

Gather historical data using categories of orientation in time **(past, present and future), relative temporal positions** (succession, simultaneity, diachrony, synchrony), durations (factual, conjunctural, structural, phenomena of short, medium or long duration) and temporal measures (temporal units, time and historical chronology) to order and **synthesise** the historical evolution of societies.

ECONOMICS

Description of the functioning of the market and its limitations.

Get familiar with and understand the main characteristics of the situation of the Spanish, European and Basque economies in the international context, pointing out the main characteristics of their productive structure.

In order to form a personal opinion based on one's own criteria, students should be able to **express and argue personal opinions on current economic problems with precision and rigour,** accepting different opinions and approaches.

Learning and understanding what the main macroeconomic magnitudes are and how they are used, as they are indicators of a country's economy. In this sense, to differentiate magnitudes from each other, to analyse their interrelations and to recognise their barriers and limitations as indicators of quality of life. All of this with the aim of building an opinion on our economic model and its limitations and costs.

PHYSICAL EDUCATION	To design and to practice compositions, with or without music, to express and communicate creativity and emotions, showing effort, respect and collaboration.
	Reflect on the possibilities of carrying out professional activities in the field of physical activity and sport from a practical perspective.
BASQUE LANGUAGE	Students should be able to **express themselves and interact in an orderly, coherent and direct manner, both orally and in writing.**
	To **reflect** on the components of language using appropriate concepts and procedures. Understand, analyse, **comment** on and produce texts better and be able to transfer what has been learnt between languages.
	Analyse and **interpret** bilingualism in the Basque Autonomous Community, through sociolinguistic knowledge, in order to promote empathetic and assertive attitudes towards languages and the use of Basque.
	Reflect on one's own learning processes in order to transfer the knowledge and communicative strategies learnt in other languages and subjects, encouraging self-regulation and with the confidence to learn with increasing autonomy.
	Understand information (**compare, classify**, analyse and **summarise**), memorise and **explain (describe, define and summaries, give explanations**, etc.).
	Reporting the result obtained.

Identify and **reflect** individually and collectively on linguistic attitudes and social relations.

Draw conclusions from the information in the text and from what he/she already knows.

Summarises the content of the text.

Makes personal judgements about the form and content of the text, based on own knowledge and reasoning.

Structures the content by following the outline of the explanatory text that corresponds to the textual genre.

Selects and uses the appropriate register.

Language as an object of learning and as an instrument.

ENGLISH   Students should express themselves and interact in an orderly, coherent and direct manner, both orally and in writing.

Students should analyse, reflectively and critically, the social uses of the language in order to be able to communicate appropriately in diverse social and cultural contexts.

To reflect on the components of the foreign language, and to use the appropriate concepts and procedures for a better understanding, analysis and production of oral and written texts, and for a better transfer of what has been learnt between languages.

Reflect on one's own learning processes in order to transfer the knowledge and communicative strategies learnt in other languages and subjects, encouraging self-regulation and with the confidence to learn with increasing autonomy.

As part of the curriculum, it is emphasized not only that subject-specific discourses must be mastered, but that in order to solve real problems, inter- and multi-disciplinarity or the integrated application of knowledge from different subjects is also required, which is in agreement with the ideas presented in chapter one by Morin (2010) and Mc Phail (2017). Nevertheless, the actual curriculum does not provide any guidelines for implementing the proposed inter- or multidisciplinary approach.

The assessment system is also considered a key element in the competence-based approach to education since it provides coherence to the whole educational process (Eusko Jaurlaritza, 2014). It is therefore recommended that different types of

assessment are used in a complementary manner: formative assessment and summative assessment (see 2.3.2).

4.3.4. Characteristics of the Ikastolas movement

In the BAC there are public, state-subsidised and private schools. The type of school in which the research was carried out is an ikastola, which is a state-subsidised school. The book entitled "Ikastola mugimendua, dabilen herria. Ikastola Eredua 1960-2010. Euskaltzaindia" (Iza, 2010) covers the history of the ikastolas.

As reported in the book, the ikastolas were formed in the early 1960s with the objective of fighting the repression that the Basque language was experiencing under Franco's regime, of teaching Basque to children and of recovering Basque identity. During that time, there were public and religious schools in the Basque Country, and a third network of schools, the ikastolas, was also established. To meet the needs of the towns and citizens, the school model was cooperative, where parents of pupils were also owners and partners of the school. In the mid-1960s, motivated by necessity, coordination between several ikastolas arose, resulting in the creation of the Federation of Ikastolas of Gipuzkoa (GIE), which was followed by the federations of Bizkaia, Navarre and Alava, and then the Confederation of Ikastolas of The Basque Country. Currently, there are 111 ikastolas, with 57.3322 pupils. All the ikastolas are D model schools. In the early days of the ikastolas, there was a lack of teaching materials and books available in Basque.

One of the aims of the ikastola was educational and pedagogical innovation, placing the student at the centre of their educational process. In addition, an integrated treatment of languages was proposed with the Basque language as the center of attention in order to foster multilingualism. In 1991, a project to promote multilingualism emerged: Euskaraz bizi. The *Eleanitz* and *Euskaraz bizi* projects were jointly presented in the ikastolas. A linguistic project was created by Ikastolas in 2002 with the aim of encouraging multilingualism among students, while always giving priority to the Basque language. A seminar called Hizpro was organized in 2003, in which 36 ikastolas participated. Through its own pedagogical framework, the ikastola model promotes teamwork through project-based learning based on the Basque curriculum. The curriculum for compulsory schooling in the BAC, developed during the decade of the 2000s, is the result of a joint initiative of several agents representing the vast majority of education in the territories of the Basque Country, supported and funded by the Department of Education, Universities and Research of the Basque Government. The Basque Curriculum is optional and has two main purposes: On the one hand, it proposes the transmission of Basque culture,

which is not transmitted or is insufficiently transmitted in the official curricula. On the other hand, it also includes the skills necessary for living in the Basque society, which is integrated in Europe and interacts with the world (Eusko Jaurlaritza, 2014).

4.3.5. Case Study of the School

The school involved in the present study is located in Gipuzkoa, in the BAC and it is known for its innovative projects. It is a D model school, i.e. the main language of instruction is Basque, and Spanish and English are taught as language subjects. The school offers infant education, primary education, secondary education, upper-secondary education and professional training.

Society has undergone several changes (see chapter 1) affecting, on the one hand, society's needs and, on the other, ways of learning. As a result of technological innovation, amongst other things, the previous educational paradigm has become mainly obsolete. Due to its belief that traditional education neither meets the present day needs of education nor prepares students for the 21st century, the school has undergone several pedagogical innovations to help students develop the skills they need to live and work in the 21st century through meaningful and real learning contexts. By focusing on the pupil, a major objective of the school is to develop competent, Basque, cooperative, analytical, critical and empathic individuals. The school has defined the exit profile for students.

The teachers in the school developed a new framework for education called Konfiantzaren Pedagogia® to help students develop such exit profiles (Antero, 2015). The Pedagogy of Trust derives from different approaches: humanistic psychology, ethology, behaviourism, socio-constructivism, cognitive psychology and neuroscience. It is the aim of this pedagogy to assist students in developing self-confidence, confidence in others, and confidence in their context during the entire learning process, allowing them to develop the necessary competences to cope with the challenges and difficulties they encounter at school and in their daily lives, as students will develop competences only if they are confident and secure. An increasing number of schools are implementing this pedagogy at all levels of education.

The manner in which learning takes place has also changed. The school places a great deal of emphasis on motivating students and encouraging them to learn by doing, since it is believed that creating new challenges is essential for finding innovative solutions.

From among the active methodologies, the school has chosen Project Based Learning (see section 2.3.2) as a method for achieving all of these objectives in the first year of upper-secondary education. Throughout the year, students are challenged to work on a variety of projects. Projects provide students with the opportunity to learn how to work cooperatively, a skill they will need in the future workplaces. In order to provide logic and coherence to the content, the projects are multidisciplinary.

Students take an active role in these projects. As the student is the protagonist of the learning process, formative assessment (see section 2.3.2) is the primary method used. Thus, the teacher becomes an observer and guides the learner in their learning process, creating contexts that encourage the desire to learn. To make projects meaningful for students, teachers base them on real-life situations.

This pedagogical transformation in the school has entailed changes in various aspects, including the curriculum, the organization of the subjects and the corresponding schedule, allocation of space, methodology, teaching materials, and assessment (Antero, 2015). Spaces have been adapted to meet the needs of the methodology. In collaboration with the students, clear, comfortable, open and multifunctional spaces have been designed and built. Respectful communication is of utmost importance. According to the teachers, there has been an improvement in the working atmosphere and relations as a result of the new spaces.

With regards to organisation, there have also been some changes regarding the aforementioned space management and the timetable. Efforts are also made to form effective learning groups in a pleasant environment. During the course of working on a project, the general timetable is adapted and students work on the project every day from 8:00 to 15:00.

Teachers have developed their own teaching materials for these projects in upper-secondary education, which are available to students through a digital platform. Tutoring is another characteristic of these projects. A weekly tutoring session is offered to students in both the first and second year of upper-secondary education. The goal of the teacher is to identify the capabilities of all students, detect their difficulties and challenges, empathise with their challenges, and provide them with care and support.

In order to implement this framework in the school, a training plan regarding Konfiantzaren Pedagogia® was developed and given to all teachers, along with training on how to design projects, interdisciplinarity, how to work cooperatively, digitalisation, etc. There was concern about the role of language in the school some time ago, and

several teachers participated in the Hizpro programme explained above, receiving training regarding the integration of content and language.

4.3.5.1. The Project under Analysis

As part of the first year of upper-secondary education, one multidisciplinary project is conducted every three months within the two specialties: Science and Humanities, with the objective of fostering active and digitally competent students by exposing students to real-life situations through a PBL approach.

A multidisciplinary project for the Science strand and another for the Humanities strand were developed by the teachers five years ago, and they have been improved each year since then. For the purposes of designing the projects, Canva was used, where the guiding question or challenge is formulated, the objectives of the project and the final product are specified, strategies and evaluation tools are selected, and a description of the potential social impact of the project is provided, along with the organization and resources necessary to complete it.

In the initial design of the multidisciplinary projects, the linguistic subjects (Basque, Spanish and English) were integrated into the proposal. A special emphasis was placed on languages, and it was decided that all multidisciplinary projects should include at least two of the three languages; in addition to using these languages, they are also taught within the projects. In addition, a curricular mapping of all the subjects was conducted in order to determine what content should be covered in the projects and how they can be integrated with other subjects.

Teachers chose the Humanities strand project as the most need of improvement among the multidisciplinary projects conducted in the first year of upper-secondary education. The project is titled "Itsaso bat eta mundu bi" (One ocean and two worlds). The project lasts 13 school days and it consists of 6 subjects: mathematics, economics, Basque, physical education, history and English. Although each subject has its own curricular objectives, the overall goal of the project is to create empathy for the inhabitants of the continent of Africa, a continent that is so close yet so far away at the same time. This is done by learning about it from the perspective of different subjects. The teaching material is available on a digital platform called Xtend, which is a personalized learning platform based on Moodle. Each student has their own user account and they work with the computer.

4.3.5.1.1. Description of the teaching material

The teaching material is composed of 6 sections: Starting; What will I learn?; Organising myself; Research and learn; Sharing conclusions; and Performance, where the final project is presented. In the first three sections, the project's objectives are explained, as well as what will be accomplished throughout the course of the project. In the Starting section, three activities are proposed to activate students' prior knowledge of the project's main topic, Africa. The first activity is called "What do you know about Africa?" and consists of an online game that measures students' knowledge of the continent. A second activity requires students to listen to a song entitled "Africa" and answer six questions related to the lyrics. Lastly, in the third activity, three questions are posed that will guide the project.

Furthermore, students have at their disposal two rubrics that will be used to assess the project as well as the final product, which can be used by the students to self-regulate their work. An additional document titled "evaluation milestones" specifies what is going to be assessed in each subject along the project, which method of assessment will be employed, whether it is to be assessed by self-assessment, co-assessment, teacher correction, and which method will be used. It is also mentioned whether the task will be performed individually or in a group.

In the second section entitled "*What will we learn*?", all the objectives of the project are outlined, as well as the final product to be produced at the end of the project and how it will be accomplished. The following examples illustrate how the objectives mentioned relate to real life:

- To create a diverse and inclusive image of Africa today.
- To develop empathy for the situation of people from underdeveloped African countries.
- To be able to explain the acquired knowledge to others.
- to take a positive attitude and to use appropriate dialogue and discussion strategies.

In order to complete the project, pupils will need to work cooperatively, as explained below in the section titled "Organising myself.". This section describes cooperative work, along with the criteria set forth in the assessment rubric. This section also contains a detailed outline (Appendix 1) of the project prepared by the teachers, which aids students in gaining a complete understanding of the project:

Irudia/Figure 21. Overal outline of the project (Appendix 1)
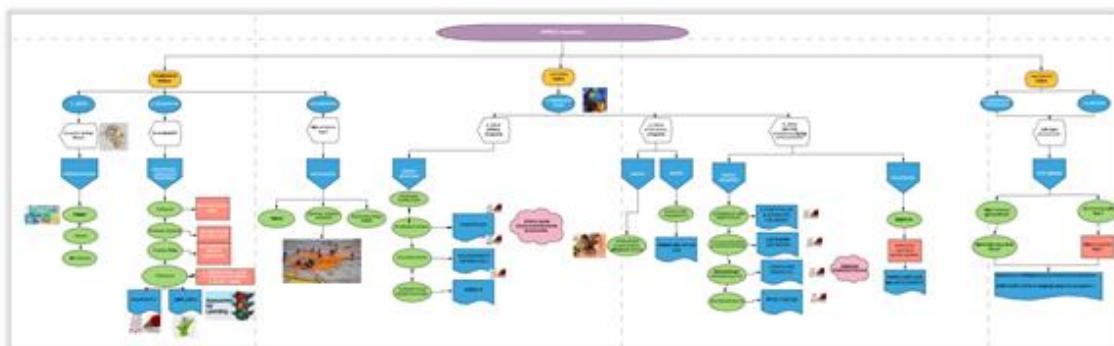
Also, students will learn how to upload and organise all the work they perform during the project in folders within Google Drive.

It is in the fourth section, called "research and learn", that the curricular contents of the six subjects that make up the project are developed. In each subsection, different subjects are covered and specific curricular objectives are specified.

Taula/Table 3. Subject-related objectives

NAME OF THE SECTION	OBJECTIVE	SUBJECT
Placing Africa in the world	To learn about what Africa is like, the situation in Africa and the conquest of Africa.	History and economics
From knowing Africa to knowing Africans	To learn about typical African games; African music and African dances.	Physical education
How is our relationship with Africa?	To learn and reflect about the evolution and history of money and history.	mathematics
In Exchange for a coin	To learn how to calculate financial maths exercises	mathematics
We made them sick	To know the damage done by Western countries in Africa.	English and economics
Debate	Simulate the trial of a large company called Neprazaj.	All subjects
Demystifying prejudices about Africa	To Demystify prejudices about Africa	Basque

Some sections, such as Africa in the world or We made them sick, begin with activities that aim to test the students' prior knowledge or to make connections with previous work. Knowledge of the main topic, Africa, is activated at the beginning of the project, but prior knowledge of what is to be covered in each subject is also activated as an introduction to some sections. Other sections begin with a presentation of the content that will be discussed, and input related to that specific content is provided without making connections to previous work.

Students are provided with an array of activities throughout the entire project to ensure that they master the curricular content of each subject: colonialism in history; macroeconomic magnitudes in economics; African games and dances in physical education; the nature, history, and evolution of money in mathematics; diseases common to Africa in English; and myths about Africa in Basque. Several of these exercises are directly related to the main theme of the project (Africa), while others are not.

The project will conclude with a final assignment, as previously explained. As part of the project, students are asked to prepare an artistic performance that aims to raise awareness about Africa, taking into account everything they have learned throughout the process. Moreover, a final assignment summarising what has been learned in each section is also required. Students are asked to produce a hand drawn video about colonialism in the subject of history; to write an opinion essay in economics; to conduct a physical education session in primary school; to create an infographic in English in order to persuade pharmaceutical companies regarding adverse effects of their operations in Africa; to write a comic in Basque designed to demystify the prejudices that exist in Africa; and to conduct a debate about the situation in Africa in which students must build arguments based on everything they have learned in the six subjects.

Further, since the material is available through an online platform, the inputs offered can be multimodal. Students can access information through links, written texts, photos, videos, graphs, and interactive maps.

A variety of opportunities are provided throughout the project for the development of knowledge. Occasionally, the material provides the resources and information necessary for the development of this knowledge, while at other times, the student is asked to seek out the information needed.

It can be found at the beginning of the material that students will work in cooperative groups, but the types of groups will be alternated throughout the project so that students can build and contrast their knowledge at times on their own, sometimes in pairs, and sometimes in groups of four. All exercises in the teaching material do not specify the type of grouping. When this occurs, it is up to the teacher to make the decision.

Throughout the project, different types of assessment are proposed, including self-assessment, co-assessment, and hetero-assessment. The rubrics that will be used to

assess genres are usually available. The rubrics have been created by teachers and contain the criteria that the teacher will take into account when assessing students.

4.4.   METHODOLOGY

4.4.1. Research design

This section will present the methodological decisions made throughout the thesis. To answer the research questions, a qualitative study was conducted, with the goal of understanding, describing, and explaining the reality of a situation (Flick, 2007). Although there are various definitions of qualitative research, all qualitative research shares some characteristics. Qualitative studies take place in natural settings, with participants "experiencing the issue under study" (Creswell, 2007:37). In such cases, data is always collected by the researcher themself. Large amounts of data are frequently involved in qualitative data analysis as a detailed understanding of reality is sought (Gibbs, 2007). Several authors acknowledge that qualitative analysis requires both data handling and interpretation, which lends flexibility to this approach as new questions may arise during the analysis (Gibbs, 2007).

It should be pointed out that in the case of identifying CDFs, for the purposes of analysis some data have also been quantified.

Inductive analysis, which aims to create new knowledge and understanding, is the most widely used type of analysis in qualitative research. However, the deductive pre-existing concepts that may be present in it will inevitably guide and frame qualitative analysis. Therefore, although inductive analysis predominates, both inductive and deductive approaches are present in qualitative research (Flick, 2014).

The researcher who is conducting qualitative research should position themselves within a paradigm, which is defined as "the set of beliefs the researcher brings" (Creswell, 2007:19). The present study is situated in the paradigm of social constructivism, according to which "individuals seek understanding of the world in which they live and work" (Creswell, 2007: 20). According to this author, this paradigm is characterised by the researcher making an reinterpretation of the world through relying on the "participants' views of the situation".

Through a case study approach, this qualitative study seeks to understand how subject-specific literacies are addressed in a multidisciplinary project in upper-secondary education. The present research is an "embedded" case of a single case as it focuses

on a project in one particular school (Coe et al., 2021), and "multiple subunits" are analysed within the case (Creswell, 2007; Yin, 2018) describe case studies as a type of qualitative research that can provide a detailed description of what occurs in a particular situation (Yin, 2018) has identified this research type as a suitable method for answering "how" questions, and it has been found to be particularly valuable in the field of education (Merriam, 1998), since it seeks to understand and improve a situation.

Various methods of data collection are used in case study research to gain a deeper understanding of the case and reduce subjectivity (Coe et al., 2021). Several methods were used for data collection and analysis. The research design created for this study will now be presented. As defined by Creswell and Creswell (2018), research design is the plan for collecting and analyzing data in order to answer the research questions posed by the researcher.

Irudia/Figure 22. Research Design
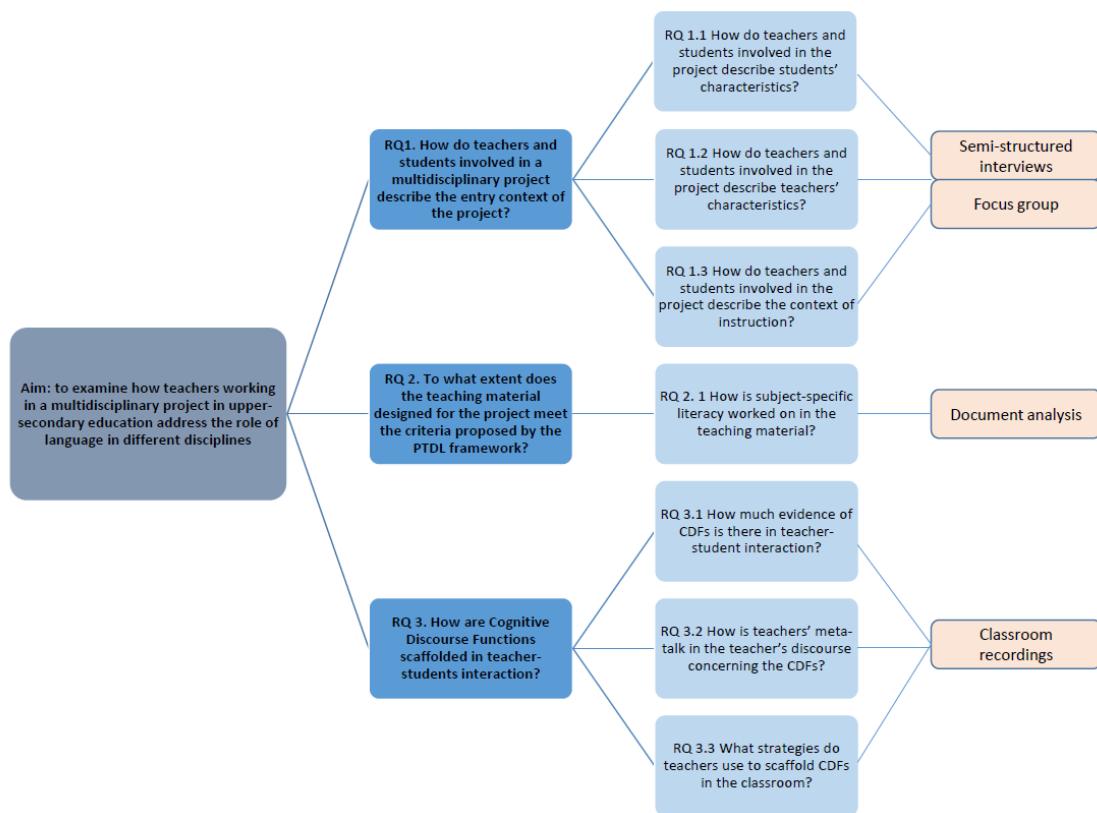
In order to answer the first research question (RQ1. How do teachers and students involved in a multidisciplinary project describe the entry context of the project?), and the three subquestions, **semi-structured** interviews with the participating teachers and **focus groups** with the students were conducted. Interviews enable us to obtain information that cannot be observed directly, such as views, perceptions, attitudes, and

experiences. Additionally, focus groups with students have been used to collect students' views about the entry context, and to contrast the information provided by the teachers.

As for the second research question (RQ2. How is subject-specific literacy addressed in the teaching material?), the **document analysis method** was used in order to examine how subject-specific literacy is addressed in the teaching material. It is generally acknowledged that teaching materials play a crucial role in teaching and learning (Agusto-Navarro, 2015), and Pellegrino (2017:245) acknowledges the need for further research and development in order to create more specific instructional materials.

Lastly, RQ 3 (*How are Cognitive Discourse Functions scaffolded in teacher-student interaction?*) consists of three subquestions. The interaction between teachers and students will be analysed using **video recording** (Fitzgeral et al., 2013), with the objective of examining the scaffolding of cognitive discourse functions in teacher-student interactions.

4.4.2. Participants

This study involves the teachers and students of the Humanities strand of the first year of upper-secondary education at one school, as well as the students in this class. Each of the analyses conducted in this thesis differs in terms of the number and type of participants.

Taula/Table 4. Participants in the study

DATA COLLECTION METHOD	PARTICIPANTS
Semi-structured interviews	7 teachers
Focus groups	16 students
Video recording	6 teachers and 25 students

Regarding the semi-structured interviews, all seven teachers working on multidisciplinary projects in the Humanities strand were interviewed, including three language teachers (Basque, Spanish and English) and four non-linguistic subject teachers (mathematics, history, economics and physical education). The teachers were aged between 24 and 55, and their professional experience ranged from 1 year to around 25 years. The characteristics of the participants taking part in the semi-structured interviews are described below.

A code has been created to name each teacher and maintain their anonymity. The code consists of a number, T1-T7, and one or two letters, indicating the subject he/she

teaches. "S" stands for Spanish, "En" for English, "H" for history, "E" for economics, "B" for Basque, "PE" for physical education, and "M" for mathematics.

- Teacher 1 (T1_S): The Spanish teacher, aged 55, has a degree in History and Geography and has taught different subjects in the school for over 20 years. She has taught geography and history in upper-secondary education. Despite her degree of History and Geography, she has taught Spanish for many years, both in first year upper-secondary education and in compulsory secondary education. Due to the absence of Spanish in the project under analysis, this teacher is not involved in the project under analysis. However, she does participate in other interdisciplinary projects that are carried out throughout the year.

- Teacher 2 (T2_En): The English teacher is a 35-year-old English Philologist with more than 10 years of experience teaching both English and German. Furthermore, she coordinates the multidisciplinary projects in the first year of upper-secondary education, and she was one of the teachers who designed the project.

- Teacher 3 (T3_H): The history teacher, aged 24, is a Spanish language Philologist. It is her first year working as a teacher, but she did some substitute work in the same school last year, so she is familiar with the culture of the school. Even so, she has gained a deeper understanding of methodology and multidisciplinary projects during this academic year. Although history is not her area of expertise, she feels comfortable and confident teaching the subject. She did not take part in the design of the project.

- Teacher 4 (T4_E): The economics teacher, aged 56, with two degrees in Primary School Education and Business and Humanities, has been teaching different subjects from ages 6 to 18 at different stages of education for 36 years. During the last few years, she has been teaching mathematics and economics in secondary and upper-secondary education. She also took part in the design of the project.

- Teacher 5 (T5_B): The Basque teacher, aged 52, is a philosopher by profession. He has been teaching philosophy at the school for 15 years, but before he began teaching at the school he worked for several years as a Basque language teacher at Labayru, a foundation created to promote Basque culture and language. Although he has experience as a Basque teacher, he does not feel very comfortable teaching Basque. In addition to teaching philosophy, he was also required to teach Basque in order to fill a school need. Whenever he has doubts about anything related to the subject, he consults the official Basque teacher,

who is one of the teachers who designed the project. Despite being offered the opportunity to include philosophy in the project, he declined.

- Teacher 6 (T6_PE): The physical education teacher, aged 35, holds a degree in Sports and Physical Education as well as a second degree in Primary Education. Her initial teaching experience was in primary education, but since around 10 years ago, she has been teaching physical education in secondary education. She was one of the teachers who designed the project.

- Teacher 7 (T7_M): The mathematics teacher, aged 55, is a mathematician with more than 25 years of teaching experience in the school. Throughout her career, she has only taught mathematics. She participated in the design of the project. The project was modified two years ago, but last year she became ill and this is the first time she has implemented the project since the changes were made.

All teachers hold a degree, although their teaching area may not necessarily be directly related to their studies. Teachers are also subjected to different training every year depending on the needs of the situation.

The class was composed of 25 students aged 15-16. Out of the 25 students in the classroom, 16 participated in the two focus groups. A total of two focus groups were conducted, each comprising eight participants and the researcher. More than half of students from the Humanities strand in first-year upper-secondary education participated in two focus groups. All the students in the class were invited to participate in the focus groups, and more than half of them accepted.

The six teachers participating in the multidisciplinary project under study, as well as 25 students from the selected class, participated in the video recordings. Because her subject was not involved in the project, the Spanish teacher did not participate in the video recordings.

4.4.3. Data collection

In order to collect the data needed for the present study and answer the three main research questions, four different methods of data collection were used. **Semi-structured interviews** (Flick, 2015) and **focus groups** (Krueger, 2014) were conducted to collect teachers' and students' views. The teaching material designed by the teachers and used in the project under study was analysed using the **document analysis method** (Bowen, 2009); and **video recording** (Fitzgerald et al., 2013) will be used for the analysis of teacher-student interactions.

In the following lines, the process followed to collect data will be described.

Irudia/Figure 23. Data collection process

| Presentation of the project in the school | → | Video recordings | → | 1st round of interviews with the teachers | → | 2nd round of interviews with the teachers | → | Focus groups with the students | → | Collection of teaching material |
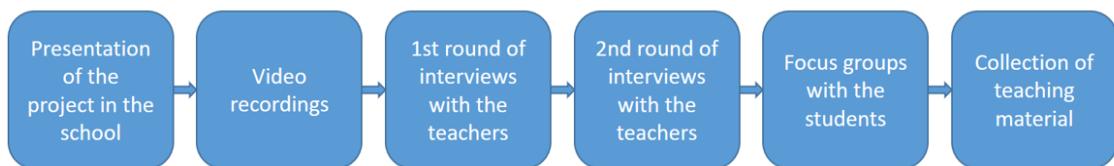
As soon as we received permission from the school to collect the data, which was days before the start of the project we were to record, all the participants, both teachers and students, were asked for their consent to participate in the research. After it was decided in which classroom the research would be conducted, the coordinator of both upper-secondary education and the Humanities strand met with the six teachers involved in the multidisciplinary project. After explaining to them the purpose and procedure of the study, she asked them if they would be interested in participating. All the teachers agreed. A written consent was then requested from students' legal tutors in order to participate in the research. After this, the plan for the data collection was developed and shared with the participants.

During the 12 school days that the project lasted, the students were involved in the project throughout the whole school day, from 8:00 am to 2:00 or 3:00 pm depending on the day. During these hours, the classroom activity was video recorded. The video recording method, which is still evolving (Fitzgerald et al., 2013) is frequently used in educational research (Pirie, 1996). This method can capture the complex realities that exist in the classroom better than any other method (Fitzgerald et al., 2013), enabling the researcher to both rewatch what has occurred in the classroom at will (Pirie, 1996; Fitzgerald et al., 2013), as well as slowed down the video so as to analyze it in detail (Hollingsworth, 2005). Before starting to record, the researcher visited the school to view the classroom and certain practical decisions were made, such as how many cameras were needed for the classroom recordings, where cameras should be placed, and from which frame angle should be recorded (Ratcliff, 2003).

Considering the characteristics of the space, a camera and tripod were placed at the back of the classroom in order to record the classes. As the students worked in groups, and one camera was not sufficient to record the entire classroom activity, three audio recorders were placed around the room to capture all teacher-student interactions.

The researcher sat next to the camera at all times. Because the purpose of the recording was to record the interactions between the teachers and the students, the recording was stopped when the students were working independently without the assistance of the teacher. While the camera recorded what was happening in the classroom, the researcher kept notes on what was being taught in each class so that the recording could be supported.

After recording all the classes, the teachers' and students' views were collected. First, the 6 teachers involved in the project were contacted by email and invited for an interview. Since there were only a few teachers participating in the study, semi-structured one-on-one interviews were chosen as the most effective method for collecting detailed information from each interviewee. This data collection method, one of the most widely used methods in qualitative research (Flick, 2015), is used to discover and record what another person knows and experiences about a topic, as well as their feelings about it (Mears, 2012). By using this method, the researcher is able to gain access to information that is invisible to the eye and that can be obtained only by directly asking the interviewee (Juaristi, 2003).

Among the different existing types of interviews, semi-structured interviews were chosen. The semi-structured interview does not follow a predetermined order of questions (Flick, 2015), making it possible to go back and forth along the guide and to ask about emerging issues. According to this author, this allows interviewees to express themselves more freely. During these semistructured interviews, the objective was to collect teachers' opinions regarding the 16 categories gathered in three groups: learner characteristics, teacher characteristics and context of instruction, which form the presage phase of the Deeper Learning Agenda. The authors of the research agenda do not define each of these categories in detail. As a result, the meaning of each category was interpreted together with a second researcher based on what other authors have written about the categories so far. Another study analysed teachers' perspectives using the same categories (Garro et al., 2020).

It is important that interviews are designed and prepared in advance so that the researcher can collect the necessary data (Mears, 2012; Juaristi, 2003; Flick, 2015). As a result, a guide (Appendix 2) was prepared with questions the researcher would ask the interviewees so that the same questions would be asked to all participants in a similar manner (Flick, 2015). As well as the list of questions, the guide also includes the purpose of the investigation and the protocol to follow when conducting the interview, as stated by Flick (2015).

In conducting an interview, the interviewer plays an important role. The interviewer should create a comfortable atmosphere as it is recommended that the interview be conducted in a relaxed, welcoming, yet professional setting (Juaristi, 2003). In addition, the interviewer should always demonstrate empathy toward the interviewees and never judge or criticize their responses (Flick, 2015). As a result, the interviewer must know when and how to ask questions in order to facilitate participation in the interview and to keep the interview flowing smoothly, as well as how to deal with silences during the interview. For this reason, the interviewees were asked to choose the date, time and place to conduct the interview. It was important for the researcher that the teachers did not feel uncomfortable nor that the interview felt like an extra workload for them. In this regard, all interviews took place at the school at times chosen by the teachers, some during break times, some during working hours, and some in the evening after work. The researcher talked informally with the teachers for a few minutes before the interview, in order to get to know them better and make them feel more comfortable. The researcher had a good rapport with all the teachers from the beginning and all of the teachers seemed to be at ease.

Before starting to record the interview, the interview procedure was explained and consent to record the interview was requested again. All six teachers were interviewed individually using the same procedure. Since the purpose of the study was to obtain as much information as possible about the 16 categories, two interviews were conducted with each teacher (13 interviews in total). In some cases, one interview with each participant may suffice, but in other cases, multiple interviews are necessary to achieve a level of in-depth reflection (Mears, 2012).

The first round of interviews was conducted with the 6 teachers taking part in the project right after the end of the project that had been recorded. A month and a half later, a second round of interviews was conducted to ask the teachers about the categories that were less covered in the first interview and obtain more details (Appendix 3). During the second round of interviews, a teacher who did not participate in the project under study was also interviewed: the Spanish language teacher. Two of the three compulsory languages of the curriculum are involved in each project, sometimes Basque and English are involved, and sometimes Spanish and English (with Basque as the language of instruction). After conducting the first round of interviews with the 6 teachers who took part in the project, we realised that, even if the Spanish Language subject does not form part of the project, it would also be interesting to collect the views of all language teachers. Therefore, the Spanish teacher was also interviewed in the second round of

interviews in order to obtain the views of all the language teachers participating in the multidisciplinary projects. As some time had passed since the first interview, it was decided that the Spanish teacher would only be interviewed once. Questions from the two guides were covered in the interview. After conducting 13 interviews with 7 teachers, saturation was reached, and no further interviews were needed. All the interviews lasted approximately 40 minutes and were audio recorded with the consent of the interviewees and anonymity was assured.

Then, in order to collect students' views, the focus group method was used. Krueger (2014) defines the focus group as a planned interview conducted with a group of people, usually between 6 to 12 (Mears, 2012). Interviews of this type are moderated by an expert and may be useful for identifying multiple perspectives on a particular topic (Frey, 2018; Krueger, 2014). A total of 25 students were enrolled in the class, and at least half of their voices were to be collected. Two focus groups were conducted with the students, each of them consisting of 8 participants and the researcher. In total, more than half of the students from the Humanities strand in the first year of upper-secondary education were interviewed in the two focus groups. Considering that focus groups have similar characteristics to semi-structured one-to-one interviews, such as flexibility and the need for an interview guide (Frey, 2018), the same interview guide that was prepared for the interviews (Appendix 4) with the teachers was used for the focus groups with the students. All the students in the class were invited to participate in the focus groups, and more than half of them accepted.

The focus groups were conducted in a spacious and quiet meeting classroom, where participants could feel comfortable, and during the morning break so that the students did not miss class. The purpose of the focus groups was explained again, and anonymity was also promised. The students' legal tutors were asked for permission to record the interviews, and refreshments were provided to make them more comfortable. As some participants spoke more than others, the researcher tried to moderate and give equal turns to all participants by keeping the discussion of the issue in question focused (Frey, 2018). Moderators are required to possess certain characteristics, including good communication skills, listening skills, and the ability to manage time effectively (Jarrell, 2000).

Lastly, the teaching material designed for the project was selected. Document analysis method "requires data *selection*, instead of data *collection*" (Bowen, 2009:31) and it is characterised by the stability of the data (Morgan, 2022), as "documents contain text and images that have been recorded without a researchers' intervention" (Bowen, 2009),

providing qualitative research with more objectivity than other methods (Bohnsack et al., 2010). Document analysis is not very common in educational research and it is frequently used as complementary to other methods to triangulate data (Bohnsack et al., 2010; Morgan, 2022; Bowen, 2009; Frey, 2018). Xtend, the online platform where the teaching material was available, required registration in order to be accessed. Therefore, the researcher asked for access to the platform, and the school created an email address and an account on the platform for the researcher.

4.4.4. Data analysis

4.4.4.1. Semi-structured interviews and focus groups

A description of the method used for the analysis of the 13 interviews and the focus groups is provided in this section. The analysis of the two methods used will be presented together, as the same procedure was followed for both the semi-structured interviews with teachers and the focus groups with students. In both cases, the purpose was to examine the views of the teachers and students involved in a multidisciplinary project regarding the presage phase of the Deeper Learning Agenda (Meyer et al., 2018).

In order to facilitate the analysis, the audio recordings of the interviews and focus groups were transcribed immediately after the interviews were conducted because "a typed copy is easier to analyze" (Flick, 2007:11). The audio recordings were transcribed verbatim; the pauses and stresses have not been transcribed, as it was not necessary for my purpose (Flick, 2007).

A concept-driven coding process (deductive analysis) (Gibbs, 2007) was followed in both cases, i.e. a code was created in atlas.ti for each of the 16 categories that compose the presage phase of the Deeper Learning Agenda proposed by Meyer et al., (2018), and the transcripts were coded accordingly.

Irudia/Figure 24. Deeper Learning Agenda (Meyer et al., 2018:253)
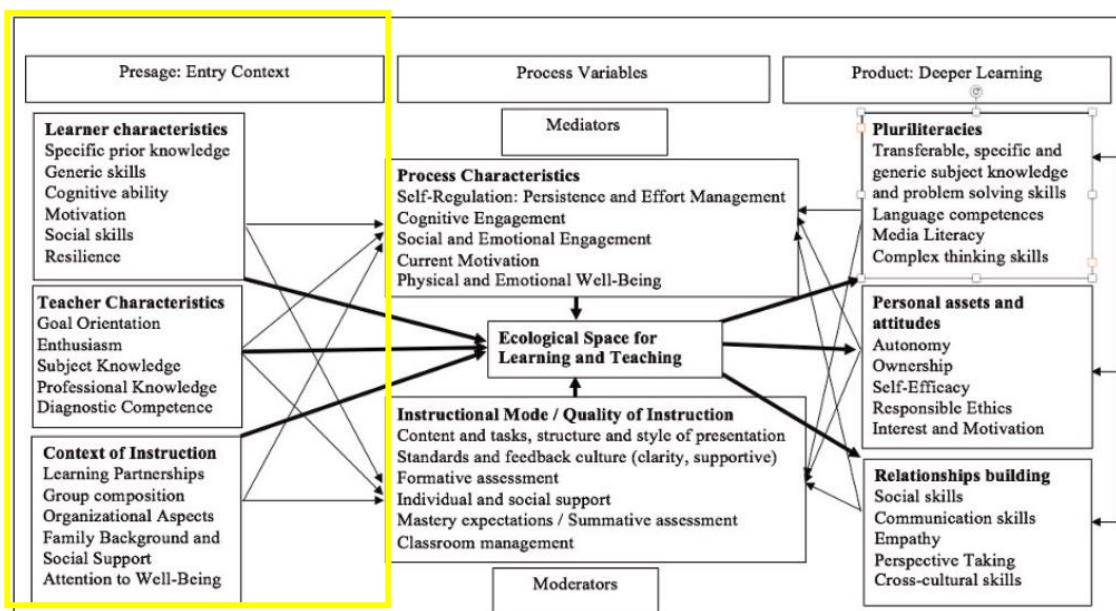
Before starting the coding of the text, the comprehension of all categories was checked together with a second researcher. To do this, each researcher coded 20% of the transcripts using the 16 codes that had been created. The two coded documents were then compared to confirm that the two researchers had interpreted the categories in the same way. Regardless of the length of the chunks under analysis, the focus was placed on what the teachers said about each category and not on how they said it, since the aim was to conduct content analysis. The two researchers reached a consensus of 85%, and in the cases in which the transcripts had been coded differently by the researchers, this was resolved verbally.

During the analysis of the 20% of the corpus, both researchers identified some extracts from the interviews that could not be coded with the predetermined 16 codes. Thus, two new categories emerged, which were added to the original 16 categories: methodology and assessment, thus creating two new codes in atlas.ti.

The project under study follows the project-based learning methodology (Bell, 2010). It can be identified in the interviews that all teachers consider the methodology as the core of the project, and methodological decisions, such as the assessment system, are based on this methodology. These two categories are mentioned in the Deeper Learning Agenda proposed by Meyer et al. (2018), but in the *process*, rather than in the *presage* phase. However, Biggs' (1989) placed these teaching methods and assessment in the presage phase of the original Biggs' 3P Model on which the Deeper Learning Agenda is based (1989, 1993). Presage factors, such as teaching methods and assessment, are contextual, according to the author. Furthermore, he emphasizes that teaching methods and assessment need to be considered in the entry context due to the fact that they have

an impact on various teaching aspects. For this reason, the two emerged categories have been added to the context of instruction.

After all the categories had been interpreted, the main researcher coded all the transcripts (13 interviews and two focus groups). For this purpose, 18 codes were created, divided into 3 code families: learner characteristics, teacher characteristics, and context of instruction. The codification system was also used in the analysis of another corpus (Garro et al., 2020).

The following table lists the codes and code families used in atlas.ti, along with their definition and an example for each of the categories:

Taula/Table 5. Codes used in atlas.ti for the anaysis of semi-structured interviews and focus groups

Family code	Code	Definition	Example
Learner characteristics	Cognitive ability	skills, attitudes, and knowledge involved in the creation of knowledge	"I realise I know, but I find it difficult to express it" (3:26)
	Generic skills	cross-curricular skills, attitudes, and knowledge required in any subject area	"If he/she is a good communicator, if he/she is participative, if he/she is quiet" (1:35)
	Social skills	skills, attitudes, and knowledge required to maintain good relations with other people	"I think that in general this group is very friendly, very close, very socially skilled" (2:1)
	Motivation	interest in a particular topic or experience	"Everyone has their own opinion about projects. Some people don't like to work autonomously, that level of demand. For some it is more comfortable to sit and listen and learn on their own, in a traditional way. But, well, personally, I have seen them very motivated" (14:5)
	Prior knowledge skills	Different types of prior knowledge	"They had already done the practice, a model had been provided, they had learnt the characteristics… theoretically they knew what it was. So I went to the project and I said: you have to do this, and the students would say: we already know what

			that is. They just had to apply it" (11:61)
	Resilience	ability to deal with uncertain situations and recover from setbacks and failures	"Some students still get lost. They are not used to it. It is easier for them to listen to the teacher, but they have to work in the project and they find it very difficult" (12:39)
Teacher characteristics	Enthusiasm	engagement with the institution, the teaching experience, and the subject	"I had too many students this year, 35 students. Each of them wrote two texts, I have to correct 70 writings now. I am suffering, it is not worth it" (3:15)
	Subject knowledge	necessary knowledge relating to the specific subject taught	"What we have to work on in mathematics is also to argue using mathematical language as they argue in other subjects, but mathematically" (7:44)
	Professional knowledge	acquired knowledge relating to the profession that can be adapted and applied in different professional circumstances	"How could I do from my project, so that students feel Basque, are competent and learn how to work cooperatively" (1:40)
	Goal orientation	ability to design and implement the learning experience based on the students' prior knowledge and their outcomes of learning	"This is what the projects are all about: we have to know our environment to understand some things, to see that they make sense" (4:23)

	Diagnostic competence	ability to evaluate the prior knowledge and characteristics of each individual student	"So I have worked on it for example and I hope that the statistical studies will be at that level. And from the questions they are asking, I can see that they work well" (8:19)
Context of Instruction	Group composition	grouping of students in the course of teaching-learning	"It is true that homogeneous groups work well sometimes, we don't rule them out, but our tendency is to make hetereogeneous groups" (1:33)
	Family background and social support	aspects having to do with the family and social environment that may affect teaching and learning processes	"The more autonomous the pupils are, the less the family is present" (14:21)
	Learning Partnerships	teaching-learning experiences in which the objectives and activities are agreed upon by teachers and students	"We might have to lead, but they are in upper-secondary education, and I think they should have initiative in the project [...] They have worked autonomously and taking decisions" (11:49)
	Organizational Aspects	aspects having to do with the temporal, spatial and coordinative organization of the teachers involved in the teaching and learning context	"Besides, some teachers teach also in secondary education, others have plenty of meetings. They are several subjects, and several teachers. Coordination is difficult"

(1:53)

Attention to well-being	activities carried out by the teaching staff to satisfy the physical and mental conditions that will provide the students with a feeling of satisfaction and calm	"Create an appropriate environment, based on trust, so that students trust them, us and their environment." (13:10)
Methodology	the (systematic) manner of teaching used so that students achieve the expected learning objectives.	"We repeat it over and over again, but we are finding it hard to make them see that through the project we are also learning" (4:11)
Assessment	Qualitative and quantitative evaluation corresponding to the learning objectives and learning outcomes to measure the progress of the students.	"Each subject has set its milestones, we have checked that it was not too much or too little for the pupils and from there we have gone on to evaluate" (1:119)

During the analysis, memos and comments were added to complement the interpretation of the corpus. In the case of *generic* and *social skills*, for example, a comment was added to each codified chunk, specifying the skill referred to by the teachers. In the same vein, in the case of *motivation* and *enthusiasm* the factors that motivated or demotivated both teachers and students were added in the comments.

Once all the transcripts of the interviews and the focus groups had been coded, an interpretation of the data was made. In order to determine what was said by teachers and students in the codified sections, all of the codified sections were categorised into categories. The first step was to create 18 documents (one for each category), in which all the information that teachers had provided regarding each of the 18 categories was collected. Another 18 documents (one for each category) were created to collect what the students had to say about each category. Thus, divided in two, it was easier to interpret what the teachers and the students had said and see if there were any discrepancies.

When interpreting the semi-structured interviews and the focus groups, the number of citations in each category was counted, as large amounts of citations needed to be organised. The number of citations in atlas.ti reveals which categories are the most important to the teachers and students i.e. which ones they talk about the most. Likewise, it also reveals the ones they talk about the least or hardly mention at all.

To make an interpretation of the analysis, co-occurrences between categories were also sought. The option *Co-occurrence Explorer* in atlas.ti provides an overview of the overlapping codes (Atlas.ti manual), which might help in the interpretation of the data.

4.4.4.2. Teaching material analysis procedure

The teaching material under study was developed by school teachers three years ago with the objective of developing certain skills and promoting Project Based Learning among students. Document analysis was used to analyze the teaching material by coding, categorising, and interpreting it (Flick, 2014).

Teaching material is in Basque, and the categories have also been created in Basque in Atlas.ti. Extracts of the material as well as the categories have been translated into English.

A checklist was prepared based on the five characteristics that teaching material should have within the Pluriliteracies Teaching for Deeper Learning framework (Connolly, 2019), described in detail in section 3.3.7 of the theoretical framework.

1. Content, language and metacognitive progression
2. Linking technical language and content learning at the concrete level facts
3. Creating cognitive conflicts and taking up pre-concepts or misconceptions
4. Multidimensional scaffolding
5. Promotion of affective pupil characteristics and engagement

4.4.4.2.1. Creation and validation of the analysis tool

As no analysis of the teaching material within this framework has been found in the literature, in order to analyse the material, a checklist was developed containing 40 criteria arranged into five dimensions (Appendix 5), one for each of the characteristics proposed by Connolly (2019). Morton (2013) states that the characteristics the material should have can be presented as checklists of criteria.

In terms of the structure of the checklist, criteria were added from top to bottom on the left side of the table, and at the top of the table, boxes were created for each section of the teaching material. This enables us to identify at what point in the teaching material the criteria are met. Additionally, next to each criterion, a checkbox was added, one for "yes" and one for "no".

For the purpose of improving the first version of the checklist, two groups of students examined secondary school teaching materials as a part of their Master's Degree in Teacher Training for the Profession of Secondary Education, Vocational Training, and Language Teaching. The students used the checklist to analyse the material and identified some criteria that were ambiguous or unclear.

The comments and proposals received from the participants were taken into account and a revised checklist was developed (see Appendix 5). There were no criteria deleted from dimensions 1, 2, 4 and 5, but some details were added, such as clear explanations or examples of what the criteria ask for. It was the third dimension that underwent the most changes.

Initially, the third dimension was composed of three criteria:

Irudia/Figure 25. First version of the third dimension

IRIZPIDEAK	Starting Point	What will I learn?	Organizing myself	Africa in the world (Geo-history and economics)	From knowing Africa to knowing Africans (Physical Education)	What is our relationship with Africans? (Mathematics)	In exchange for a coin (Mathematics)	We made them ill (English Language Arts and Economics)	Debate (interdisciplinary)	Demystifying prejudices about Africa (Basque Language Arts)	Sharing conclusions	Performance
Cognitive conflicts are encouraged.	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐
Misconceptions are identified.	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐
Misconceptions are worked on: true/false activities, hypothesising, sharing preconceptions…	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐	Bai ☐ Ez ☐

As part of the validation process, feedback was received that the criteria for the third dimension were very general and difficult to fill in. The first two criteria ("Cognitive conflicts are promoted" and "misconceptions are identified") were defined and divided into multiple criteria. The third criterion provided three examples of exercises designed to identify misconceptions. In the second version, a criterion was created for each type of exercise. The second version of the third dimension included ten criteria, in contrast to three in the first version:

Irudia/Figure 26. Second version of the third dimension

| 3 CREATING COGNITIVE CONFLICTS AND TAKING UP PRE-CONCEPTS OR MISCONCEPTIONS | | | | | | | | | | | | | |

CRITERIA	Starting Point	What will I learn?	Organizing myself	Africa in the world (Geo-history and economics)	From knowing Africa to knowing Africans (Physical Education)	What is our relationship with Africans? (Mathematics)	In exchange for a coin (Mathematics)	We made them ill (English Language Arts and Economics)	Debate (interdisciplinary)	Demystifying prejudices about Africa (Basque Language Arts)	Sharing conclusions	Performance
Learners are asked to make individual reflections and to discuss them within the group. "Answer and share" kind of activities.	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐
Learners are asked to share their prior knowledge/preconceptions.	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐
Learners can check if their prior knowledge is correct or not.	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐
Misconceptions are identified.	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐
Preconceptions and misconceptions are worked on.	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐
Learners are asked to confirm or deny information.	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐
There are true/false activities.	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐
Learners are asked to make hypotheses.	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐
Research on a topic is proposed.	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐
The content covered in the subject is presented from the beginning	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐	Yes ☐ / No ☐

4.4.4.2.2.   Analysis of the teaching material using the checklist

Analysis of the first two dimensions of the checklist

In order to answer the main objective of this study, a thorough analysis of the first two dimensions of the checklist was conducted (Content, language and metacognitive progression and Linking technical language and content learning at the concrete level of facts). These two dimensions refer to the PTL model developed by the Graz Group (Meyer and Coyle, 2015), which is elaborated in detail in the theoretical framework (see section 3.3.4). As can be seen in the following figures, these two dimensions include criteria related to Cognitive Discourse Functions (CDFs), genres, academic language and everyday language, as well as multimodality. According to Coyle and Meyer (2021), these are the fundamental elements of subject-specific literacy.

Irudia/Figure 27. First dimension of the checklist

1. CONTENT, LANGUAGE AND METACOGNITIVE PROGRESSION

IRIZPIDEAK	Starting Point	What will I learn?	Organizing myself	Africa in the world (Geo-history and economics)	From knowing Africa to knowing Africans (Physical Education)	What is our relationship with Africans? (Mathematics)	In exchange for a coin (Mathematics)	We made them ill (English Language Arts and Economics)	Debate (interdisciplinary)	Demystifying prejudices about Africa (Basque Language Arts)	Sharing conclusions	Performance
Different genres are presented/offered.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Genres are required to be used.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Genres are explicitly taught.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
CDFs are are presented/offered.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
CDFs are required to be used.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
CDFs are explicitly taught.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

Irudia/Figure 28. Second dimension of the checklist

2. LINKING TECHNICAL LANGUAGE AND CONTENT LEARNING AT THE CONCRETE LEVEL FACTS

IRIZPIDEAK	Starting Point	What will I learn?	Organizing myself	Africa in the world (Geo-history and economics)	From knowing Africa to knowing Africans (Physical Education)	What is our relationship with Africans? (Mathematics)	In exchange for a coin (Mathematics)	We made them ill (English Language Arts and Economics)	Debate (interdisciplinary)	Demystifying prejudices about Africa (Basque Language Arts)	Sharing conclusions	Performance
Learners are asked to construct meaning with CDFs using colloquial language.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Learners are asked to construct meaning with CDFs using academic language.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Academic language is explicitly taught by offering models, examples, explanations...	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Information/content is presented in different forms: diagrams, graphs, pictures, texts...	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Information/content is required in different forms: diagrams, graphs, pictures, texts...	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

In addition to filling out the checklist, the material was converted to pdf format so it could be analyzed using the software Atlas.ti 9.0. Since the platform included several documents, links to web pages, and other resources, this conversion was not easy.

For each of the first two dimensions of the checklist, a code was created in atlas.ti. A total of 11 codes were created, which were then grouped into four family codes.

Taula/Table 6. Code list for the analysis of dimensions 1 and 2

FAMILY CODE	CODE	DEFINITION	EXAMPLE
Genres	1.1 Genres are offered	Genres offered in the teaching material.	*Different texts are provided to students through the material as input.*
	1.2 Genres are required	Genres required to the students.	"You have to write an opinion essay"

	1.3 Genres are explicitly taught	if any assistance is provided to help students perform the genre.	*The teaching material includes the steps and the structure that need to be followed in order to produce a genre.*
Cognitive Discourse Functions	1.4 CDF1: CDFs are offered	CDFs offered in the teaching material.	As can be seen, there are plenty of natural resources in Africa, enough to supply the people in Africa.
	1.5 CDF2: CDFs are required	CDFs are required to the students.	What, in your opinion, does best describes Africa, the photo you chose or the video?
	1.6 CDF3: CDFs are explicitly taught	if any assistance is provided to help students perform the CDF.	*The explanations provided to tell the student how the CDFs should be used.*
Everyday language-academic language	2.1 Everyday language is required	Students are asked to express something in their own words.	The words of the characters will be expressed in a non-formal language.
	2.2 Academic language is required	Students are asked to express something with academic language.	Try to answer these three questions, by using the macroeconomic concepts we have been learning these days.
	2.3 Academic language is explicitly worked on	Academic language is taught.	"Macroeconomic concepts analyse the global economic reality.
Multimoda lities	2.4 Different modes are offered	Information is offered in different modes.	Tables, images, infographics, orally, written…
	2.5 Information is requested in different modes	Information is required in different modes.	Fill in the following table

Similarly to the interviews and focus groups, the teaching material was coded using Atlas.TI. The data were then extracted and organized in an Excel document. In order to interpret the data more accurately, additional information was added to the comments,

including the subject, the genre, the CDF, the mode, the context of the exercise, and any questions that may have been asked. The following are some examples of comments:

Irudia/Figure 29. Extract from the process of analysis in atlas.ti.

During the analysis, the coding of genre, everyday language-academic language, and multimodalities did not pose any major challenges. There were, however, several challenges related to the coding of the CDFs, particularly those related to criteria 1.4 (*CDFs are offered*) and 1.5 (*CDFs are required to be used*). The operative verbs that were offered and required in the material were identified and coded according to the type of CDF they belong. Sometimes the CDF was explicitly requested, i.e. the verb to be performed by the student is explicitly mentioned in the task:

> "***Classify*** *the diseases listed on the board into the following types*" (CDF type required: categorise)

> "***Define*** *the following terms*" (CDF type required: define)

As long as the verb used is an operative verb, it is easy to code the chunk. The CDFs may also be requested implicitly, usually through questions, whereby the required CDF is not explicitly mentioned, resulting in confusion regarding codification, as can be seen in the following extracts:

> "*What has Tessa discovered that is so serious*?" (CDF required: report)

> "What does this map show*?*" (CDF required: describe)

In order to encode the implicitly required CDFs, the following procedure was followed. The cognitive function required in each case was first identified, and then, an equivalent verb in Basque was found. The verbs listed by Dalton-Puffer (2013) were taken from English literature. There may or may not be a literal translation of these verbs in other languages. The present teaching material is in Basque (except for the section corresponding to the English subject), and there are verbs in Basque that do not have a direct translation to be found in Dalton-Puffer's classification. This is the case of the verb *azaldu*, for example. The literal translation in English is *explain*, but whenever *azaldu* is asked in Basque, *explanation* is not always necessarily required, as *azaldu* can also denote other meanings such as describe, define and report.

It is worth noting that, in some cases, criterion 1.6 (CDFs are explicitly taught) cannot always be assessed simply through the analysis of the teaching materials. It may also be necessary to analyze the real practice in order to gain a deeper understanding of the case. A description of the methodology used to analyze how CDFs are scaffolded in the interactions between teachers and students will be provided in the following paragraphs.

4.4.4.3. Analysis of how CDFs are scaffolded in teacher-student interaction

To examine how Cognitive Discourse Functions are scaffolded by the teachers through interaction, we began by identifying only the moments of interaction between the teachers and students among the total video recordings.

The theoretical framework explains that interactions may occur in three types of registers in the classroom: instructional register, classroom talk focused on curriculum content (Christie, 2000); regulative register, related to classroom discussion about classroom management and task organization (Christie, 2000); and social talk, related to social cohesion and off-task conversation (Ellis, 1992; Ernst, 1994). In this analysis, only interactions taking place in the regulative and instructional registers were considered (Tang, 2019). These two registers frequently converge in the classroom (Christie, 2000), which sometimes leads to difficulties in differentiating between the two registers (Dalton-Puffer, 2007). For this reason, all the teacher-student interactions occurring in the two registers were identified and transcribed verbatim, and analysed using the software atlas.ti 9.0. Pauses and stresses were not transcribed as they were irrelevant to the analysis (Flick, 2007). In class, the most common activity type involved whole-class

interactions (Dalton-Puffer, 2007), but small-group interactions between teachers and students also occurred.

Studies related to scaffolding in the classroom have primarily focused on discourse analysis (Nikula, 2010) or pedagogy (Gibbons, 2003). In order to answer this research question, both approaches needed to be integrated, and following a thorough search, a study (Li and Zhang, 2020:9) was discovered which examined "how effective teacher scaffolding can promote high-quality classroom interactions that are conducive to both the development of language and cognition by integrating these two approaches", which served as a model for our study.

This study was conducted by Li and Zhang (2020) on three levels: cognitive complexity (based on Bloom's taxonomy), scaffolding functions (based on Wood, Bruner and Rose, 1976, and Walqui, 2006); and discourse features. In order to address our third research question (RQ3: *How are Cognitive Discourse Functions scaffolded in teacher-student interaction*?), Li and Zhang's coding scheme was adapted as follows:

Instead of Bloom's taxonomy, an analysis of Cognitive Discourse Functions (CDFs) was conducted. The reason for this is that as CDFs serve a bridge between content, language and literacy (Morton, 2020). Furthermore, the CDFs proposed by Dalton-Puffer (2013) are considered to be "an accurate lens through which to examine classroom discourse and literacy studies" (Lorenzo, 2017:40).

Li and Zhang (2020) conducted a deductive analysis of scaffolding strategies. In our study, an inductive analysis was conducted as there are no scaffolding strategies defined for the scaffolding of CDFs yet. The category of discourse features was kept as it was (IRF pattern and Question types).

To sum up, the first level of analysis was conducted to answer RQ 3.1 (*How much evidence of CDFs is there in teacher-student interaction?)* and RQ 3.2 (*How is teachers' meta-talk in the teachers' discourse concerning the CDFs?*), whilst the second and third levels were used to answer RQ 3.3 (*What strategies do teachers use to scaffold CDFs in the classroom*?).

4.4.4.3.1. Analysis of the evidence of CDFs in teacher-student interaction and teachers' meta-talk

As has been explained in the theoretical framework, Dalton-Puffer et al. (2018) distinguish between two levels of CDFs: the "episode level" and the "basic level". The

present analysis will focus exclusively on the so-called "basic level". Such CDFs were identified and analysed by adapting the criteria followed for the analysis of CDFs in the teaching material. A code was created for each CDF used by teachers (CDF1), for those requested from students (CDF2), and for those used by students (CDF3).

Moreover, as was the case in the analysis of the teaching material, the fuzzy boundaries of CDFs (Coyle and Meyer, 2021) also posed an issue in the coding and analysis of CDFs used in interaction. In order to overcome such a challenge, two additional codes were created: "CDF1 doubts" and "CDF2 doubts". These categories were used for chunks whose CDF type was unclear. No "CDF3 doubts" was created because it was not necessary. As soon as the codification was completed, all doubts were clarified one by one. The cognitive and discursive intention of each verb was interpreted by a second researcher, and an equivalent verb in Basque was sought. As mentioned earlier, it was not always easy to translate or choose the exact operative verb when working with data in a language other than English.

In addition, meta-talk was identified in both the CDFs used by the teachers and those requested by the students. Therefore, another family code, named meta-talk, was created, consisting of two categories: CDF1 meta-talk, referring to the CDFs used by teachers by explicitly mentioning the CDF. And CDF2 meta-talk, which refers to the CDFs that are requested from students by explicitly mentioning the CDF that is required. To carry out the analysis, the verbs mentioned explicitly in the discourse of teachers were identified and then classified as pre-emptive or reactive meta-talk (Dalton-Puffer et al., 2018).

In total, in order to identify how much evidence of CDFs there was in teacher-student interactions 23 codes were created, divided into two family codes: CDFs and meta-talk.

Taula/Table 7. Codes used for the analysis of RQ3.1 and RQ3.2

Family code	Code	Example
First level: CDF	CDF1 report	That's what he said. And he said things like rent per capita. He talked about these things.
	CDF1 describe	They have all been quite alike. We have all chosen images that express sadness, but also those

that express joy.

CDF1 categorise	If the value of bitcoin goes up, okay. If we compare Euro, pound, sterlina… it happens the same with pounds, and with the euro. You can earn money or lose it.
CDF1 define	In Equatorial Guinea they earn approximately 8000. That is what Rent per capita means
CDF1 explain	When I ask for a loan, I have to pay the amount of the loan, and a little bit more to the bank because the bank has given it up for me.
CDF1 explore	*No occurrences*
CDF1 evaluate	The whole truth has not been said, but neither has it been untrue. The images we have, the images we've projected before, are real, but they're not the only picture.
CDF1 doubt	*No occurrences*
CDF2 report	What did you work on in this group?
CDF2 describe	What characteristics do multinationals have?
CDF2 categorise	*No occurrences*
CDF2 define	What does the word deficit mean?
CDF2 explain	If she put that in there, 4-6 percent of her own. What's that deduction for?

CDF2 explore	What measures do you think can be taken to increase a country's GDP at market prices?
CDF2 evaluate	So what should you do in principle with this prudence? Inform yourselves. With this product, with that other product… if one offers you 6% and another one 1%, watch out!
CDF2 doubt	*No occurrences*
CDF3 report	Governments want a worldwide epidemic to finish.
CDF3 describe	The situation of the poorest sectors in Kenya is that there is an epidemic of tuberculosis and in Kenya they have no pils, and Dipraxa Company tests their medicines with African people.
CDF3 categorise	*No occurrences*
CDF3 define	a severe of infectious, severe but not for a long time
CDF3 explain	Because there was too much money in between and those companies gave implement to Governments
CDF3 explore	Maybe the government has like a "deuda" with Kenya, so…
CDF3 evaluate	Student 6, because small businesses are closing down because of multinationals.

| Meta-talk | CDF1 meta-talk (*teacher*) | You don't even remember the definition! |
| | CDF2 meta-talk (*students*) | *No occurrences* |

4.4.4.3.2. Analysis of the scaffolding of CDFs uttered by the students

As previously mentioned in the theoretical framework, there are different levels of scaffolding: macro level and micro level (Mahan, 2020). In the present analysis, focus was placed on the latter, which refers to instructional scaffolding, i.e. the support teachers give learners in the classroom so that they can complete a task. The scaffolding strategies were identified using an inductive approach of analysis. A code named "*scaffolding strategies*" was created, and then the strategies used by the teachers were identified within the codified chunks. The reason for this was that no studies were found regarding the scaffolding of CDFs. Therefore, first, the researcher read about the different scaffolding strategies listed by different authors. The strategies used by each teacher were identified from the transcripts without creating any categories. The strategies were then labeled according to the literature.

Regarding the discourse feature level, as IRF is the most repeated pattern in interaction (Mortimer and Scott, 2003), the fragments in which scaffolding occurs were identified and coded as IRF patterns. The first step was to define and identify the chunks in the transcripts, i.e. where the scaffolding sequence begins and ends, regardless of whether they are initiated by students or teachers. The same code was used for all patterns (IRF pattern), but not all chunks have the same structure. Sometimes the sequence was structured as IRF, sometimes IRFRF, or IRFIRF.

The Initiation phase of the IRF pattern is typically initiated by a question. It is often the question that determines the structure of the pattern. Therefore, a new category called questions was created, and the types of questions were specified in the comments added to the codified chunks so that it could be identified which types of answers required each type of question. Lastly, another category named *Feedbac*k was created to analyze how teachers scaffold on top of the students' responses.

In total, 4 codes were created:

Taula/Table 8. Codes used for the analysis of RQ3.3

Family code	Code	Example
Second level	Scaffolding strategies	*the teacher birformulates student's answer (birformulation)*
Third level	IRF	Teacher: what characteristics do multinationals have? Student: that they are a group. Teacher: That they are a group.
	Questions	Is globalisation good or bad?
	Feedback	Yes, it is non-infectious, but it can infect other parts of the body. Ok, you did it great!

Following a similar process as for analyzing the teaching materials, each codified chunk was accompanied by a commentary. A description of the strategies used by teachers was given in the commentary, and once the entire corpus was analyzed, each strategy was assigned a name used in the literature. The same procedure was followed with the questions.

Irudia/Figure 30. Commentary added to a specific chunk in atlas.ti

4.5. QUALITY OF THE RESEARCH

Validation, rigor, objectivity, and accuracy are all terms used to describe the quality of research (Creswell, 2007). A number of ethical considerations must also be considered throughout the entire research process (Flick, 2015). This section presents the decisions that have been made in the research process to take into account both the validity of the study and its ethical implications.

4.5.1. Validation of the research

Qualitative research is characterised by being more subjective than quantitative research and, therefore, needs to meet some criteria in order to be validated (Creswell, 2007). This author gathers different terms used by different authors to refer to qualitative validation, including reliability, objectivity, criticality, integrity, credibility... In light of these many perspectives, the author considers validation to be an attempt to determine the accuracy of findings. Different types of validation exist, and Creswell and Miller (2000) propose a list of validation strategies, at least two of which all research must comply with. Some of these requirements need to be considered from the outset of the preparation of the research design to ensure validity, reliability and objectivity (Flick, 2015).

When planning the research design, the validation criteria mentioned by different authors have been considered, for example, when triangulation is taken into account. The triangulation method involves the use of various methods of both data collection and data analysis and ensures the quality of the qualitative research (Flick, 2007). For a more complete understanding of the project under analysis and to meet the research objective, a case may be examined from different perspectives. Therefore, different data collection methods have been used to examine our multidisciplinary project, such as semi-structured interviews, focus groups, document analysis and classroom recordings. The combination of all these methods serves as data triangulation.

However, in terms of data collection, each technique is required to take into account certain quality-related considerations. As far as methodological issues are concerned, there are no agreed standards, but certain guidelines are repeated across multiple studies, which leads to a standardization of the quality requirements. This ensures that there is a similarity between research studies and facilitates the comparison of data and conclusions. For example, an interview guide (Flick, 2015) ensures that all participants are asked the same questions.

To ensure that what the participants were saying was understood by the researcher, focus groups were recorded using both a camera and a voice recorder. During focus groups, more than one participant may speak simultaneously, and video recordings assist us in transcription by providing information about who said what. In the same vein, video cameras were also used to record classroom activities because they allow us to capture what takes place in the classroom as it occurs (Pirie, 1996). To ensure that no details were missed, various voice recorders were also used.

To ensure reliability, 20% of the transcriptions of the interviews were analysed independently by two researchers and were compared until a consensus of 85% was reached, ensuring objectivity.

Validation of the checklist created to analyze the teaching material is another process that has been carried out. Validation of the checklist occurred as part of a master's degree program to ensure all the criteria were understood correctly.

The research process has also been regularly checked by external researchers in order to ensure objectivity and validity. Furthermore, "preliminary analysis" was made available to the teachers at the school where the research was conducted, although the transcripts had not been checked with the participants due to the large amounts of data.

Finally, a detailed description of the participants and the entire research process was compiled in order to minimize subjectivity.

4.5.2. Ethical considerations

As with validation criteria, all research also needs to meet certain ethical considerations throughout, starting from the preparation of the research design, during data collection and data analysis, and even in the publication of the findings (Flick, 2015).

Research data may contain sensitive information, and researchers must be aware of the potential harm and upheaval that their work may cause to participants (Flick, 2007). The use of some data collection methods, such as video recordings, may be regarded as intrusive. For this reason, in the present study, some ethical considerations have been taken into account when collecting and analyszing the data.

Data collection was conducted with the consent of the teachers and students participating in the study. It was important that they did not feel obligated to participate. Teachers were asked orally for their consent, and written consent was requested from the parents or legal tutors of the students, who were all underage. As part of the written consent process, an official document from the university was used, which explained the purpose of the research and the intended use of the data. In addition to requesting consent from participants, no participant was obligated to participate at any stage of the data collection process. Prior to asking students to participate in focus groups, the idea and objectives were presented to them.

The well-being of participants has always been paramount, ensuring confidentiality (Fitzgerald et al., 2013) and anonymity throughout the research process. It was not possible for anyone other than the main author to view the recordings, and anonymisation of names (Flick, 2007) was maintained at all times. To facilitate interpretation of the data, the original names of the participants were used for the initial analysis, and these names were later changed to ensure confidentiality. Moreover, no information was hidden from the participants at any time, and they were free to ask questions at any time (Creswell, 2007).

4.6.   LABURPENA

Tesi honen helburua da aztertzea batxilergoko diziplinarteko proiektu batean arloetako alfabetatzeak nola lantzen diren, arreta ikasle eta irakasleen ahotsak jasoz, ikasmateriala aztertuz, eta funtzio kognitibo diskurtsiboak ikasle-irakasle elkarrekintzan nola aldamiatzen diren aztertuz. Horretarako hiru iker-galdera proposatu dira. a) Nola deskribatzen dituzte proiektuaren aurretiazko ezaugarriak diziplinarteko proiektu batean diharduten irakasle eta ikasleek?; b) Nola lantzen da arloetako alfabetatzea ikas-materialean?; c) Nola aldamiatzen dira Funtzio Kognitibo Diskurtsiboak irakasle-ikasle elkarrekintzetan? Galdera horiei erantzuteko kasu azterketa kualitatibo bat egin da, paradigma soziokonstruktibistan kokatzen dena. Ikerketa honetan 7 irakaslek eta 25 ikaslek hartu dute parte.

Iker-galdera horiei erantzuteko kasu azterketa kualitatibo bat egin da. Egindako ikerketa hobeto ulertzeko, kasuaren testuinguratzea egin da. Horretarako, lehenengo Euskal Herria eta batez ere Euskal Autonomia Erkidegoaren egoera soziolinguistikoa eta hezkuntza sistema aurkeztu dira, non hizkuntza ereduak eta azken urteetan eleaniztasunerantz eman diren urratsak azaldu diren. Horien artean aipatu dira adibidez, Eleanitz proiektua, Eleaniztasunerantz, eta ingelesaren irakaskuntza goiztiarra.

Ebaluazio diagnostikoaren (ISEI-IVEI, 2018) arabera, ikasleen ingeles eta gaztelania mailek hobera egin dute azken urteetan, aipatutako proiektu eta egitasmo horien guztien emaitza izan daitekeena. Hala ere, nahiz eta ikasle ia gehienek D ereduan ikasi, hau da atzerriko hizkuntza eta gaztelania arloak izan ezik beste arlo guztiak euskaraz ikasi, arduratzekoa da ikasleen euskara maila gero eta kaskarragoa.

Heziberri 2020 (Eusko Jaurlaritza, 2014) dokumentuan zerrendatzen diren eta ikasleek garatu behar dituzten konpetentzia guztien artean, konpetentzia komunikatiboak lotura

zuzena du hizkuntza gaitasunarekin. Konpetentzia komunikatiboa zeharkakoa eta arlo guztietan garatu behar den konpetentzia da.

Aztertuko dugun proiektuan parte hartzen duten ikasgaiei dagokien batxilergoko curriculuma aztertu dugu, eta arlo guztietan topatu dira hizkuntzaren bidez egiteko gai izan behar diren funtzio kognitibo diskurtsiboak: hala nola, justifikatu, arrazoitu, hipotesiak egin, konparatu, azaldu, definitu…

Ondoren, Ikastolen Elkarteko historiaren errepaso bat egin da. Izan ere, aztertutako proiektua Gipuzkoako ikastola batean kokatzen da, batxilergoko lehenengo mailan hain zuzen. Hiru hilean behin batxilergoko lehenengo mailan irakasleek diseinatutako eta 2 aste eta erdi irauten duen diziplinarteko proiektu bat burutzen da. Tesi honetarako aztertu dugun proiektua sei jakintza-arlok osatzen dute: matematika, ekonomia, euskara, ingelesa, historia eta gorputz hezkuntza, eta proiektuaren helburu nagusia da ikasgai desberdinetako ikuspegietatik Afrika kontinentea ezagutzea eta bertako biztanleekin enpatizatzea.

Diziplinarteko proiektuaren azterketa egiteko, datuak metodo desberdinen bitartez jaso dira. Lehenengo galderari erantzuteko, elkarrizketa erdiegituratuak egin dira diziplinarteko proiektuetan parte hartzen duten irakasleekin, eta eztabaida-taldeak 16 ikaslerekin. Bigarren galderari dagokionez, dokumentuak aztertzeko metodoa erabili zen material didaktikoaren azterketa egiteko, eta azkenik, irakasleen eta ikasleen arteko elkarrekintza bideoz grabatu da elkarrekintzaren bitartez FKDak nola aldamiatzen diren aztertzeko.

Datuak aztertzeko prozedurei dagokienez, elkarrizketak eta eztabaida-taldeak aztertzeko metodo deduktiboa erabili da, Deeper Learning Agendaren aurretiazko baldintzak (*presage*) osatzen dituzten 16 kategoriak erabiliz. Bestetik, materialaren azterketa egiteko, marko teorikoan oinarrituta, kontrol-zerrenda bat sortu da. Eta azkenik, FKDak gelan nola aldamiatzen diren aztertzeko, lehenengo gelan FKDek gelako ikasle eta irakasleen arteko elkarrekintzan duten presentzia zein den identifikatu da, eta ostean, horien aldamiajea egiteko irakasleek erabiltzen dituzten estrategiak identifikatu dira. FKDen identifikazioa modu deduktiboan egin da zazpi FKD motak kontuan hartuz, eta irakasleek erabiltzen dituzten estrategien identifikazioa metodo induktiboaren bitartez egin da.

Azkenik, ikerketa baliozkotzeko, ikerketa egin aurretik, bitartean eta ostean hartu diren erabakiak azaldu dira, gogoeta etikoekin batera.

Chapter 5:
FINDINGS

5. FINDINGS

In this section the findings will be presented organised by the three main research questions.

Irudia/Figure 31. Research questions
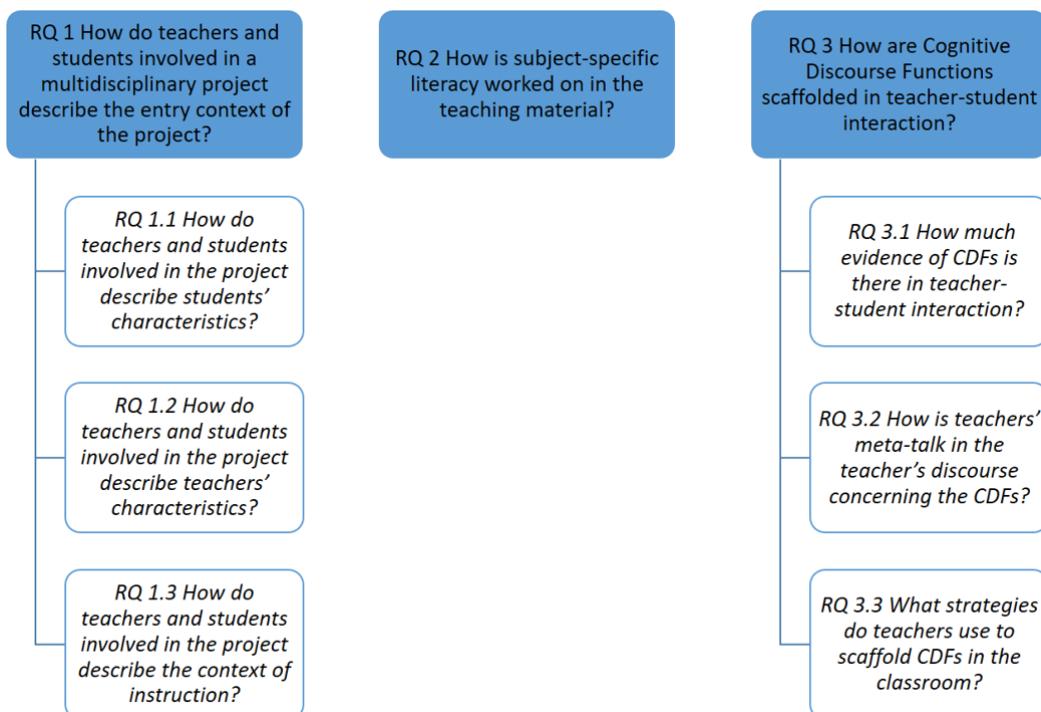
5.1. HOW DO TEACHERS AND STUDENTS INVOLVED IN A MULTIDISCIPLINARY PROJECT DESCRIBE THE ENTRY CONTEXT OF THE PROJECT?

In response to the first research question, this analysis presents the opinions, perceptions and experiences of teachers and students with regards to the three categories of the presage phase, as well as the relationship between the categories analysed. This section will consist of three sub-sections, the first one will contain teachers' and students' views about student characteristics, the second one the views about teacher characteristics and on the third sub-section teachers' and students' views about the context of instruction will be presented.

All the interviews cover the reflections made by teachers and pupils on the development of the projects and show different points of views. Two referencial frameworks are mentioned by the teachers, the Pedagogy of Trust (the ikastola's own framework) and Project Based Learning. Both frameworks appear to be intertwined and present Project-based Learning as an ideal methodological opportunity for the development of Pedagogy

of Trust. Although the interviewees shared the challenges, difficulties and opportunities of multidisciplinary project work, the added value of Project Based Learning is that it gives context to learning processes and offers students a suitable framework for learning for life.

5.1.1. How do teachers and students involved in the project describe students' characteristics?

The interviewees mainly take the generic skills into account as a starting point for describing their students. Several generic skills were mentioned in the interviews by both students and teachers: ability to work independently, ability to communicate, participation, active attitude, self discipline, ability to organise work, critical thinking, interest, ability to work in a team, ability to reflect, leadership, being competent, ability to search for appropriate information, ability to coordinate, time management and initiative, among others.

According to the teachers, generic skills are not only required to be competences that students have but, in addition, their development is one of the objectives of the projects, which is in line with Condliffe (2017) and Virtue and Hinnant-Crawford (2019). However, teachers sometimes take it for granted that students have already developed certain characteristics so far, but in students' day-to-day work they notice that some competences still need to be further developed. Differences are emphasised by the teachers in the typology of learners in relation to generic skills. According to the teachers, the students who have developed the aforementioned skills, such as time management, autonomous work, criticism, etc., manage the project well. In contrast, the students with these skills less developed encounter difficulties in working with this methodology. This difference between students' skills generates unease among both pupils and teachers, as will be presented in this section.

As can be seen in the extract below, when teachers describe pupils, they generally make a distinction between those who are academically demanding and those who are less demanding (extract 1 and 2). This might influence personal relationships, as the self disciplined attitude of some pupils may have an effect on their classmates and teachers. This can sometimes lead, in group work, to self disciplined students behaving rudely towards others and belittling their work when the rest of the group mates do not work as hard as they do, as two teachers explain in the following extracts:

Extract 1
T2_En: among them there is a small group that is very demanding with them and with us as well. With a high level of demands in general. There are others who are

quieter, calmer, who don't have so much to say, but they are not so demanding with themselves. And then there is another small group of 2 or 3, who seem to be a bit lost [...], who are very demanding with their good and bad things, who do very good work, who have a very high level of demand with the teachers, but also with their classmates, and in some moments there have been very rough comments such as "you haven't done well, we will do it" and things like that. That other silent group, or the less self-demanding group seem to be quiet, formal, hard-working, but with a lack of activity.

Extract 2
T6_PE 1. It also depends on the self-demand of each student. Some can spend an hour making a hand drawn video and others 5 hours. Their workload depends on the students, some are exhausted because they have autonomy, some do not know how to organise their work and how to manage autonomy. They have three hours to do the text-commentary and they spend an hour saying that they have to do it, but they don't do it. Others, on the contrary, who do not have such a high level of self-demanding towards themselves, work in teams in a relaxed and calm way. However, this can also lead to a more passive attitude towards the work.

Regardless of the level of self discipline of each student, as far as social skills are concerned, i.e. being friendly with classmates, not very demanding with classmates, managing well in group relations, being respectful with teachers, teachers say that, in general, these students do not have problems in relating to others (extract 3). Furthermore, the Physical Education and the English teachers underline (extract 4 and 5) that the PBL methodology has contributed positively to the students' social skills, and that even the most shy students have actively participated in the project.

Extract 3
T7_M: I haven't been in this project for long, but it seems that when there is a specific job to be done and everyone's contributions are essential, there have been a few fights. There are groups in which they insult each other, they have bad language. Not in this class. These students have respect for each other. I think that in that sense it's a fairly good classroom. And I think that, at least what I've seen so far, they are quite normal, although some of them get angry very often.

Extract 4
T6_PE: I have also seen those who are shy dance. I have seen them all as a group.

Extract 5
T2_En: those who had violent and disruptive verbal communication, now they are very calm.

Collaboration and group work are key in project based learning (Virtue and Hinnant-Crawford, 2019). In the present study, students are required to work with the same groups every day during all hours of the school timetable for two weeks. Students do share the view that teamwork allows them to establish new relationships, which was also explained by Virtue and Hinnant-Crawford (2019). But at the same time, they recognise that they spend too much time with the same group mates, and that this has sometimes led to conflict in the groups (extract 6). If students are at ease in the group and everyone pulls their weight, the students do well. However, students say that this does not happen

when those who are hard-working are being dragged behind by their peers who are not so hard-working, and this also makes them angry and frustrated with each other (extract 7). Hence, in line with Brooks et al., (2012), the atmosphere within the group has a direct influence on their motivation, and teachers are aware of this (extract 8).

> Extract 6
> Student 1: Because we are sitting in the same place and looking at the same people, in the same group. It's super tiring.
> Student 2: We end up with a bad feeling in the group.
> Student 3: Yeah, us too.
> Student 2: Yeah, it's just that three weeks with the same team is too many hours.
>
> Extract 7:
> Student 1: the thing is that this is what they (teachers) do: we know that some of them work, so we will put them together with the ones that we don't see as motivated, and thus, we know they're going to do something.
> Student 2: but that doesn't seem right to me.
> Student 1: neither do I. Such is life, but…
> Student 3: you see the groups and they are like this: 3 hard-workings, and 3 non-hard-workings.
> Student 2: And why don't they put all the hard-workings together in the same group, and those who don't want to work in another group? But why put someone who wants to work with someone who doesn't want to work? you always have to be telling them, uh, you have to do this, and this.
> Student 1: and teachers have to do the same, they have to tell the students to work all the time. For them it's easier, but giving the mark that I got with my effort and dedication, to others who have done nothing…
> Student 2: and this is upper secondary education, we need a good mark.
>
> Extract 8:
> T3_H: sometimes, there are some groups that don't work the way students want, and consequently, they sometimes get frustrated. This has happened especially with a group in the second project. They don't move forward, they get stuck, and it's hard for them to move forward.

Teachers explain that students have been doing teamwork for at least the last four years. As a result, teachers assume that students know how to work in a team, but they have realised this is not the case (extract 9). Students do not always know how to work in groups; those who are good at it think they are going to lose from it and those who do not work so hard take advantage because they know that the other mates are going to get the job done (extract 10). Thus, the hard workers get upset, complain, get lost, and generally feel frustrated (extract 11).

> Extract 9
> T3_H: and so that students learn to work in teams. This is something they have done throughout secondary education, as well as in upper secondary education, but it is still difficult for them. And sometimes they don't see what teamwork is. They think that it is something like dividing the work, like I'll do one part, you do another part, and then putting it together. And in the end it is something like that, but it's not exactly that. And that's what they are used to working like that.
>
> Extract 10

Student: when we are in group of 6 and there is an activity that we have to share out and then put it all together. If one doesn't do their part, bye bye. And then you have to be behind him or her begging them to do, do and do. And if this person doesn't want to work, he or she won't do it, but the work is also yours.

Extract 11
Student: I for example get very nervous. When I see that someone is not working, I always say, "Come on, do it". And it's not enough for me to work, you have to do it well. Just doing it is not enough for me.

Teachers have observed that pupils are very different from each other not only regarding generic skills, but also regarding both ability and maturity. According to the teachers, this is the reason why some of the skills are difficult for many to develop. Difficulty in developing various skills is called resilience and, in the interviews conducted, is often related to the difficulties students face regarding generic skills and social skills. Teachers point out that students show a low level of resilience, especially with regard to generic skills, such as time management, teamwork, organisation (of work) and reliability of information (extract 12, 13 and 14). The challenge for teachers is for students to be aware that they must learn to behave and work independently and flexibly when facing difficulties, and not to expect teachers to lead the entire process, which is mainly one of the aims of school (OECD, 2016). According to teachers, some students are capable of doing the required tasks, but perhaps due to a lack of maturity, or because they do not like to work this way (extract 15), they do not want to make any effort. Others, on the contrary, have difficulties maybe because they are not used to work autonomously (extract 16).

Extract 12
T7_M 2: Outside of the projects, the teacher guides and tells the students what and how far they need to go. We guide everything, but now they have to lead the process, which is more difficult and challenging for them. And some students want everything done for them. Some can do everything that is asked of them, but it requires them to plan and organise themselves, which some people do not want to do.

Extract 13
Some get verwhelmed because they have three hours to do the work, but they don't know how to manage and organise the time. There are people who prefer to have a passive role and do what teachers tell them to do. They are not used to this, and this generates them uncertainty. Some have been very overwhelmed, some rightly and some wrongly.

Extract 14
T3_H 2: I don't have to give you all the information beforehand, you have to look for it. And in those moments they get overwhelmed. When they don't know if the source they have in front of them is reliable or not, or how to manage it all.

Extract 15
T6_PE: Some people don't like to work autonomously. For some it is more comfortable to sit and listen and learn on their own, in a traditional way.

Extract 16
T2_En: they have to learn to be autonomous, but maybe they are not in that age
to let them completely free, and besides, they are not used to it.

When working in projects, the demands on teachers are different, and in many cases teachers are aware that students are required to do a number of things, and to develop certain competences necessary for students in order to carry out the project, which are not explicitly taught how to do and develop them. According to several authors (Fullan and Langworthy, 2014; Pellegrino and Hilton, 2012; Saavedra and Opfer, 2012; Clayton, Costa and Kallick, 2016), opportunities must be offered to students in order for them to develop such competences.

Students coincide with teachers' views, and they distinguish between students who work and who do not work. Students clearly identify each others' abilities and they already know who is working, who is struggling and who is lazy (extract 17). They also recognise that some of them need the help of teachers in order to make progress (extract 18), as they find it difficult to organise independent work on their own, for example:

Extract 17
Student: Some people get bad marks because it's harder for them, and others because they don't give a damn. If you see that your classmate is trying, you'll try to help him, but if he doesn't give a damn about anything…

Extract 18
Student 1: and here you have to find the theory and you have to inform yourself. No explanation is provided.
Student 2: Well, it was a bit difficult for me. But, in mathematics, for example, when we did that about the correlation thing, we were super lost. We needed at least, a little explanation, otherwise we do things, but without knowing what we are doing. In the end we managed to do it, but wow, it was difficult.
Student 3: We had eight hours to do everything, and you had to read eight two-sided pages to understand everything, then you started to do it.
Student 4: do the theory, start with the research, then wait, because you have to pass the questionnaire, and wait for people to answer. Then the correlation, and after that the extraction of statistical parameters. Everything is tied together, if one doesn't do it, you can't go on, and if one is wrong, so are the rest.

With regards to cognitive ability, The English teacher assumes that the students have similar abilities as all know of them beforehand (extract 19). However, most teachers clearly see that there is a difference between pupils in terms of cognitive ability, and that the rhythm of work varies. Teachers relate cognitive ability to two main themes: on the one hand, to the students' language competence; and, on the other hand, to the knowledge and content related to the subjects.

Extract 19
T2_En: but as they have been in the ikastola for a long time, they are supposed to have similar competences.

As far as language competence is concerned, three of the non-linguistic subject teachers (the history teacher; the economics and the mathematics teachers) explicitly mention pupils' language competence and stress that several pupils have problems with Basque. The English language teacher is worried about the low level of Basque of some pupils, because given the pupils' background, she thinks most of them should have the necessary linguistic competence (*Specific Prior Knowledge*). There are no references to the level of English or Spanish, although the teachers of these areas were also interviewed. In the same vein, pupils do not make any reference about their language competences either.

The mathematics teacher mentions the problem of students' capacity for understanding and relates the problem to a lack of linguistic competence. According to her, there are cases where students are not able to do certain exercises, not because they do not have sufficient mathematical competence, but because they do not understand what is being asked of them (extract 20). This demonstrates that each subject has its own language and specific ways of communicating knowledge (Shanahan and Shanahan, 2012), and proves that subject-specific literacy is key for achieving deeper learning (Coyle and Meyer, 2021).

> Extract 20
> T7_M: and sometimes, when they repeat it loudly they realise that they haven't understood it well, because they are not able to explain what to do. And there are two options: either explain what they are required to do by drawing or explain it orally. It is often a language problem. [...] The maximum level of competence is to be able to solve problems, but they usually have difficulties with the language, with understanding the problems.

With regards to the role subject-specific language plays in the learning process, some teachers agree that the degree of cognitive competence of pupils can be perceived in their ability to reason (extract 21). The Basque teachers adds that pupils are used to making reflections and, even so, one teacher points out that the reflections they make are superficial (extract 22).

> Extract 21
> T3_H: How far do we go in terms of reasoning ability? And that is the difference from one pupil to another, the ability to reason and expression.

> Extract 22
> T5_B: So, well, I don't know, they don't make deep reflections. In the African project, for example, the preconceptions they had about Africa were simple. In Africa they work on certain contents and I thought that their perspective would change. In Economics, they have learnt about the internal product, the wealth… and I thought that with all of that they could make a deeper reflection. I don't know, maybe I ask them too much, I often think that.

The Basque teacher defines students' reflections as superficial, because they do not use all the content learnt so far in different subjects. Some tasks, such as reflections, are proposed so that students apply and link content they have worked on both inside and outside the projects, which helps build new knowledge into prior knowledge (Pellegrino, 2017).

In the same line, the genres worked on the subjects of Basque, Spanish or English subjects outside the projects are required to be used in different disciplines that make up the projects. Even if each subject construes and communicates knowledge in specific genres (Meyer, 2015), some genres are used in various subjects (Morton, 2020). This author argues that in order to know how to use a genre, knowing the structure of this is not enough, grammar and vocabulary are also important, as each type of genre has its own characteristics, and the linguistic requirements of the specific genres of the disciplines are part of the cultural context of the area (Linares, 2015). However, according to teachers, in the project under study, the required genres tend to be used along the project, but are not usually explicitly worked on again (extract 23, 24 and 25). This implies risk, because teachers assume that they have worked on many things in other areas or in other courses, and not everything that is assumed is worked on. Extract 23: T4_E: T2_En explained how to do a debate, so it is assumed that in the next project, we would not explain how to do a debate again, because it has already been worked on before, so we would simply use it, we would apply it.

> Extract 24
> T5_B 1: we worked on it in the subject of Basque and then it has been used in the project. I also teach them how to give arguments in the subject of philosophy. So, they are supposed to know because it is learnt in both the subject of philosophy, and in Basque. So, now, they have to apply something they already know.

> Extract 25
> T3_H: We are in upper-secondary education, and it is assumed that they already know how to give explanations, arguments… all of that has already been worked on before. In Basque, I don't know what is taught in the first year of upper secondary education, but they have seen all types of texts. Opinion texts and argumentative texts have already been learnt. They are in upper secondary education, and they have to have reasoning skills. When students are required to write reflective texts, they have to apply what they know. It's nothing unknown to them.

Finally, to finish with how teachers and students describe the students, focus will be placed on students' motivation. Several aspects that stimulate or demotivate students were discussed in the interviews, and pupils and teachers agree on many of them. On the one hand, the topic covered in the project is considered to have a direct impact on pupils' motivation, as Fallas (2021) says that learning becomes meaningful when students explore real issues and problems. Teachers agree that when students like the

topic, their motivation to work on the project increases. The opposite is also true when they do not like the topic, but in general, the English teacher, who is also the coordinator of the project, reports that students have liked the topics so far (extract 26). In relation to this, the same teacher says that students find the realism of the project motivating (extract 27). Furthermore, real testimonies were collected from Africans who came to the classroom to tell their experiences in first person, and students had the opportunity to ask them questions, which was fascinating for the pupils. This is in line with MCPhail (2017), who says that multidisciplinary projects enables making connections with real life experiences.

> Extract 26
> T2_En: I've seen them motivated in general, their evaluation says that they really liked the topic, they usually like all the topics in the projects. According to the last evaluation students did about the project, the exercises carried out in the project are also interesting to them. Yesterday some students came and said to us, "Hey, have you seen what we've done?" See, see. They need our feedback. In general, I would say they are motivated.

> Extract 27
> T2_En: they were in silence for almost an hour. The aim was to make them see the role the English language plays in society. For example: oh, I need to learn English because 90% of the texts, research works and videos that are on the web and in society are in English. I think that they are aware of that, and that they make connections to real life. We're using English because we need it in this project, not because we are told to learn English. I saw them more motivated.

The motivation of the students also depends on their group mates. As have been mentioned, some students find it difficult to work on projects, as they are required to develop skills that have not been required of them so far, and for this reason, along with other factors such as lack of habit or attitude, not all of them succeed. These difficulties impact negatively on students' motivation, as Bandura (1997) considers academic performance as an indicator of student resilience. Interviewees (both students and teachers) agree that student motivation depends on the different moments and stages of the project and that there are critical moments, such as the first days of the project or when students are required to work autonomously (extract 29 and 30). The Economics teacher for example says that students who start out highly motivated may become demotivated as the project progresses, or those who start out demotivated may become motivated when they see the direction of the project. The physical education teacher adds that it is sometimes up to the teacher to spark motivation and to stimulate the students:

> Extract 29
> T4_E: Depending on the moment. They are sometimes very motivated. I think it's challenging. We've been trying to explain that while working on the projects, we're also learning. But at first, they think projects are light regarding the workload, and

when they realize it's not so light, then they have an internal struggle. A student said to me yesterday, "We are sitting here for three hours." And I said, "Are you not used to it?" And his classmate said to him, "Outside the projects, are you not sitting as well?" I think there are times when some people struggle. They thought maybe they would be dancing, and here they are, reading, identifying main ideas… and that sometimes makes them bajonazo.

Extract 30
Researcher: What time of the project do you like more?
Student1: Personal work.
Student 2: When they tell us what our job is, they tell us what we have to do, and when we start working, I'm comfortable there, I make sense of the project.
Student3: usually in the final product.
Student4: Me too.
Student5: In the beginning I think. When they explain the theory and you know what to do. Maybe they tell you to do an exercise and you do that exercise in a group and the teacher is there. Like a normal class, but in projects.
Student 6: I like it when there's a good organization.

Students relate motivation to the organisation of the project. If pupils feel that the coordination of the project is good, i.e. if the links between subjects are well made and they see meaning and sense in what they learn (extract 32), pupils' motivation is positive. On the other hand, if organisation is inadequate, student motivation decreases (extract 33). Attention on organizational aspects will be placed at the end of this chapter.

Extract 32
Student: And one more thing. In the African project, for example, the topic was interesting, but for the final product, students were required to prepare a performance. Well, that's fine, but the students from the other class had to create a bike, the ones from science made a cream. In those projects the motivation is higher. You learn the theory, but then you need to know how to apply in order to carry out the final product. And what about us? You don't need economics in order to do a performance. We started dancing two days earlier, and everything else had nothing to do with the final product.

Extract 33
Student: Yes, and then we were asked to think about making improvements for next year, but we were told that we couldn't always do it the way we want. It is not that we want to do it our way, but we were asked to do a task in history and another one in another subject at the same time, and we didn't have time to finish either of them.

With regards to this idea, in line with this, the Basque teacher argues that students do not see the relationship between the content related to the subject of Basque and the project (extract 34), which can have a negative impact, as students' motivation is higher when students are engaged on their learning process (Brooks et al., 2012).

Extract 34
T5_B: Not even the students see any connection. Then if you had to do an exhibition somewhere, bur, create a comic and give it to the teacher... It has no functionality, and they don't see it either.

In addition, they relate the lack of motivation to other factors such as the timing of the projects and when their opinion is not taken into account, or when teachers are overly passive. With regards to timing, projects take place before the final exams but, as what is covered in projects is separate from what is included in the final exams, students have to review the content relevant for the exams given prior to the projects (extract 35). To cope with this, students propose that the projects should be carried out after the exam week or at the beginning of the term (extract 36). Another aspect that students do not understand and that demotivates students is that the content learnt in the project is not included in the final exams (extract 37). Students think that consequently this makes the projects meaningless.

> Extract 35
> Student 1: Now we have three weeks to learn what we have to study for the exam.
> Student 2: All the workload comes after projects.
> Student 3: And we have to start remembering what we learnt before the projects, and we have to study at home.

> Extract 36
> Student: I'd place the projects for example after the exam week, not to have so much pressure. And if you see that you need a higher mark in some subject, in Basque for example, you could try harder in that subject in the project. I don't know.

> Extract 37
> Researcher: what you've been working on in the project isn't included in the study?
> Student 1: No, not in general. Maybe in some things, but most of the time not.
> Student 2: They try to relate the content from different subjects with the main topic of the project. Thus, that knowledge cannot be used for the exams then. I work all this on the projects, but then I finish the project and it is not included in the exam, but I have to learn what's included in the exam in a hurry.

5.1.2. How do teachers and students involved in the project describe teachers' characteristics?

Teachers were not only asked about student motivation, but also about their own **enthusiasm**. As can be seen in the following extracts, both teachers and students are aware that teachers' motivation and attitude influence student motivation:

> Extract 38
> T6_PE: We have motivation, we try. The first day, we got dressed as Africans and we danced. Even if we don't have resources, we have to motivate the students, in any case.

> Extract 39
> Researcher: And what helps you stimulate motivation?
> Student 1: Because we work as a team, in the end you have to be motivated and work.
> Student 2: And so do teachers. If the teacher comes and say "you have to do this", that is not motivating.
> Researcher: The attitude of teachers also influences motivation.

Students: Yeah.

Six out of seven teachers value project work positively, but they mention mainly two aspects that can be detrimental to this **enthusiasm**: firstly, that multidisciplinary projects imply a heavier workload for the teacher; and secondly, difficulty with organisation when teaching at the same time both in secondary and upper-secondary education. With regards to workload, the teachers explain that the working dynamics of the first year of upper-secondary education change completely when they are involved in the project for two and a half weeks, as will be presented later when analyzing the context of instruction, and teachers feel this is extra work (extract 40) and they do not have enough time to do all they would like to do. The Spanish teacher, for example, states that they try to identify possible improvements for the project, but complains that they do not have time to implement them (extract 41). Furthermore, more than the usual amount of assignments are requested from students during the project, and teachers recognise that they do not have enough time to correct everything.

> Extract 40
> T5_B: We finished the project and they are in the exam week now. It's my turn to correct 140 exams, just in the subject of philosophy. This rhythm is impossible, and then we are asked to assess the project, but we don't have time for that, and we would need to hurry. The rhythm of work is very fast. We work so hard. We work for long hours.

> Extract 41
> T1_S: I mean, projects are an extra workload for teachers, and that's not good. If we were in a different situation, calmer, I don't know how… if we had more time, we'd improve the project. We're always thinking about improvements, but we don't have time to make changes. It's an extra job, but I wouldn't take a step back. Projects have to be done.

As for the second aspect, all the teachers taking part in the project work both in secondary and upper-secondary education. As the working dynamics for these weeks are different in the two stages, teachers find it difficult to balance different timetables and methodologies (extract 42). While they are involved in the multidisciplinary project in upper-secondary education, teachers sometimes give sessions that last a complete morning on the project. When this happens, teachers feel that they do not dedicate the time they should to all classes and consequently, that they should ask for a supply teacher at least for a few hours for secondary. In the following extract, the history teacher, who is also a secondary school tutor, explains how they manage in these cases where they should be at the same time in two classes and which challenges this bring.

> Extract 42
> T3_H: regarding the timetable, it is very difficult to coordinate with teacher who also teach in secondary education. So we often need teachers who do our job because we cannot be in two places at the same time. So we don't spend as much as time

as we would like with the students in the project. We try to coordinate as best we can, but there's always a gap that should be filled.

Nevertheless, as can be seen in the following excerpts, most of the teachers are pleased with the projects despite admitting that they end up very tired (extract 43). They all believe in the methodology and, even if at times it is a burden for them, they would not go back to where they were. Furthermore, the history teacher says working through multidisciplinary projects it is an opportunity for the teachers to learn and to develop certain competences (extract 44).

Extract 43
Researcher: But are you happy in general?
T4_E: Yes, yes. But also very tired. It's not just a project, we have other things too: exams in secondary, evaluation week… But yes, we are doing well.

Extract 44
T3_H: It is a workload. But just as it is positive for the students, and something is activated to them, it also produces a certain effect on the teachers. I'm pretty comfortable during the project. I am new in the school. What I have seen so far in other places has been quite the opposite, and it seems to me that what is done through projects serves to develop yourself, not only academically. In these two and a half weeks I am happy in class, and I have learnt some things: how teachers should work within a group, for example, how far you have to intervene in students' work... It's positive for me.

Although he supports this methodology, the Basque language teacher is highly critical with the projects and he admits that he does not show enthusiasm towards the project (extract 45). He is teaching in a different specialism from his own academic background (philosophy) and did not participate in the design of the project. He claims that he does not feel comfortable with the work carried out in relation to Basque within the project (extract 46). Besides, he is not clear about who should be responsible for the linguistic development of students and how it should be measured and by whom, nor how coordination between the teachers should be done. Skaalvik and Skaalvik (2014) argue that teachers' self-efficacy influence teachers' enthusiasm. So, the lower teachers' self-efficacy, the less motivated teachers will be.

Extract 45
T5_B: I'm not very enthusiastic about projects either, but I am not against them either. I do what I have to do. It is clear to me that I will do it right, but I do not express any enthusiasm.

Extract 46
T5_B: I told you the other day that I don't see the link between what has been done in the project and the final product. And I don't know if that is motivating.

Students notice when teachers are motivated and when they are not. Students think that some teachers seem to be sometimes lost, while others are very motivated and involved in the project (extract 47). Students relate this difference to the attitude the teachers

show in class. According to the students, the attitude of those who are motivated is good, they are active and show initiative, but the attitude of those who are not engaged in the project is somewhat passive.

> Extract 47
> Researcher: how do you see the teachers?
> Student 1: Some of them are doing good.
> Student 2: Others are a bit lost..
> Student 3: Some teachers come and when we ask them what we are supposed to do, they say that they don't know, just to keep doing what we were doing.
> Student 4: For example, on the first day of the project, they came dressed as Africans and that was great.
> Student 5: others tell you to do what it says on the schedule, but sometimes the schedule is wrong.
> Student 3: Yes, there are teachers who are very involved in the project, and others who don't even know where they are. Then each group also has its own tutor, and he/she accompanies the group/ she/ he cares about how the group is doing.

One of the objectives of multidisciplinary projects is to relate the content learnt in different subject with each other and to make connection with real life (Virtue and Hinnant-Crawford, 2019). It is therefore important that each teacher reflects on the contribution his or her subject makes to the project and makes this known to the others. The mathematics teacher, for example, is clear about the relationship between mathematics and reality. However, as each teacher involved in the project is a specialist in his or her discipline, they have a deep knowledge on their respective subjects as Biggs and Tang also report (2011), and thus, foci are placed mainly on subjects. One of the problems observed in the interviews with the teachers is that the objectives defined in the project are not clear enough (extract 48). That is why when asking the teachers about the goals of the project, some mention and insist on the objectives and content related to each of the subjects (fiscal policies and general budgets in economics; loans in mathematics, marginal income, derivatives; what has happened historically in Africa and why we are like this now in history; African dances and games in physical education; opinion articles in Spanish; Basque, comics), while others mention the development of certain competences (extract 49), and the development of students' exit profile (extract 50), among others. Students, however, relate the objectives to the development of soft skills and to the final product. Furthermore, they are critical and share the view that some objectives are not been met. This does not agree with Biggs and Tang (2011), who say that goals must be clear in order to encourage students' motivation and help them progress in their learning process.

> Extract 48
> T5_B: Then I don't even know what the project is for. I thought the project was a methodological change. Others might understand that projects are to apply what is learnt in class.

Extract 49
T4_E: Because we want their critical opinion and always be alert to it. That's what we're trying to achieve. (T4_E 16:16) […] That's what we want to achieve through the projects: we need to know some things first, in order to understand our environment.

Extract 50
T2_En: It should be done, if that is the goal. That's also the student profile, if the exit profile says that we want our students to feel Basque. Without forgetting what our goal/target is. Our biggest challenge is how to get teachers irascibles to have that student profile in front of them all the time and take it into account when evaluating, when teaching content and relate it to the corresponding competencies. What could I do from my project, from my subject, so that the student feels Basque, or so that he/she is competent in something, or so that he/she learns how to work cooperatively?

Teachers say they are used to thinking from the perspective of their subject area, but in multidisciplinary projects, the objectives go beyond subject-specific content, which has been challenging for several teachers. Pupils perceive that each teacher only knows the subject or content that corresponds to him/her (extract 51) and that multidisciplinarity is somewhat blurred. According to the students, the division into subjects makes it difficult for them to see the sense of the project at times. In line with this, Morin (2010) argues that this separation hinders students develop themselves holistically since knowledge cannot be separated from context. The teachers are aware of this (extract 52) and make several proposals for improvement. For example, *a debate* has been proposed as a task to include the six disciplines, as students will be required to put into practice everything they have learnt, which agrees with MPhail (2017), who proposes that multidisciplinary projects enable students to put into practice what they have learnt in the subjects.

Extract 51
Student: teachers know about their subjects. T4_E, for example, knows about economics, but when we are with another teacher in class, and I have a doubt related to another subject, and I sometimes can't keep going. Every teacher should know at least what we're doing at all times. Sometimes you ask them, and the answer is, don't ask me that, I don't know anything about it.

Extract 52
T2_En: They say the organization, but we need to talk about what's behind it, either they refer to our organization, or theirs. It's a matter of asking them what's wrong with it. I think they felt that subjects came one after the other. And there have been moments when they've seen the links and others when they haven't.

When learning a subject, attention must also be placed on the language of the subject (Fang, 2012). With regards to the language approach used in the subject areas, when asking the teacher about the role the language has both in each subject and in the project, teachers mention the genres students are required to use in the subjects. Each subject covers at least one genre: an opinion text in economics; hand drawn video and text commentary in history; an opinion article in Spanish; an infographics in English; an

an oral instructional text in physical education; and a comic in Basque. Furthermore, when asking the teachers, all of them say that they assess the language in their subjects, but not all of them work explicitly on the language when teaching their subject, in some cases it has been assumed that pupils are capable of reproducing the required genres and attention is not paid in how to use them. On some occasions, the language focus relates to technical vocabulary (for example, in mathematics), while on others, more work is carried out on the genres and on making use of language (such as in economics). Most teachers point out the need for coordination between language teachers and other subjects teachers, which according to Pavón et al. (2015), the need for this coordination is unquestionable, but only the economics and the Basque teacher coordinate between themselves to assess certain tasks from content and linguistic perspectives.

> Extract 54
> Researcher: Regarding correcting the writings, do you coordinate with the Basque teacher)?
> T4_E: Yes. Language teachers know how to do it, and the students have already worked on it. They've worked on how to make arguments with T5_B. I just ask them to apply it in my subject. So I didn't explain anything, because they're supposed to know how to do it.

Nevertheless, the maths teacher is clear about the role and importance of language in the subject of mathematics (extract 55). She reports that there are students who have problems in understanding, and who do not always see what they are required to do in certain tasks. According to her, this is not because they do not understand the mathematical content, but because they do not understand, in terms of language, what they are required to do. This shows that form and content are usually inextricably linked (Tang, 2019). In these cases, the teacher tries to focus on the language used in class by both her and the students, but she does not always know how to help students comprehend the language of mathematics and she perceives that collaboration with the Basque teacher would be of great help.

> Extract 55
> T7_M: What does the activity ask for? They don't take their time to understand it, they go on with that first reading. It is clear that language is important in mathematics. I try to tell them how important it is everytime they are required to solve a problem. If I read the economics section in the newspaper, for example, I usually have to read the text two or three times to understand it, because I don't know much about it. They do everything quickly, then I ask you to imagine what you ask, or to repeat verbally what is asked in the exercise. I do it that way, but we have not said or agreed on anything. [...] Yes, I think it should be done. Besides, I should meet the Basque teacher. The language doesn't have to master the content related to mathematics. I can teach some theory in the subject of mathematics, but the language teacher could give me clues and strategies. I see it is something that should be done between us two. What we often ask regarding the theory in the mathematics lesson is whether the sentence is right or wrong, and I also ask them to argue the answer. That's language, too. You need to know mathematics, but you also need to know how to express it. It's very much related to language. The non-

linguistic subject teachers should explain to the language teachers what we work on in the class, especially where we see the presence of the language, and they could give us some clues. Something like that, but I have no idea.

The history teacher, who is a philologist, also places great importance on subject-specific language (Extract 56). This can be clearly seen in the rubric she designed to assess the work done by the students. There was no rubric designed to assess the text commentary, and it was up to her what to assess and what not to assess. This teacher is convinced that if the content is not appropriately written, content will not be transmitted, which is in line with the subject-specific literacy perspective that the PTDL framework defends, i.e. knowledge must be communicated in a subject-specific way taking into account the genre, style, mode and purpose needed to carry out the task (Coyle and Meyer, 2021).

> Extract 56
> T3_H: For example, a rubric was created for the hand drawn video and that is what we have used this year. We made some arrangements, but it was basically the same. But what happens, for example, in the text commentary? There were no rubrics, and then it's up to the teacher what to assess. Some might evaluate language and others might evaluate other things. If the criteria is included in the rubric, the teacher is obliged to pay attention to it. On the contrary, if there is no rubric it is up to the teacher to assess language or not. I do not know how much attention is paid to language in economics and mathematics, but if you compare the presence of language in history and mathematics, I would say it is not the same. If the content isn't correctly written, the content won't be transmitted. It makes more sense to me to pay attention to language in history than in mathematics or economics. But we should come to an agreement among all the teachers, that we all should pay attention to language.

The history teacher also explains in the extract that the language dimension is not addressed systematically between the teachers and that they all should come to an agreement, and the mathematics teacher agrees with this idea, as we have seen in extract 55. It seems that in practice it is left to individual teachers to decide how to work with and assess the language (extract 57). Despite the need for all teachers to work specifically on language, there is no agreement among teachers that this should be done jointly and it is not clear whose responsibility it is to work on and assess the language, be this the language, the subject teacher or both. This is in line with Schleppegrell and O'Hallaron (2011), who claim that, traditionally, subject teachers have not been aware of disciplinary language and literacy.

> Extract 57
> T3_H: What happens is that students may have to change their attitude. I teach history and some teachers stick to the contents related to hhstory, but it is not just that. We also work on the language through history. I think language should also be assessed and marked in the subject, because in the end, when completing a task, both the content and the corresponding language should be correct. I think all the teachers agree on that, but it's not systematized.

On the contrary to what some teachers say, students consider that language is rarely assessed in terms of grammar, and one student reports that in subjects such as mathematics or economics, teachers explicitly mention that subject related content is assessed, but not language. However, they point out that a percentage of the final mark belongs to students' language competence:

> Extract 58
> Student 1 : When we write something about economics or mathematics, grammar is not usually corrected.
> Student 2: Terms are corrected in Economics, but not the language used.
> Researcher: language is not assessed in the assignments?
> Students: Rarely. Very rarely. Sometimes, yes, if it's very obvious.
> Student 3: T3_H does.
> Student 2: They explicitly say, "content is taken into account, not language".
> Student 1:5% or 10% of the mark is related to language.
> Researcher: Is language considered in the rubrics?
> Student 4: Maybe something, but then they don't take it into account.

Although there has been some reflection on the role of language in all subjects, the integration of languages and of content and language has not often been mentioned by the teachers. The English teacher explains (extract 59) that in the past they used to take part in the school language project, whose aim was to place the focus on the role of language in all subjects. Therefore, coordination between language teachers and between non-linguistic subjects and language teachers was needed, but as leadership changed and other aspects and projects were prioritised, the work done on integration of content and language teaching has been dispersed.

> Extract 59
> Researcher: I would like to know if the language is systematized in the rubrics created by the teachers.
> T2_En: Very good question. I know sometimes it is assessed and sometimes maybe not. It's up to the teacher, we probably have some clues, because there's been a lot of work done related to the language project. The language project was very powerful here some years ago, and there were very powerful people involved in the language project. What happened? When we ran out of resources and money, the language project disappeared, and that's where we got lost. Before I started teaching here, I know that a very important job was done, and I know there are traces left, but it's no longer a goal of the ikastola, and that can be seen. I know that the mathematics teacher gives a lot of importance to how to define, argue…

Based on what teachers learnt, it was decided that all multidisciplinary projects carried out in the first year of upper-secondary education would include at least two out of the three compulsory language subjects, in the case of the present project the language subjects that compose the project are English and Basque. The teaching approaches of the two languages are very different. The English teacher, for example, explains that the foreign language is understood as procedural (extract 60), as the curriculum defines that the aim of the foreign language should be communicative. The English language is used

because there is a need for it in the project, but attention is not paid to grammar or how the language is used, i.e. pupils are taught how to look for information and how to read texts in English, listen to videos in English... Whilst in the Basque language subject, a comic is required to student, the structure and characteristics of the genre are taught, but attention is not paid to form. The Basque teacher does not see the point of this task and according to him, neither do the pupils (extract 61). However, like any other teacher, he has been asked to make proposals regarding his subject, but he did not do so.

> Extract 60
> T2_En: It is also true that content has not been worked on in the English subject in this project. Language is procedural for us, and it often has to do with the teachers in those subjects. We don't care so much whether language is explicitly worked on or not. Others may give more importance to working on the language. Our tendency has always been to use the language, to teach other things in English.

> Extract 61
> T5_B: If I say the comic assignment should be removed, I don't know how the other teachers would react. The students don't see any connection either. If they had to do an exhibition somewhere, well, but making a comic and giving it to the teacher... It has no functionality. Or at least we're going to make a comic, print it and publish it, for example. Younger students have done this and they're going to sell it, or give it to someone or I don't know. Students are required to write an article about multinationals, why don't we send the best ones to the local magazine? I don't know, the assignment lacks reality. More time is needed. And more attention should be paid to language. I'm sure some students will write interesting articles. But that takes time, and dedication. (T5_B 66:66)

This methodology has meant changes in the role of the teacher (Fullan and Langworthy, 2014), so that not only the students must develop specific competences. In addition to each teacher mastering his or her area, teachers should also develop several skills (*Professional Knowledge*) (extract 62), such as problem management; ability to adapt to pupils' needs; knowing how to collaborate and work as a team; ability to make decisions; ability to face the challenges that arise; ability to motivate pupils; ability to guide the pupils' in their learning process, etc. To this end, teachers mention some of the training courses they have received so far, such as training in project design, the Pedagogy of Trust, ICT, how to apply PBL methodology and how to work cooperatively, among others. Blumenfeld et al. (1991) also acknowledge that teachers should receive training in order to learn how to design, implement and manage the projects.

> Extract 62
> T7_M: I've been working and doing the same for 30 years, well, with some development, but now there's a work of indagation, of thinking about the competencies we want to work on, of designing the final product, and uploading it on the Xtend platform. And this also requires us to work as a team. Outside the projects, I teach mathematics on my own. Working through multidisciplinary projects requires a lot of work and teamwork. And the ability to use the online platform Xtend is also needed. All the material is on the platform, you need to know how to make changes, you need to be quick, and ready.

Some of these are positively valued by students, such as the role of tutors. But they consider that some teachers have certain skills that are not fully developed. Amongst the teachers' weak points, the students highlight the language competence of the teachers (extract 63). They recognise spelling mistakes on the platform and also expression problems that make it difficult to understand some explanations, as well as the passive attitude (lack of initiative), low ability to encourage motivation or difficulties in relation to the use of technology and digital competence (mainly to use the Xtend platform) (extract 65). Even so, students empathise with the teachers and understand that it is also a complex process for them, but as Ahmad (2008) reports, teachers' professional knowledge influences students' learning process as well as achievement.

> Extract 63
> Student: And sometimes they make spelling errors. Some things are also not well explained either, and they sometimes recognise it.

> Extract 64
> Student 1: This is a personal opinion, but I think they need a course or something to learn how to use the computer. We use the computer all the time during the project and you don't know how to use Xtend?
> Student 2: they have issues with the computer every day.
> Student 3: If we would use them once in a while… but we do everything on the computer. That's one thing, and then, projects are new, and some things need to be improved, but some people don't seem to want to hear the proposals. We are asked to assess the project, but then I don't know if they really take our opinion into account.

In the same vein, in order to adapt and respond appropriately to the needs and circumstances of the pupils, it is essential that teachers have the ability to diagnose the students' capacities (Fullan and Langworthy, 2014). In addition, teachers mention that diagnostic skills are needed in order to make groups of students, i.e., in order to create groups, an individual analysis of each pupil is carried out, classifying them according to different criteria. Taking into account the characteristics of the pupils, teachers try to respond to all students' needs. In these interviews, all seven teachers were found to have diagnostic skills. In fact, the teachers are able to describe the pupils and identify their abilities, enquiries and weaknesses. The economics teacher explains how she adapts the class depending on how the students are in every moment (extract 65), which is in line with Pajares (1992), who says that the diagnostic competence enables the teacher to take decisions according to students' abilities.

> Extract 65
> T4_E: For instance, yesterday I decided not to make the last reflection for different reasons: because I thought they didn't need it at the moment, because they had already reflected on the topic in class. [...] So I decided to take it off. Last year they struggled more, so I asked them to do the personal reflection. I have made some adjustments since last year.

5.1.3. How do teachers and students involved in the project describe the context of instruction?

Projects require precise and clear organisation (Buck Institute of Education, 2019), and therefore, when working in multidisciplinary projects, organisational aspects need to be taken into account: the contents to be worked on in each area, the collaboration and coordination between teachers, or the distribution of responsibilities, among others. Teachers explain that during the two and a half weeks that projects last, classes, timetables and the day-to-day dynamics are reorganised, and they add that in a project with 6 subjects, coordination and communication between the 6 teachers is essential, before starting the project, during the project, and even once the project is finished. For this reason, they report that a timetable was designed by the teachers so that all the teachers are coordinated during the project. Even so, all of them still find it difficult to organise the projects. The economics teacher says that coordination between the teachers that take part in the project is the most difficult part of working through multidisciplinary projects for her (extract 66), and the English teacher adds that even if they try to improve this aspect every year, students still consider that the projects are not well organized (extract 67).

> Extract 66:
> T4_E: The greatest difficulty for me is that we would like to be much more coordinated among the teachers involved, and I would like to spend more time with the students, to experience things with them and immerse myself in the project. In order to enjoy the project, you have to be there with them, and of all the hours that I've finally been in the project more hours than I was supposed to be there. I have done plenty of extra hours. I even devoted my free time to it. like when I finish my working hours on Friday, but that's part of our coordination. And because of the lack of time we have to help the students.

> Extract 67:
> T2_En: we get students' perceptions, and the students shared that they have felt that the project hasn't been so well organised. We didn't understand why, because we thought they had more evidence than ever to get it right, one is that they shared the schedule from the very beginning, another is that they kept it clear which of the lessons they were drowned in, another was that we somehow tried to remind them of the goal every time we went into class and where we were, but somehow they felt it, and I think it went further that the fusion of the lessons didn't really take place. They say organization, but we need to talk about what is behind it, our organization, if not their own, is one thing to ask them. I think they themselves have felt that lessons have followed one another. And there have been moments when they've seen the thread and others when they haven't.

Another difficulty that teachers mention in the interviews is how to make connections between subjects in order to encourage a multidisciplinary perspective, which according to Pellegrino and Hilton (2012) and Saavedra and Opfer (2012) is essential to achieve the transfer of knowledge; as have been mentioned earlier, teachers think about what they can contribute from their own subject and not from a multi- or interdisciplinary

perspective. Pupils are very critical with the organisation of the projects, and they identify several aspects for improvement: they find the time for carrying out the projects inappropriate (extract 68), and that some links between subjects are natural and well done, whilst others do not make any sense (extract 69). They also report that they have been required to do a big amount of assignments, but some days not enough time have been provided to them so they finish the work. They complain that there has been a notable imbalance in terms of the workload, i.e., they have been quite busy for some days, and the last days of the projects did not have so much work to do (extract 70). They have also had problems with space, it is a very large group and they have spent too many hours working in the same room, with the same people. Finally, the need to improve communication between teachers was also mentioned by the students (extract 71).

> Extract 68
> Researcher: Okay, space. Anything else?
> Student 1: Time. The project was carried out in the middle of the term. For example, we could for example start the exam week a bit earlier, and then the project. What we did was: we started working on the subjects. then the project, a week, then a holy week, and now we're in a hurry for the exams.
> Student 2: And now we don't remember what we learnt before the project.
> Student 3: Now, for example, we learnt what we have to study for the mathematics exams two months ago.

> Extract 69
> Researcher: And what about the links between the subjects?
> Student: Well, in some cases they are okay, and in others it seems that teachers didn't know how to do it and there is no connection between some subjects.

> Extract 70
> Student: Yes, and sometimes their communication is not very good either. For example, a teacher comes here to make a replacement because sometimes, even if we are doing tasks related to economics, T4_E cannot always be with us in class always, so another teacher comes in, but they don't coordinate well with each other.

> Extract 71
> Student: We didn't have time to finish the tasks. For example, we were given half an hour to write an opinion text, but we didn't finish it, and we had to begin making the reflection in economics, and then we continued with the opinion text the next day. We told them that the time management was bad, and then this time we have been given more hours to work on our own, but maybe too many. I think they've gone from one extreme to the other.

Teachers are aware of all these aspects mentioned by students, and they demand time for making improvements in the project and in order to better coordinate and organise themselves the project:

> Extract 72
> T6_PE: I think we have a lot to improve on, too, because we do not have enough time. We lack resources, and that's what we're asking for. It's a very good idea, but we're also internally aware that we need resources. The ideal would be to meet

every morning, or at the beginning and end of the project, and say, "We got here today." This team, this team, this team. But we don't have time, and it's sad to say so, but there are natures and natures. Every teacher also has his own character and his own care. And, some have their minds in upper secondary, and others in high school/secondary. It's not easy.. Time to prepare, to coordinate, because there are a thousand things here. Resources in that respect. And we have little time to coordinate, but well, that's our internal problem.

As far as the grouping of students is concerned, teachers report that a lot of time is devoted to making groups. The English teacher explains that indications provided by the Pedagogy of Trust (Antero, 2015) are taken into account for making the groups, such as students' roles in the group (extract 73), for example. However, teachers do not always have clear what the criteria to be followed when making the groups should be (extract 74), which is why they dedicate so much time to it. Usually, balanced groups are proposed, but depending on the objectives of the subject, groups are made according to different criteria; as proposed by Pellegrino and Hilton (2012), after analysing all the students' characteristics and roles one by one, homogeneous groups are made in the subject of mathematics and heterogeneous groups in the rest of subjects. Regardless of the type of grouping, the relationships between students are always taken into account, so that the pupils feel at ease (extract 75 and 76).

> Extract 73
> T2_En: The Pedagogy of Trust framework clearly tells us that we must group together according to the roles. And we always assume, as the framework indicates, that for real and good learning hetereogenic groups are necessary. It's true that homogeneous groups also work well at times, but it's our tendency to make heterogeneos. And there are a number of criteria within heterogeneous: the role of dominance, which we must take into account. And more or less not with those names, but based on them we make heterogeneous groups.

> Extract 74
> T1_S: And our concern is always that. Either we make the team or we leave it to them. The team has a lot of weight. We are the ones who make groups, naturally, often heterogeneous. And sometimes homogeneous groups, why not? sometimes it's in homogeneous groups work well because some people are always giving a lot and receiving a lot less. But of course, for the success of the project, sometimes you've made heterogeneos. And that's not easy either.

> Extract 75
> T4_E: What we do is ask, first of all, who can lead the group? As we know them, we identify several people, and then we put them each in a group, then the affinity: where do we see that there are inconsistencies? Two or three people can't be together, we take that into account, too. People who are very hardworking and have difficulties, but who are very hardworking, who can be an apoyo for this... and so we tried to do it.

> Extract 76
> T3_H: Try to keep the student in that group with someone who has a certain affinity, who feels comfortable working with him.

However, even if teachers spend a lot of time making the groups, they do not always succeed, and in some cases pupils do not feel at ease in the groups made by their

teachers. All the students agree that depending on the members of the group they are with, they feel comfortable in the group or not (extract 77), but as teachers, students also have doubts about whether homogeneous or heterogeneous groups work better (extract 78). Students recognise that they have to learn to work with everyone, but they do not like to work with those who are not hard workers, because it is always the same people who work and encourage the group (extract 79) and students feel this is sometimes tiring. This might imply that students need to develop the interpersonal domain defined by Pellegrino and Hilton (2012).

Extract 77
Researcher: And do you like it?
Student: It depends on the group. You can have a team that is a mess, or where your classmates are hard-working.

Extract 78
Student 1: Yeah, T7_M, for example, made homogeneous groups where you always get along better. Because all of us have the same rhythm.
Student 2: I think that's fine, but not after all. Because if they come together, then that group will work, but if those who don't do well in another group come together, they'll have a harder time getting the job out.
Student 3: Yeah, but if you put together what has a good level and what doesn't, whoever has a higher level will end up doing it.
Student 4: Yeah, but that's not why it's okay, but on the other hand it's because you get motivated and you work harder.
Student 5: I don't think that's the problem. I feel sorry for them, but I work, and I have a good attitude, or you can say: I'll work, but I don't do anything. I have a 4, but if I try, and I'm put together with another one that gets a 4, but whoever doesn't do anything, my effort might be worthless. But if they put it on me with somebody who has a 7 and I try, maybe he gets a 6.5 but I get a 5.

Extract 79
Student: because in the end you belong to the group, if three want to work and three don't work between those three and the others look up.

Teachers are aware of how difficult it is to make groups in which students feel well, but they also believe students' well-being is the key so that students succeed in their learning process, which is in line with Meyer et al. (2018; 2021), who say that affective factors, including students' well-being, have an effect on students' learning process. In the same line, attention to well-being is also one of the main objectives of the Pedagogy of Trust (Antero, 2015), and consequently of the teachers. Therefore, several of the decisions taken are based on the Pedagogy of Trust (extract 80). Teachers see the management of time and space, the blurring of formal and non-formal spaces, the flexibility when doing academic activities, etc., as a means to achieve student well-being. However, the Basque teacher sees this flexibility with students as something negative that it still needs to be improved (extract 81).

Extract 80
T2_En: We try to be flexible in that sense. I think the ikastola approach in that

sense is that the project has to respond to the needs of the students. If at that moment he needs to leave (the room), let him out. I think since the framework of the Pedagogy of Trust has been applied, it can be noticed in those little things.

Extract 81
T5_B: sometimes control escapes us. Students move from one side to the other, some of them using a mobile phone. Maybe once you get used to projects is ok, but I can't stand things like that, punctuality can't be respected. But maybe it's my problem.

Teachers share that it is important to create and offer students trusting spaces and contexts of trust which foster the relationship between pupils and teachers, so that pupils feel at ease to approach teachers when they need to (extract 82). In order to ensure the well-being of pupils (extract 83), and feel confident, among other things, each group is assigned a tutor to help and accompany the students in their learning process.

Extract 82
T3_H: According to the pedagogy of trust, students must be surrounded by teachers who help them to follow their own path; and I believe that a teacher must first have confidence in himself to work on projects, and that this trust and support must also be given to the students.

Extract 83
T2_En: Each group has a tutor, and when the tutor gives them feedback, it's a little bit about how they're doing, how they manage, whether they need our help.

With regards to the roles of both teachers and students and learning partnerships, the tasks and responsibilities are also gradually changing and the pupils' decision-making capacity is increasing as the project progresses. The PTDL framework (Meyer and Coyle, 2021) also proposes learning partnership as a means to help learners create knowledge and assist learners in their personal development. Teachers want pupils to be autonomous, and that they are able to finish and develop the final product autonomously. The teachers' desire is to give the students more of a leading role, but for this to happen, the role of the teacher also needs to change and teachers must be able to manage the uncertainty that this generates, as the physical education teacher says in the following extract:

Extract 84
T6_PE: the design of the project is not closed. The final tasks are different, too. We give them some guiding questions. But in the end it is them who direct the project. Depending on the behavior of the students, there is enormous flexibility in the project, and that, too, is being on top of it, and in other ways uncertainty arises in the teachers. And maybe that's where the lack of coordination they think comes from. But, of course, we must be open to their movements as well. Yes, there should be mute coordination, but we still have a lot to learn.

In line with this, students feel that their obligation is to do what the teachers ask them to do (extract 85), and that they should have more of a leading role when they work in multidisciplinary projects, as well as that their opinion should be taken

into account more often (extract 86).

> Extract 85:
> Researcher: what's your role in the projects?
> Student: do what the teachers say.

> Extract 86:
> Student: And then there are also projects that are starting and there are some things that should be improved, but some people don't seem to want to hear the proposals. Some are very closed. They get our opinions, but then I don't know if they really take them into account. I don't see any communication from that side.

In all the extracts presented so far, it can be seen that the methodology (Teaching Methods) conditions and shapes the whole project. We have seen that both students and teachers have been subjected to a series of demands and changes. All of this requires certain organisational aspects, which as discussed so far, are sometimes difficult and challenging for the teachers to face, but they also make proposals for improvement. In general, PBL methodology is a challenge for teachers (Blumenfeld et al., 1991), but even so, teachers see the projects as an opportunity to develop themselves professionally (extract 87). They really believe that this is the way forward, and although they still face some challenges, they see the projects as an opportunity to learn. However, comparing the functionality of different school subjects, the Basque teacher considers that multidisciplinary projects is more suitable for scientific and technologic subjects, than for the Humanities strand (extract 88).

> Extract 87:
> T4_E: A challenge. A great opportunity to reflect on my work. At least when I stand up to the project, I say, look, I've focused on how I can handle this, how I can manage it. It also creates a point for me, because I lose control, and it forces me to be very well coordinated with the other teachers. And I often lack that certainty, the certainty that we are well coordinated. I think it's the perfect opportunity to experiment and to develop creativity. And I see from my field that it allows me to see that the economics is embedded in our lives, it's nothing outside our lives. All we do has to do with economy. I would find a way to incorporate the things that need to be worked on. I see that other areas may have more problems, which are very specific, but from regarding economics, I see the opportunity to see with students that the field is not something that's there, but something that's integrated into our lives.

> Extract 88:
> T5_B: I think this project is very good for the scientific, the technological branch. I think it would be more suitable for them. For example, they made a cream. I went to see the presentation three years ago, and karo, if you're going to make a report on how the cream is made, that report has a functionality: I have to do the report right so I can make the cream right. One is good for something, and you end up putting the contents in that chain, the preparation of the report… everything is focused on that. The African project lacks that. What is the argument for? Fort he debate? And what is the debate for? It gives me a feeling, and we don't all agree, that we've put together a lot of activities. What did they do at the end, a performance? Well, didn't they play for themselves?

In general, teachers say that students like Project Based Learning methodology very much and recognise that they learn more through projects, but students specify that for them, projects are easier to be applied in secondary school than in upper-secondary school, as in secondary school they are not under so much pressure with work and exams:

> Extract 89
> Student 1: I don't know if projects are a good option in upper-secondary education.
> Researcher: Why?
> Student 2: I think it works better in secondary education, everyone has their point of view and everyone has their way of working and I need a mark for myself, I don't have to get it in a group because if you do it wrong, it's bad for me too.

> Extract 90
> Student 1: The point is, in DBH4, for example, there's time for that, and for dealing with life issues, but now I don't think this is the time of the year to do this project.
> Student 2: Yes, and in secondary there is also a week so that students apply and put into practice all they have learnt. Why doesn't the project come in there?

Students mention that they need to get good marks in upper-secondary education, but with regards to assessment, teachers are not satisfied with the evaluation system designed by them, and they admit that they should change it and improve it. Bell (2010) also recognizes that assessment is a challenge in PBL, since several assessment tools need to be used. The English teacher explains that the projects were designed putting different subjects together, without defining first a clear goal. Each subject teacher proposed certain goals for their subjects, and assessment was designed according to these (extract 91).

> Extract 91
> T2_En: Although we got help, we didn't do something transformative in the design from the beginning, then when it came to the design of the project, we put together the lessons and that's where the projects came from. There wasn't a very clear goal and the project that came out of that goal, it wasn't, it was a few subjects that came together and projects came up from bottom up, then there's also been more evaluation of that, each subject has put its own critera, we've contrasted that it wasn't too much or too little for the students, and that's where we've gone in the evaluation. So what we say when it comes to evaluating the student is that the student has a final mark. We want to change that, but for the time being, we're doing that. The project will be 25% of that mark. And within that 25%, the general note will split in two, the lesson will carry 70%, and the attitude, participation, folder arrangement will carry the remaining 30%. To let students know all these things, and to make their evaluation always clear, we use the headings for the objectives and what they have to do for that purpose. Our evaluation tool is the star. We have a set of criteria: folder organization, use of the Basque language, auto/co-evaluation, self-evaluation in teamwork, and then the others, we take that note as such for qualification. That's part of it, the use of the Basque language, the organization of time and the organization of folders. That's all attitude. And then there's the silent map.

The English teacher explains that contents related to each subject are assessed, which accounts for 70% of the final mark, and the remaining 30% corresponds to competences,

generic skills and attitude. There are also some tasks, which do not belong to any specific subject, that are assessed by more than one teacher, such as the debate or a task called "silent map". In these cases, teachers use the same rubric to evaluate students work (extract 92), and a percentage of this mark is counted in all subjects. As has been presented in the previous extract, the standard tool used for assessment is the rubric, which are shared with the students at the beginning of the project (extract 93). Sharing the rubrics with the students at the beginning of the project can be helpful for them to know what they are expected to do. However, Coyle and Meyer (2021) propose the rubrics to be designed by both teachers and students together, so that students are more engaged in their learning process. In this case, each teacher prepares a rubric for each assignment related to their subject, and for the asssessment of students' generic skills and attitude the same rubric is used by all teachers.

> Extract 92
> T3_H: we use a rubric for each task, but we have another to assess attitude. This rubric is used, for example, by all teachers, to qualify all students equally. For the debate, for example, they don`t have a mark, but it's evaluated.

> Extract 93
> T6_PE: That's what's written in the project and students have at all times what's going to be given from each area and what's going to be evaluated, and what are the evaluation items.

Teachers say that linguistic aspects are taken into account in all the rubrics. However, as we have seen above, teachers have different language perspectives, and consequently, teachers acknowledge that the language criteria in the rubrics are not systematised and that it is up to each teacher how to assess the language. Furthermore, the history teacher explains (extract 94) that students do not sometimes understand why their language competence influences their mark. This might be because not all the teachers pay the same attention to language in all subjects.

> Extract 94
> T3_H: I personally do. Maybe because I'm a language teacher and I got that too. But then students often don't understand. And not only in such works, but also in commentary and examinations. When you run exams, students sometimes don't understand why the grades of two students are different. And the answer is yes, they're saying the same thing, or I can understand what you're saying, but the expression isn't the same, so for example to me in the first evaluation, that's what happened to a student. He didn't understand why I didn't score him the score he thought he should have, and, I told him I made an effort to understand what he wanted to say, but that's not expressed. But I think every teacher already measures to what extent he wants to attach importance to it.

Apart from teachers assessing students' work, students are also actively involved in the evaluation process. Students are required to evaluate their own work (self-evaluation), that of their peers (co-evaluation) and the project itself by means of a questionnaire. But

the Basque teacher notices that, in many cases, what matters to students is the grade, and that as long as they get a good grade or what they expected, corrections or feedback are not important for them.

> Extract 95
> T5_B: they won't even see them. If anyone asks me, I'll give it to him, but most people only ask for a note. That's my job, too. Anyone interested will ask. From their logic it will be about 10% of the 25% of the Basque area.

Finally, although Biggs (1989) mentions that students' *family background and social support* need to be taken into account when designing classroom contexts, this category is hardly mentioned in the interviews. Teachers do not mention whether the family background of each pupil is taken into account. Almost all pupils are known to the teachers and have always had contact with their families. But as we move through higher educational stages, teachers' contact with families is increasingly scarce and, according to several teachers, in upper-secondary education there is hardly any family involvement.

5.2.   HOW IS SUBJECT-SPECIFIC LITERACY WORKED ON IN THE TEACHING MATERIAL?

The project involves six subjects, and although each subject has its own curricular objectives, the general objective of the project is for students to familiarise themselves with the continent of Africa, which although geographically close appears distant from our lives, in order to generate empathy with its inhabitants and to let others know about what has been learned.

The teaching material for the project is accessible on the digital platform Xtend, a personalised learning platform based on Moodle. The use of this platform permits the material to be made up of texts, images, videos, links… making the material multimodal. In order to access the material, students have their own user account and it is required for each student to have their own computer. This platform was built by a computer company, but the material was created by the teachers.

As explained in detail in the methodology section, in order to analyse the teaching material used in the multidisciplinary project, a checklist was designed (see appendix 5). Meyer et al., (2017) emphasize that the main components of subject-specific literacy are knowledge construction and knowledge sharing. For this reason, and in order to answer this research question, a detailed analysis of the first two dimensions of the checklist will be carried out, as are the ones related to subject-specific literacy.

1.   Content, language and metacognitive progression
2.   Linking technical language and content learning on concrete issues

With regards to the first dimension, it will be explored whether the teaching material promotes the use and development of genres and CDFs, which are necessary to construct and communicate knowledge in a progressive way, i.e. learner progression can be measured through the learner's ability to communicate what he/she has learnt through different genres and CDFs. Furthermore, genres are deemed to be used as one guiding principle to map subject-specific literacies progressions for curriculum design (Meyer et al., 2015). Hence, the genres and the CDFs used and required in the teaching material will be examined.

In the second dimension, focus will be placed, on the one hand, on exploring if everyday language is proposed to assist in the development of academic language, as in the process of developing academic language, everyday language plays a key role (Nikula and Moate, 2018); and, on the other hand, on the modes in which the content of each

subject is offered and requested, since according to Meyer (2015), in order to become pluriliterate, learners have to be able to extract information from and express the relevant concepts learned in a wide variety of subject-specific modes, e.g. tables, pictures, written language, oral language...

5.2.1. Content, language and metacognitive progression

As has been extensively explained in the theoretical framework, subject literacy is specific to each discipline and it is distinguished from others by the form and language in which the corresponding content is construed and communicated. In order to develop subject literacy by progressing on the communicating and conceptualising continuums that form the PTL model, students need to learn how to express themselves in an increasingly complex and appropriate way (Coyle, 2020) through genres and CDFs (Meyer and Coyle, 2017). In this section, we will see which genres and CDFs are addressed in each subject in the teaching material and how. First attention will be focused on genres, and then on CDFs.

In all subjects except in mathematics, where focus is placed on problem solving and calculations, genres are proposed as the last product to learn the content. In total, 8 different types of genres are required throughout the project: a personal reflection, an opinion essay, a hand drawn video, a text commentary, a debate, a comic, an infographics and an oral instructional text.

Meyer et al. (2018) state that genres are helpful for structuring the pathway of a discipline, and learners should develop the ability to express and extract information in different genres (Meyer et al. 2017). However, within the Pluriliteracies Teaching for Deeper Learning (PTDL) framework, asking students to produce a sample of a genre is not enough. Learners must be able to show what they have understood and, to do this, they must be taught how to communicate across the subject culture, which is characterised by a certain style and genres (Meyer et al., 2015). For this reason, a more accurate comparison of how these genres are worked on will be made in the following lines.

Among the 8 genres that are required, there are two (the text commentary and the oral instructional texts) that students are required to use, but the material does not provide any explanation on how to do it. In the case of the text commentary in history, a document containing the characteristics of this genre is shared with the students, three texts are given to them and learners are asked to comment on one of these three texts without doing any previous work. On the other hand, with regard to the guiding of the session in

physical education (oral instruction), the games and dances students need to instigate are defined and described through various tasks. However, as far as the genre is concerned, the material does not contain any explicit explanations about how to explain these dances or games, how to prepare an oral explanation, what structure it should have, what language is needed to conduct the session…

In the case of the remaining 6 (samples of) genres: the personal reflection, the opinion essay, the hand drawn video, the comic, the infographics and the debate, the materials provide instructions and guidelines on how to work on them (see table 9). All of the processes have something in common: in all cases the characteristics of the particular genre are presented, and several CDFs are required. In 5 out of the 6 cases, students are provided with the rubrics that the teachers will use to assess these genres, which itself can also form part of the scaffolding of the genre. Rubrics can be of great help, in that students know what they will be assessed on, and what they are supposed to do before starting the task. Models and examples of the genres are also provided in some cases. In summary, in all cases when genres are being worked on, a theoretical explanation is given and CDFs are required, and sometimes models and rubrics are available for students. The same type of genre activity is not required in the different subjects, so the way in which the same genre is constructed in each area cannot be compared.

Very briefly, the following table shows what support is provided in the material to help students produce the genres required in each subject:

Taula/Table 9. Aspects of the genres that are worked on

GENRE	CONTENT	EXAMPLE	STRUCTURE	RUBRIC	MOVES/TASKS
Hand drawn video	YES	NO	YES	YES	YES
Text commentary	YES	NO	YES	NO	NO
Oral instruction	YES	NO	NO	NO	NO
Infographics	YES	NO	YES	YES	NO
Opinion text	YES	NO	YES	YES	NO
Debate	YES	NO	YES	YES	NO
Comic	YES	NO	YES	YES	YES
Personal reflection	NO	NO	NO	NO	NO

With regards to the assessment of subject-related content, as mentioned above, five rubrics can be found during the project, and all five are for assessing the genres produced by the students. The five rubrics correspond to the opinion essay, the hand drawn video, the comic, the infographic and the debate. Rubrics can be of great help to students, even if they are used by teachers (Coyle and Meyer, 2021). In all cases, the rubrics are available for the students as soon as the genre is required, rubrics are not only useful for students to know what they are going to be assessed on and, consequently, what they have to do in each particular task, but students can use them to self-regulate their work.

However, all rubrics are different, they do not have the same structure, they have a different style, the criteria are sometimes formulated as a statement, sometimes as a CDF. These are some of the criteria taken from the rubrics:

> *"The message is clear and persuasive to the purpose"*
>
> *"The symbols and icons used are appropriate both for the topic and serve for purpose of the infographic"*
>
> *"The connection between the icons and corresponding ideas is adequate"*
>
> *"The organisation of the video is extraordinary"*
>
> *"Strong arguments have been used".*
>
> *"The structure of the opinion text is clear".*
>
> *"Information and arguments from different subjects have been used".*

Criteria of the type "clear and persuasive", "appropriate", "adequate", "extraordinary"... can also be found, but it is not defined what these adjectives mean or what teachers expect from students. However, just by appearing in the rubrics, students know that they are going to be assessed on these aspects, but we have seen that not everything that is required is worked on. The structure of the genres, subject content and linguistic aspects are assessed in rubrics. The structure, or the genre characteristics, are mainly theoretically explained as it can be seen in the following example:

> 1. *Planning the opinion text:*
>
> a. *Specify the point of view/thesis you are going to defend on the given topic.*

> *b.   Cite three arguments/reasons to defend your thesis.*
>
> *c.   Reinforce these arguments/reasons with data, examples, quotations of authority, arguments of cause and effect.*
>
> *d.   Considering the thesis and arguments, write down an appropriate introduction: situating the topic.*
>
> *2.   Writing an opinion essay:*
>
> *a.   Write an opinion text consisting of at least 250 words taking into account the planning elements above.*
>
> *i.   Introduction*
>
> *ii.   Arguments*
>
> *iii.   Thesis*

In this example, this information is provided, but the aspects required in this explanation are not worked on, but assessed in the rubric.

Content is worked on, and language (correctness, spelling, punctuation) is neither asked for nor worked on, but is assessed in the opinion text, in the comic and in the debate. Coherence is assessed as an aspect present in all rubrics, but language is not evaluated in the infographics, nor in the hand drawn video, which belongs to a linguistic subject.

As far as language is concerned, this are the aspects the 5 rubrics assess:

- In the opinion text (economics): correctness, spelling, punctuation.
- Comic (Basque): coherence, relevance, correctness.
- In English: Language and structure: coherence
- In debate: use appropriate language, coherence.

So, it can be concluded that everything that is assessed is asked for except for language, which is assessed in the rubrics, but no support is provided in relation to how language can be used correctly, among other things, what coherence or "appropriate language" means.

As has been previously mentioned, in most cases, the CDFs required throughout the project form part of the creation within one of the 8 genres, except in mathematics, where

students do not have to produce in any genre, but where many CDFs are asked for, in fact, more than in any other subject. CDFs are understood as a linguistic representation of cognitive learning objectives (Meyer et al. 2017), and therefore, in the exercises and statements CDFs are requested, the CDFs required in each area have been identified and accounted for. It should be noted that in some cases CDFs are explicitly required, but in others they are not, which leads to difficulties in identifying which CDF is required, even when it is clear what has to be answered in each question.

Explicit:

> An amount of money is invested in the bank at 6%, with a compounding period of four months. How long must it remain in the bank for the amount to increase fivefold? What if the compounding period is six months? **Reason** the answer.

Implicit:

> What parameters does the Human Development Index take into account to assess a country's growth?

This implies that in the cases when the CDF required is not explicitly mentioned, it might be difficult for students to ascertain what they are supposed to do in those tasks, and it can lead to different interpretations.

In addition, as has been explained the methodology section, the verbs listed by Dalton-Puffer (2013) are taken from English. These verbs may or may not have a literal translation in other languages. The present teaching material is in Basque (except for the section corresponding to the English subject), and there are verbs in Basque that do not have a direct translation to be found in Dalton-Puffer's classification. This is the case of the verb "azaldu", for example. The literal translation in English is "explain", but whenever "azaldu" is asked in Basque, to "explain" is not always necessarily required, as "azaldu" can also denote other meanings such as: describe, define and report. Here are two examples:

> Explain what is the phenomenon of globalisation as you have understood it (Meaning: explain, define)

> Explain the steps taken in the two questions (report, describe)

Table 10 shows the CDFs elicited in each discipline. Some subjects require more cognitive discourse functions than others: 37 in mathematics, against 6 in Basque Language Arts and 2 in Physical Education. This may be partly because not all subjects have the same presence in the project, some are given more time than others.

Taula/Table 10. CDFs elicited in each discipline.

CDF Type	Mathema-tics	Economics	History	Basque	English	Physical Ed.
Evaluate	12	8	2	0	2	1
Report	7	5	5	1	4	0
Explain	6	3	0	0	0	0
Explore	5	0	1	0	0	0
Categorise	4	3	0	1	2	0
Define	0	5	0	0	2	0
Describe	3	0	2	4	0	1
Total	**37**	**24**	**10**	**6**	**10**	**2**

Regarding the types of CDFs used, it can be seen that *evaluate* is for example the most frequently used CDF type in mathematics and economics, *report* is in history, *describe* in Basque, *report* in English. This does not imply that these are the most commonly repeated CDF types to be found in these subjects as a rule, but they are in the present project, i.e, in history the topic of colonialism has been dealt with, and in this subject and in this specific project, *report* is the most repeated CDF; but if the topic were another, for example, the Second World War, the most repeated CDF could be another one. The same happens in the rest of the subjects. In the discussion part (chapter 6), we will compare these findings to those of other studies to see if any conclusions can be drawn.

Taking all the CDFs required in the six subjects into account, only 4 out of the 89 CDFs required in the whole project are worked on. As with genres, asking students to perform certain CDFs, such as describing or explaining, is not enough for them to understand a concept in depth or master the content. For this, learners need to be taught how to express themselves well and progressively (Meyer et al., 2017), as poor mastery of CDFs by learners may mean that the teaching and learning contexts do not help to develop the academic discourse and language needed in order to become pluriliterate (Meyer et al., 2015). It is worth noting that although CDFs are rarely worked on in the teaching material, this does not mean that CDFs are not worked on in the project. In the next research question, we will examine whether the CDFs required are scaffolded in teacher-student interactions in the classroom.

In order to know which genres and CDFs are meant to be worked on in each subject, it is necessary to identify what the objective of each section is and contrast if everything

that is evaluated in relation to genres and CDFs is explicitly worked on, since what has not been taught cannot be evaluated (Biggs and Tang, 2011). Therefore, the tasks required in the teaching material have been compared with what the curriculum asks students to do in each subject, with what the curriculum says (Eusko Jaurlaritza, 2014) it should be achieved and what it is truly assessed in the rubrics.

Morton (2020) proposes that CDFs can also be used for assessment, as they are considered a bridge between language, content and literacy. However, the same author (2020:10) states that not using the correct verb to refer to the thinking skills to be assessed "can lead to teachers and teaching materials giving misleading information to students about the tasks they have to do. This teaching problem can very quickly become an assessment problem, where the tasks students are asked to do in an assessment such as a test or exam may not truly represent the original learning objective".

Regarding the curriculum, the curriculum is not written in CDF terms, but many CDFs can be identified in it, and it gives us clues as to the cognitive discourse functions to be worked on in each subject. It could be said that, in general, the CDFs and objectives identified in the curriculum coincide with what is done in the project. Even so, a slight adjustment would have to be made in some of the subjects. In mathematics, the curriculum emphasises that students should be able to justify their answers. Many exercises are proposed to train and gain knowledge, but only in a few cases are students asked to justify their answers. If the CDF "justify" were also required in all these exercises, it would help make the role of justifying more visible. Apart from this, what is required in the English subject does not belong to the subject of English. English is just the language through which content related to diseases is taught and addressed. As a result, no comparison can be made with the curriculum.

5.2.2. Linking technical language and content learning (on concrete issues)

The genres and CDFs identified in the teaching material are part of academic language. The development and teaching of them means the teaching of academic language. Nevertheless, academic language is more than that. In addition to CDFs and genres, each subject has a specific terminology, and this is also part of the academic language. In mathematics, work is done on some concepts such as: UTB, loans, interests... In economics, concepts such as globalisation, real progress index, investment, unemployment rate, gross national product… are also worked on. These terms are worked on in both subjects through CDFs such as describe and define. Learning concepts in economics and mathematics means learning content and academic

language at the same time. In Basque, some terms related to the comic, such as, **balloons**, onomatopoeias, and visual metaphors are also explained and required to be used. In history, even if the curriculum says that they should correctly use the concepts, terms and basic techniques of history, attention is not paid to terms such as "colonialism", and the academic language in this subject is limited to the production of genres and CDFs. Regarding physical education, students need academic language to be able to produce the genre they have been asked to produce, such as material needed to carry out the games and dances, movements, spaces… None of these are explicitly worked on in the teaching material. Finally, as mentioned before, the academic language that is worked on in English does not correspond to the subject of English. As a consequence, the academic language of another field is done in English.

Taula/Table 11. Aspects of academic language worked on in the teaching material.

Mathematics	Economics	History	Basque L.A.	English L.A	Physical Ed.
Terminology (concepts) CDF	Terminology (macroeconomic concepts) Genre CDF	Genre CDF	Genre CDF concepts related to the genre	Genre Diseases Vocabulary	CDF

Ting (2012) reports that academic language instruction is generally neglected in content classrooms, but in the present study academic language is worked on during the project, in some areas more than in others (Table 11), which, according to Meyer et al., (2015:44), "the consequences of a lack of awareness and focus on academic literacies may well impact on the construction and communication of deep knowledge which requires strengthening fundamental links between thinking and language".

"Subject-specific language is a key part of academic learning and disciplinary knowledge, and everyday language plays a key role in developing understanding" (Nikula and Moate, 2018:25). For this reason, so that learners successfully construct their understanding, they should be able to transition from academic language to colloquial and conversely (Meyer et al., 2015). In the present teaching material, everyday language is not generally used to support the development of academic language, i.e. there is no evidence of interplay between everyday language and academic language.

In section 4.5 (economics), everyday language is used in one task to help in the comprehension. To find out whether students have understood the content or not,

students are asked to explain it using everyday language first, and then, they are asked to produce a text commentary using academic language.

Did I understand the text? Answer the following questions but do not 'copy and paste'. Answer in your own words.

In the section "we have made them sick" students are required to write an opinion essay. To do so, they work with different sources of information and materials. One of the tasks is to read the article "multinational companies and SMEs (Small and medium-sized enterprises)" and answer some questions. Before sharing the answers with the group, everyone should answer the questions in their own words. In this example, everyday language is used to ensure the comprehension of academic language, as the PTDL framework proposes.

In section 4.7 (Basque), it is specified that they have to use colloquial or everyday language in the comic. Everyday language is one of the characteristics of the comic, and this is worked on, but it is not related to what is said in the PTDL framework. For example, some expressions and proverbs that can be used in non-formal language are presented. Onomatopoeias are also one of the examples of non-formal language, but because it is one of the characteristics of the comic, as said before, the everyday language is not used to help develop academic language:

The words of the characters will be expressed in a non-formal language.

On the other hand, in the subject of physical education, the students have to dynamise a session for primary school pupils. This is not explicitly requested, but it can be intuited that the students will have to use everyday language, as it is necessary to adapt the speech to the receiver, and could lead to having to use a more common language:

4.2 And what do you think if we now share what we have learnt with primary school students? We propose that you go to a primary school classroom and dynamise a session for them with what you have learned. Let's put our knowledge and the experiences of everyone to dance!

Therefore, the teaching material does not propose back and forth between everyday language and academic language. The common language is hardly used and is indispensable for the development of academic language and in the process of deeper learning. This is in line with Nikula and Moate (2018:21), who say that only academic

language has received attention, but "informal/everyday language and academic language are inextricably linked and both are necessary".

Besides, subject-specific discourses are characterised by being multimodal. Specific knowledge can be represented not only through written or oral texts, but also in non-verbal, visual, graphical, symbolic and other ways (Meyer et al., 2015). Table 12 shows that the modes in which the content and tasks are presented and the modes required in each discipline vary. In most subjects, formats are repeated, being written text the most required mode. It can also be seen that in comparison with the other subjects, Basque is more visual. This is due to the topic that is dealt with in this subject: the comic. Comics are a very visual genre, so their work is also visual. And that some formats are more common in certain subjects, mathematical operations in mathematics; and conceptual maps in history and economics, for example.

Taula/Table 12, Modes provided and required in the material

SUBJECT	PROVIDED	REQUIRED
Economics	conceptual maps (7), audiovisual (3), written (10), visual (1)	written (5), table (1), oral (1), free format (1). Semiotic translations: - from written to oral - from written to free format
Mathematics	table (1), audiovisual (8), visual (2), written (8), formulas/mathematical operations, table	table (2), written (2), formulas/mathematical operations? Semiotic translations: - from mathematical operations to written
Basque Language Arts	pictures, visual (40), written	picture/visual, table, written, table (3) Semiotic translations: - from picture to written - from written to drawing
History	written, audiovisual (1), conceptual maps (3), map (5)	audiovisual (1), written (2), map (1), oral (1)
English Language Arts	written	written, visual (1)
Physical Education	audiovisual (2), written	written (1), table (1), visual (1), oral (2), free format Semiotic translations: - from written to a table - from written to oral

It should be noted that oral discourse has scarce presence in the project. The teaching material analysed is audiovisual, in several cases the information is presented by means of videos in which the oral discourse can be found. Notwithstanding, students are only asked to speak 3 times in the whole project: to share and contrast the information in the group in the subject of economics, the oral script they have to prepare for the hand drawn video in history, and to prepare and guide the session in physical education.

With regards to history, the curriculum emphasises that learners should be able to express and communicate the contents of the subject correctly, both orally and in writing, and to search for, obtain and select information from multiple sources (historical documents, historiographic texts, iconographic sources, data, maps, press, information and communication technologies, etc.). In the project, the first requirement mentioned is indeed fulfilled through the hand drawn video, and the latter also: students are provided with three historical texts which should be analyzed and commented on.

CDFs could be represented in different modes depending on the task and the subject. In this project, it can be seen that for example, the CDFs *describe* and *explain* are required through mathematical formulas or operations, and in history, in contrast, orally or in writing. According to Meyer (2015:5) students should be able to "communicate their understanding in a wide variety of subject-specific modes (charts, maps, tables, formulas, drawings… using both analogue and digital media)". However, despite using different formats to represent knowledge depending on the task and the subject matter, students should also be capable of transforming knowledge from one mode to another, as this is considered to be the key to subject literacy (Meyer et al., 2017). Hallet (2012) also considers the development of semiotic translation skills to be essential to acquiring subject-specific literacy skills. Information is requested in different formats, but semiotic translations are not often required, as it can be seen in Table 12, which would help to retain the content tightly and to consolidate knowledge.

Previously, a number of criteria that the teaching material should meet within the Pluriliteracies Teaching for Deeper Learning framework have been listed. We have seen that some of them are met and some are not. But the analysis of the material is not enough to see whether these indicators are met in the project or not. It may be the case that although the teaching material does not propose it, or it is not reflected in the material, these aspects are worked on in the classroom. Therefore, in the following section the real classroom practice will be analyzed, in order to explore whether the criteria are met.

5.3. HOW ARE COGNITIVE DISCOURSE FUNCTIONS SCAFFOLDED IN TEACHER-STUDENT INTERACTION?

As has been extensively explained in the theoretical framework, learners need to master the use of CDFs across different subjects in order to develop subject-specific discourse, which helps achieve deeper learning. For this reason, students should be able to internalise conceptual knowledge and verbalise it linguistically (Coyle and Meyer, 2021).

Adequate space and opportunity must be provided by the teachers so that learners can perform these cognitive-linguistic operations. The teacher-student interaction is deemed to be one of those spaces and moments for this to happen. In fact, Morton (2020:8) argues that "many educational objectives across all academic subjects are expressed as verbs which describe specific cognitive operations, such as define, evaluate, explain, and that these operations, or functions, have specific linguistic realisations that can be taught to students".

One way to get students to perform these CDFs might be by explicitly asking them to do so. However, asking students to use CDFs might not be enough. CDFs need explicit attention in all content units (Morton, 2020) and these need to be explicitly taught, as using them does not imply that they will be used in the suitable form for each subject. Therefore, in the following analysis we will see how much evidence of CDFs there is in teacher-student interaction, how these are realised and by whom. Then, we will examine how much explicit attention is paid to these functions and if they are scaffolded or not, and how.

5.3.1. How much evidence of cdfs is there in teacher-student interaction?

During the project, learners sometimes work autonomously in groups and sometimes have classes with the teachers. The teachers take advantage of these classes to present the content of the subject so that students can then work on their own later on. Teachers often give long explanations and their lecturing may become a teacher monologue (Dalton-Puffer, 2007). For the present analysis, the discourses within interaction of both teachers and students in the 6 disciplines that make up the project have been analysed, and the use of CDFs have been identified for both groups. In the teachers' discourse, not only was the use of CDFs identified, but it can be seen that, in line with Morton (2020), in the activities carried out in the classroom and in the questions asked by the teachers, tasks are also requested in the form of operative verbs, i.e. operative verbs are required in order to carry out the tasks.

All CDFs used in teacher-student interaction have been classified according to the following criteria: CDFs used by the teachers; CDFs requested from students; and CDFs used by students.

Taula/Table 13. CDFs identified in teacher-student interaction.

CDF	CDFs used by teachers	CDFs requested	CDFs used by students
Categorise	35	16	6
Define	75	40	35
Describe	132	20	22
Evaluate	27	21	29
Explain	103	32	24
Explore	6	11	15
Report	86	43	43

The data collected in the table above provides us with information on the presence of CDFs in the classroom. In total, 638 CDFs have been identified. These are used by teachers almost three times more often (464) than by pupils (174).

Irudia/Figure 32. Amount of CDFs used in classroom interaction
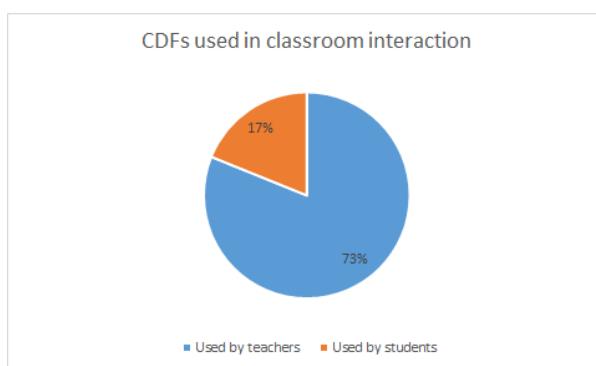
This difference might be due to the fact that during the interactions between the teachers and the students, most of the discourse (88,4%) is generated by teachers, against the 8,6% that is generated by the students (Table 14), who participate in the interaction mainly when the teacher asks a question or when they have a doubt about something. Despite the difference in the amount of CDFs used by the two groups, to a greater or lesser extent, all types of CDFs have been found in teachers' and in students' discourse, which is in line with Doiz and Lasagabaster (2020).

It can also be seen in Table 13 that the CDFs requested from learners do not coincide with the CDFs used by them as, in some cases, learners may not respond to the teacher's demands, and in others, CDFs are also used in interactions initiated by the learners themselves, without the teachers asking.

In this sense, as can be seen in Table 14, in this project, some subjects have more time allocated to them than others and some teachers have spent more time in the classroom than others. However, spending more time in the classroom does not always mean using more CDFs. It should also be noted that in addition to the nature of the subject taught, the individual teaching style of the teachers, the type of activities carried out and the main objectives of the subject concerned may also have an impact on how many CDFs are performed in classrooms and by whom (Dalton-Puffer et. al, 2018).

Taula/Table 14. An overall picture of the project in numbers.

	Hours in the project	Amount of talk (teachers)	Amount of CDFs used (teachers)	Amount of talk (students)	Amount of CDFs used (students)
History	12,3	3911 words (91,5%)	57	328 words (8,5%)	5
Economics	8,2	7185 words (87%)	191	982 words (13%)	49
Physical Education	8,2	1262 words (95,5%)	23	55 words (4,5%)	4
Mathematics	6,5	10137 words (89%)	98	1065 words (11%)	30
English	5,2	3614 (84,5%)	62	560 words (15,5%)	57
Basque	6,5	2251 words (63%)	33	829 words (37%)	33

The amount of talk of both teachers and students and the hours dedicated to the project are some of the factors that might influence the number of CDFs identified in the discourses. A detailed analysis of each of the criteria gathered in table 1 will be presented below.

5.3.2. CDFs used by teachers

Teachers tend to be the ones who give explanations, who lead the curricular content and who describe and present the activities to be carried out by the students. As has previously been presented, a total of 464 CDFs are used by teachers. Except in the case of the mathematics teacher, who, although she utters more words than the economics teacher, uses fewer CDFs, it could be said that in the rest of the subjects, the more teachers talk, the more CDFs they use.

Table 15 displays which CDFs have been used by the teachers in each subject. It must be recognised that, as explained in the methodological framework, it is often difficult to identify the exact CDF used in the discourse for two main reasons. On the one hand, it is common to find some CDFs within others; and on the other hand, the seven categories described by Dalton-Puffer (2013) have fuzzy boundaries.

Taula/Table 15. CDFs used by the teachers.

	Economics	Basque	Mathematics	English	Physical Education	History
Categorise (35)	12	2	11	8	1	1
Define (75)	52	3	10	8	0	2
Describe (132)	44	10	31	8	15	24
Evaluate (27)	9	5	7	0	1	5
Explain (103)	46	3	26	10	2	16
Explore (6)	4	0	2	0	0	0
Report (86)	24	10	11	28	4	9

Out of the 464 CDfs used by the teachers, DESCRIBE was the CDF most commonly used by teachers, followed in rank by EXPLAIN, REPORT and DEFINE, while CATEGORISE, EVALUATE and EXPLORE were used the least. In most cases, this ranking coincides across each teacher's use of each type of CDF.

The dominance of DESCRIBE is consistent with most studies published to date (Kröss, 2014; Hofmann and Hopf, 2015; Bauer-Marschallinger, 2016; Lechner, 2016; Dalton-Puffer and Bauer-Marschallinger, 2019). This may occur due to the fact that other types of CDFs also contain descriptive elements, such as DEFINE, REPORT or EXPLAIN, as pointed out by Dalton-Puffer (2016).

Another reason may be related to the subject matter of the project. One of the main objectives of the project is to get to know the continent of Africa in more depth and from

the perspective of different disciplines. For this purpose, giving descriptions is one of the aims in all subjects. To name a few, Africa is described from an economic point of view, where the situation in different African countries is described through the description of various macroeconomic concepts. In the subject of history, various types of maps are also described by the teacher, such as: thematic maps, colonial maps, resources... which give information about the situation in Africa. In physical education, African dances and games are described by the teacher.

In the descriptions made by the teachers, the three types of descriptions differentiated by Dalton-Puffer (2016) can be identified: *physical description, functional description* and *process description.*

Both the description of different maps in history and of dances and games in physical education involve *physical descriptions,* which consist of describing features, characteristics or of giving detailed information about something. Teachers describe mostly through words. However, not all the physical descriptions made by the teachers are made linguistically, also through movement and images. The history teacher uses maps to describe the African continent, the economics teacher describes the reality of Africa through pictures chosen by the students; and the physical education teacher does not either describe the African dances verbally, but rather she demonstrates them by means of physical movements as can be seen in extract 96. These examples indicate the multimodality of certain CDFs, which will be discussed somewhere else.

> Extract 96
> T6_PE: dances are not very complex. You can do two steps and do African dances. Movements are repeated. [...] I can dance like this (she dances with very simple but exaggerated movements), I'm dancing African dances.

Regarding *functional description* and *process description*, the maths and economics teachers do not only describe the function of various macroeconomic and mathematical concepts, but they also describe the process of how to calculate them, as in the following excerpt:

> Extract 97
> T7_M: What I would like to point out is that you will see APR, Annual Percentage Rate, many times. Here we have another poster/sign for example. Laboral Kutxa has another offer, but Max is not a current account or a young person's account. And it says that there is no commission, i.e., you don't have to pay anything for opening the account. It says it is always available, i.e. you can withdraw money at any time. [...] Not like before. I can't withdraw anything in three years. And what do they offer in turn? 2,5%. 2.5% is small, but APR. Do you see that it always says APR?

The six teachers make use of *process descriptions* to describe the purpose of the tasks to be performed, along with the steps and procedures that need to be followed to achieve the desired results.

In the case of EXPLAIN, as well as being the second most used CDF type, it is also the lengthiest, which gives evidence to the words of Dalton-Puffer (2016) who says that CDFs appear in different scopes. EXPLAIN often serves as an overall communicative function which contains other CDFs embedded within it such as descriptions, definitions and report.

The two teachers that most used the CDF EXPLAIN are the mathematics and the economics teachers, and they *reason* and they *explain* mostly to give consequential and theoretical explanations about the subject related content. In the following extract, for example, the economics teacher explains how our consumption habits might affect the macroeconomic objectives they are learning:

> Extract 98
> T4_E: yes, people will consume more and that will influence K (the consume), and K will increase. And if a macroeconomic objective is to increase GDP (Gross Domestic Product), where can that growth come from? It will increase if K increases. Even if G increases and exports increase. Clearly any increase will increase the GPD.

Teachers use plenty of real examples in their explanations, which might help students to understand the content. CDF EXPLAIN is also used by teachers when making connections between what has been taught, and when answering questions asked by students.

As mentioned above, teachers often give long explanations providing students with a large input of information. In addition, teachers also use the CDF type REPORT to *summarise* what has been taught, to make links between subjects and to relate these to reality. In extract 99, the history teacher makes a synthesis of what they have done so far, in order to connect it with the next topic they are going to deal with. This may also help to make sure that all the learners are on track.

> Extract 99
> T3_H: So far you have seen what we have been doing in the history part. You have created your own map, we talked about different types of maps, we worked on the last one, the one related to raw materials, another one about the colonies in Africa. What for? To get a general overview and to see how Africa was divided into colonies And now we are going to start working on colonialism. Well, we will start talking about how Africa is divided. The first two questions we have here are about the borders. In the Basque Country, the mountains and rivers mark the borders, how is it in Africa?

The English and economics teachers are the most frequent users of the CDF-type REPORT. In the English subject, students watch a film, and as English is the foreign language for all students, the teacher stops the film from time to time and she tries to summarise and narrate what happens in the film in order to ensure comprehension. The teacher uses the CDF REPORT to ensure that all students understand the film.

> Extract 100
> T2_En: ok. And they were talking about that in the film too. They have a debt with Kenya. They feel guilty for what is happening in Kenya.

The economics teacher puts special emphasis on relating the theory they learn in the classroom to real life. With this purpose, from time to time she brings in news from the real world and tells anecdotes that relate to the topics covered in class, as can be seen in the following excerpt:

> Extract 101
> T4_E: I was reading today's press. Do you know what has been published today? That Zizekedi has won the Congolese elections in Congo. The elections were held on the 30th November and the results were announced today, 11 January. For the record.

Regarding the CDF type DEFINE, 52 out of the 75 definitions given by teachers are realised by the economics teacher. As learning, understanding and using several macroeconomic concepts is one of the specific aims of the subject, the economics teacher provides the students with 52 definitions of macroeconomic concepts, such as *BPG, NPG, multinationals, deficit, investment* and *inflation*. In order to master the subject related content, and also to follow the teacher's explanations, students need to understand the definitions of these macroeconomic concepts.

Also in the English subject, one of the objectives of the area is to learn disease-related definitions such as *chronic diseases, acute, infectious* and *non-infectious*. In this case, although the teacher also gives some definitions of disease-related terms, unlike the economics teacher, she asks the students to define, instead of her giving the definitions.

Apart from using DEFINE in order to teach subject related content, some teachers also use this CDF when students do not understand a new word. The mathematics teacher, for example, occasionally asks the students if they have not understood something in the explanation or in the documents they have read. On some occasions, the teacher tries to construct the definition through interaction with the students, but in the end she provides the students with the definition. In a similar vein, the Basque teacher also uses the CDF type DEFINE when students say that they do not understand the meaning of a specific word.

But not all the definitions provided by the teachers are built in the same way. In the definitions given by the teachers, different types of definitions can be identified. Teachers sometimes define by giving complete definitions which are composed as "an X is a Y", or just by providing synonyms of the word to be defined, by giving the meaning of acronyms or even the Spanish translation. All of these types of definitions are mentioned in Dalton-Puffer (2016). All of them have in common that they are used in the present tense:

Extract 102
T7_M: APR stands for Annual Percentage rate.

Extract 103
T4_E: How do I define GNI (Gross National Income)? The value of all final goods and services produced during a given period of time using domestic factors.

Extract 104
T5_B: guana is the person who sell and buy slaves.

Extract 105
T2_En: Acute can be cancer but alzheimer is chronical.

To finish with this CDF type, as defining always implies membership in some sort of class (Dalton-Puffer, 2016), sometimes, DEFINE also implies CATEGORISE. Likewise, comparisons, which belong to the CDF CATEGORISE, are often composed of definitions. One of the strategies teachers use, when explaining, is to make comparisons between terms (extract 106), being the operative verb most used from the CDF CATEGORISE *compare,* followed by *classify.*

Extract 106
T4_E: Microrconomics analyses the behaviour of economic use, the behaviour of households, of companies; and macroeconomics the overall functioning

When teachers *classify*, sentences are characterised by the use of the verb "to be", as we can see in the following examples:

Extract 107
T2_En: yes, flu can **be** sporadic.

Extract 108
T4_E: international companies **are** multinationals.

But categorisations, apart from sometimes embedding CDF DEFINE, also form part of explanations and descriptions frequently. In the extract below, a comparison between banks and saving banks is made by the mathematics teacher. In order to compare both concepts, the teacher describes and explains the main aim and characteristics of each of them:

Extract 109

> T7_M: there are usually shareholders, and normally, what do these shareholders want? Several banks have been closed, but shareholders have earned a lot of money. Their aim is to earn money and distribute it among the shareholders. Savings banks don't have the same objective.

As can be seen in the data collected in Table 1, similarly to CATEGORISE, the CDF EVALUATE is not used by the teachers very often. The teachers *reflect* and *give their opinion*s on the topics discussed, *argue* and *critique* the students' answers, and they also *take a stance* on only some occasions. The CDF EVALUATE is not also frequently used in the studies described in Dalton-Puffer et. al (2018). However, Beacco et al., (2010) emphasize that given the importance EVALUATE has in the curriculum and in the learning process of students, EVALUATE "might be expected to occur in classroom talk". Therefore, although teachers do not use this type of CDF very often, in the following section, we will examine if students use it.

At the bottom of the ranking of CDFs used by teachers is the CDF type EXPLORE. Only two of the six teachers use this type of CDF. The economics teacher uses it 4 times, and the mathematics teacher does it twice. Regarding the economics teacher, she presents hypothetical cases in a particular exercise; and the mathematics teacher proposes to students to imagine they want to buy a car and she gives hypotheses on how they could save to buy a car. As only a few cases of EXPLORE have been found, these examples might not be enough to draw conclusions.

To summarise, when giving explanations, examples, definitions, syntheses, etc., teachers use operative verbs. This study has revealed that teachers' ordinary classroom activities and actions involve CDFs. There are some CDFs that are more frequently used in all subjects, such as EXPLAIN, REPORT or DESCRIBE, while there are others that are not used as frequently. It is striking how infrequently teachers use the CDF type EVALUATE, being to reflect on the reality they live in Africa, one of the main objectives of the project. Through this analysis, it cannot be concluded whether certain CDFs correspond to the nature and culture of the subject area more than others, as in order to confirm this more research would be needed. It has also been noticed that the boundaries between CDF types are fuzzy and that CDFs are usually embedded within each other, which makes the identification of CDFs difficult (as explained by Meyer et al., 2015).

5.3.3. CDFs requested from students

All the CDFs requested from students have also been identified and classified into subjects. The amount of CDFs requested from students are much lower than those used

by teachers. As mentioned above, the amount of CDFs requested in each subject could be a consequence of the teachers' way of doing and the time spent teaching, and more research would be needed to see whether there is any relation between the CDFs requested and the nature of the subjects examined. Even so, students are required to use CDFs in all subjects, as can be seen in Table 16, but the differences between some subjects and others are striking.

Taula/Table 16. CDFs requested from students.

	Economics	Basque	Mathematics	English	Physical Education	History
Categorise (35)	1	0	4	10	1	0
Define (75)	6	4	7	21	0	2
Describe (132)	3	0	1	2	4	10
Evaluate (27)	10	0	5	3	2	1
Explain (103)	12	1	4	11	0	4
Explore (6)	8	0	0	3	0	0
Report (86)	8	4	9	16	0	6

Comparing tables 20 and 21, we find that some CDFs are more frequently used by the teachers, and others by the students. Teachers DESCRIBE and EXPLAIN more than students, and students are required to EXPLORE more frequently than the teachers make use of this type of CDF. It is important that the teacher models the CDFs that have to be developed and mastered by the students, but this will be considered in the next section.

The most required CDFs are REPORT and DEFINE, followed by EXPLAIN, DESCRIBE, EVALUATE, CATEGORISE and EXPLORE.

The operative verbs of the REPORT type most frequently requested from students are *report* and *summarise*. REPORT is required mostly in the subject of English. Here students are asked to report back to ensure understanding of the film by asking comprehension questions, as in Extract 110. *Summarise* is also repeated in most subjects. As has been previously presented, teachers use REPORT mainly with the aim of synthesizing what has been taught and help students follow their explanations. In a similar vein, students are required to use the CDF REPORT so that teachers ensure students' comprehension.

> Extract 110
> T2_En: What has Tessa discovered that is so serious in all that?

DEFINE is the second most requested CDF. As has been mentioned earlier, in the English subject the aim is to learn various types of diseases and their definitions and, for this reason, students are asked to define them. In economics, students should also understand the definitions of macroeconomic concepts, but in this case it is the teacher who provides the definitions. However, students are also required to define what they have previously learned through questions like "*What was this?*", in order to link new knowledge with their prior knowledge.

Another occasion when students are asked to define is when words appear that may be new to the students, especially in the English subject. When a new word appears, the teacher asks if anyone knows its definition. On other occasions, the students initiate the interaction to ask what a particular word means. We have seen in the analysis of the CDFs used by the teachers that in such cases the teachers sometimes provide the students with the definitions, but this does not always occur. Sometimes, the teacher uses the question the student has asked and opens it up to the whole class, asking them to provide the definition. This is what the mathematics teacher does in the following example:

> Extract 111
> T7_M: Someone asked me what bitcoin is. What is bitcoin?

As CATEGORISE is frequently embedded within DEFINE, students are also required to CATEGORISE when asking for definitions. This is common in the English subject, as it is the subject in which students DEFINE the most, and almost the only one.

> Extract 112
> T2_En: the difference between acute and chronical? What is the difference?

There exists a difference between the CDF EXPLAIN used by the teacher and the CDF EXPLAIN requested from students. On the one hand, the operative verb teachers use when providing theoretical explanations is *explain.* They use this action mainly in order to give theoretical explanations; while on the other hand, learners are mostly asked to *reason* their answers, so that they demonstrate they know the answer. Briefly, teachers transmit information, and students are require to reason their answers and thus demonstrate their knowledge. Within the CDF EXPLAIN students are asked to reason their answers by questions starting with "*why*?", "*how*?" and "*what for*?".

> Extract 113
> T3_H: why is it first grade?

Following the ranking EVALUATE is the next most requested CDF type from students. Most of the CDF EVALUATE requested from students aim to encourage reflection

regarding both knowledge construction and learner's self-reflection, with questions such as "*is it possible to be happy in Africa?*" or "*So has it helped you to see if you are doing well or not? And in general, how are you doing?*". Students are asked to build an opinion, to argue, and to justify their stance (extract 114). This reflective process is also supported by questions starting with "*why*". Questions beginning with "why" can sometimes be answered by using EXPLAIN as we have recently seen, but also by the CDF type EVALUATE, depending on whether reasoning or argumentation is required. In the following example, for example, students are required to justify why they are in favour of or against globalisation:

> Extract 114
> T4_E: what do you think, is globalisation good or bad? [...] Why is globalisation good? (CDF EVALUATE)

The CDF DESCRIBE is in fifth position in the ranking of the CDFs required from students. This may be due to the fact that teachers use the CDF DESCRIBE frequently, and the descriptions needed to carry out the tasks are given by the teachers. Yet, while the history teacher gives a description of the maps they are going to work on, she also asks the pupils to describe what they see on the maps. In physical education, the teacher also asks students to describe African dances through interaction. So, even if the description is mostly provided by teachers, they also try to co-construct it through interaction. This co-construction will be further analysed in the last research question.

Lastly, EXPLORE is the least common CDF, both among teachers and among the CDFs required by pupils to carry out the activities. There is one exercise in the economics subject where students should explicitly use this CDF. Learners are asked to imagine they work in the government and they are asked to hypothesize which actions they would take to improve the macroeconomic situation. This is the exercise in which the economics teacher also uses the CDF EXPLORE. Even so, the presence of this CDF is scant.

Some CDFs are requested as part of the elaboration of a particular genre. Among the activities and tasks carried out in the classroom, students are required to perform 8 types of genres: an opinion essay, a reflection, an oral instructional text, a text commentary, an infographic, a comic, a debate and an oral instructional text. Teachers present and explain the genres that students have to produce, and several CDFs are requested as part of the elaboration of these. This is in line with Coyle et al. (2021), who state that genres consist of moves, for which CDFs are required. The following extract is an example of how the history teacher presents the text commentary:

Extract 115
T3_H: first, the form, content and origin. Remember what kind of text it is, what kind of content it contains, whether it is political content, historical content, social content, or whatever (CATEGORISE). Then, the author and historical moment; you will have to look for information about the author on the internet, because Jules Ferrick has not been mentioned here (REPORT, DESCRIBE). I will tell you that he was an important French lawyer. The French intervention was very important in Africa. He is from the time of colonialism. Remember the internal analysis on the third paragraph, the explanation on the fourth (EXPLAIN) and a synthesis (REPORT-summarise) and the possibility to express your opinion (EVALUATE-opinion) on the fifth.

In the following table we see the CDFs that students are required to use for the production of each genre according to the teachers:

Taula/Table 17. CDFs requested for the elaboration of genres.

SUBJECT	GENRE	CDFs
History	Hand drawn video	Report
		Descrive
		Define
	Text commentary	Report
		Categorise
		Describe
		Explain
		Evaluate
Economics	Opinion essay	Explain
		Report
		Evaluate
		Define
		Categorise
	Personal reflection	Report
		Explain
		Evaluate
Basque	Comic	Categorise
		Describe
		Report
		Evaluate
English	Infographics	Report
		Describe
		Evaluate

The relationship between genres and CDFs has been a debate in the last year (Coyle and Meyer, 2021). Genres can sometimes act both as genre and as CDF, depending on their length and function. In this project, for example, REFLECT acts as a genre in the subject of economics, and as a CDF in all subjects where students must reflect, argue or justify in order to carry out a task.

Now, we will examine how the CDFs presented so far are requested from students, and whether it is made clear to the students what they have to do with the content. In line with Morton (2020), CDFs are sometimes requested explicitly through the verbs used by the teacher when asking about a task. 34 out of the 185 CDFs requested from students are explicitly requested, which means that tasks are required as operative verbs such as define, explain or describe, as we can see in the following extract:

Extract 116
T2_En: **Explain** her a little bit what the film was about.

However, sometimes the verb used might not be correct. In the extract above, even if the verb "explain" is used and required, it can be interpreted that what the teacher wants the student to do is to report, as she asks the student to tell another student what happened in the film they had watched.

Most of the time, 151 out of 185 to be exact, these functions are implicitly requested without mentioning an operative verb. In such cases, CDFs are elicited from students mostly by means of questions asked by teachers, in which operative verbs are not mentioned.

Extract 117
T2_En: why do you think a government support a drug Company in that way knowing that they are testing medicines in Africa? (open-ended question. CDF required EVALUATE).

Not all questions asked by teachers require CDFs, e.g. closed questions. Two types of questions have been identified which students answer through CDFs: display questions and referential questions. Display questions are used by teachers to test students' knowledge by asking them to "display" knowledge already known by the teacher (Wright, 2016). Referential questions differ in that the answers are not already known by the teacher at the time of asking (Wright, 2016) and they are considered more relevant for learning than display questions, as learners respond to this type of questions with "longer and more complex utterances" (Farooq, 2007:46). Although there are some differences between these questions, both are answered through CDFs. In the present study,

teachers use more display questions than referential questions, which is in line with Wright (2016), who highlights "the predominant use of display questions" in the teacher talk.

A link between the type of question and certain CDFs has been found. Display questions are mostly used by teachers to check whether students have understood and internalised content, by requesting from the students to define, report, describe, categorise and explain content. It is through these CDFs that students demonstrate the knowledge that is previously known by the teacher. Referential questions, however, are used to elicit the CDF EXPLORE and CDF EVALUATE, as they possess a personal opinion or stance, and the answers happen to be unknown for the teachers.

Either implicitly or explicitly, what is important is that learners are clear about what they are required to do with the content; whether they are required to explain something, to give a definition or a summary of what has been taught.

5.3.4. How is teachers' meta-talk in the teacher's discourse concerning the CDFs?

Studies in metatalk in L2 are more frequent than in L1, mainly focusing on its relevance to language proficiency, yet provide a source of information for the study of meta-talk and CDFs (Berry, 2005).

The few existing studies on meta-talk dealing with CDFs (Hoffman and Hopf, 2015; Dalton-Puffer, 2007; Lackner, 2012; Kröss, 2014; Dalton-Puffer, 2018), reveal a lack of awareness in their use by both students and teachers. Whilst it seems that teacher meta-talk is limited, it has been shown that meta-talk may be of value in the development of CDFs in order to develop the appropriate language needed to perform the CDFs (Hoffman and Hopf, 2015). Meta-lingual terms provide connections and structures by making CDFs overt, and prompt their incorporation into classroom discourse (Hoffman and Hopf, 2015; Hu, 2011).

Taking into account the importance of teachers' meta-talk regarding the use of CDFs, and the few studies carried out on this topic so far, this section presents an analysis of the meta-talk employed by our six teachers in the 6 different school subjects.

To this end, occurrences of meta-talk in accordance with the 7 CDF types were examined in the teachers' discourse. In total, 49 occurrences of meta-talk were identified. 15 of them correspond to the CDFs used by the teachers, and 34 of them to the way CDFs are requested from students. Each group will be examined separately.

As has been reported, the six teachers use CDFs frequently in their daily classroom activity. Students are exposed to 474 CDFs from the teachers in the period under study. In economics, for example, several macroeconomic concepts are defined; in mathematics, the teacher explains how to solve problems and how to calculate; in physical education, African dances are described. These CDFs produced by subject experts can serve as modelling for learners (Walqui, 2006; Dalton-Puffer et. al, 2018; Doiz and Lasagabaster, 2021), which is necessary for learners to develop their subject-specific literacy and academic functions (Walqui, 2006). In fact, students need plentiful opportunities to hear and use the discourse functions for each particular discipline (Doiz and Lasagabaster, 2021) in order to develop subject-specific literacy in all subjects and irrespective of the language of instruction.

When teachers mention the CDF type or the operative verb they are using, meta-talk can be easily identified. In the present study, the number of times teachers explicitly mention the operative verb have been identified and gathered in Table 23.

Taula/Table 18. Teachers' Meta-talk occurrences in teacher discouse.

CDF Type	Occurrences	%
Define	5/75	6,7
Categorise	4/35	11,4
Explain	3/103	2,9
Report	3/86	3,5

It is noteworthy that only 15 out of 466 times, the teachers mention either a CDF type of an operative verb through their discourse. As can be observed in the table, even though more occurrences of meta-define have been found (5 instances), in proportion, the most frequently realised type of meta-talk is meta-categorise, accounting for 11,4% of the total amount. Both meta-explain and meta-report only occur a couple of times. However, no meta-talk about EVALUATE, DESCRIBE and EXPLORE was identified in teacher discourse.

If we take a closer look at the table below, we can see that not all teachers realise meta-talk concerning the CDF. Half of the instances detected in the teachers' discourse, were realised by the economics teacher (8 instances out of 15). Three are realised by the maths teacher; and the English, history and physical education only realise one instance each. None of the instances were uttered by the Basque teacher.

Taula/Table 19. Teachers' meta-talk in the subjects.

	English	Economics	History	Maths	P.E.	Basque
Define	1	4	0	0	0	0
Categorise	0	1	0	3	0	0
Explain	0	2	1	0	0	0
Report	0	1	0	1	1	0

On the one hand, in 14 out of the 15 occurrences, the teachers mention the operative verbs in order to announce the actions they are about to perform. This type of metalevel is known as pre-emptive (Basturkmen et al., 2002), which is defined as the meta-talk that occurs before the utterance.

> Extract 118
> T4_E: How do we **define** Gross Domestic Product? It is the total value of all final goods and services produced within a country and during a given time. There are three things in bold in that definition: "**in a given time**". This is important. Normally GDP is always given for a period of time, usually a year. "**Final goods and services**". What does that mean? The goods and services that get to be counted in GDP are: the ones that people consume. And "**their value**". So in euros in our case. And in some states in dollars or so (DEFINE).

> Extract 119
> T3_H: I have to start explaining the next block. I have seen that you have already started working. You already know what the objectives of this project are, don't you? We'll move on, I won't dwell on that. What are we going to start working on now? Well, for me this is the most interesting part. We will start learning about geography a little bit. (EXPLAIN).

> Extract 120
> T6_PE: Yesterday David told us, and it was very interesting, that he didn't have any material to play. In Tetuan, the experience Fatima's mother told us was very different from David's experience. He had a ball, he played a thousand things, but he had no equipment, he used to do parkour with a wall. But he was happy, and he said he will come back. (REPORT)

In the first two examples, the teachers announce the type of discursive function they are going to perform, and in the third, the teacher refers to the experience David told them about the previous day, and she repeats it again.

And on the other hand, the only case left to describe can also be categorised as a pre-emptive meta-talk, as the teacher mentions it before the utterance takes place. However, this time, instead of announcing the CDF to be used, the teacher explains the steps they have to follow to make a correct synthesis:

> Extract 121
> T7_M: You will be graded, as I will explain later, through the texts. If these texts do not have a correct structure, if you are not making an effort to synthesise and

express the ideas you really want in a correct way, they will not be correct. That means that if you don't do this, you can also get an "F". Handing in a task does not mean it is passed. Structuring a text is difficult, it must contain an adequate synthesis, the sentences must of course be meaningful, clean, and comprehensible. If I find 4 sentences that I don't understand in a text, the text is not valid. So, if I am required to read 4 texts, I'm not going to start summarising them before reading the 4 texts. Some people summarise the text as they are reading them, and that is not possible. Read all the texts first, understand them. Consider what is being discussed and then, take the most important ideas and make a little outline. And then you can make a synthesis. But as long as you have read the text. Remember that.

There also exists another type of meta-talk, termed *reactive* meta-talk, which "seems intended to draw students' attention to verbal-cognitive action that is being performed, with reactive talk focusing on critique" (Dalton-Pufer et al., 2018:17). In the present study, all the meta-talk concerning CDFs uttered by the teachers are *pre-emptive* meta-talk. This is in line with other studies that show that pre-emptive meta-talk occurs more frequently than reactive meta-talk (Basturkmen et al., 2002; Hoffman and Hopf, 2015).

Making reference and mentioning a certain CDF, might help learners to identify examples of certain CDFs. Nonetheless, there is only one case where the teacher makes reference to the structure or form of how these CDF are constructed. Walqui (2006) points to the need for modelling not only for the tasks required, but also for specific functional language such as describing and explaining, which could be accomplished through meta-talk.

Just a limited number of instances of meta-talk has been identified in the corpus analysed. As is the case in other studies (Lackner, 2012; Dalton-Puffer, 2007; Kröss, 2014; Hoffman and Hopf, 2015), the few occurrences of meta-talk found in teachers' discourse indicates lack of metadiscourse concerning the cognitive discourse functions. Furthermore, in line with what Hoffman and Hopf (2015) concluded, in the present study meta-talk also seems to occur randomly, without no conscious attention.

To finish with, these findings are in line with Lemke (1990) and Dalton-Puffer (2013), who state that whilst CDFs may be employed in class to convey information and are encouraged, teachers rarely explicitly mention how they are to be used.

As has been previously described, 34 out of the 49 occurrences of meta-talk correspond to the way CDFs are requested from students. In the previous section, we have seen that CDFs are requested both implicitly and explicitly. These 34 occurrences correspond to the CDFs that are explicitly requested:

Taula/Table 20. CDFs explicitly requested by the teachers.

CDF requested	Occurrences	%
Define	8/40	20%
Categorise	6/16	37,5%
Explain	9/32	28,1%
Report	4/43	9,3%
Evaluate	6/21	28,6%
Describe	1/20	5%

If we compare this table with the meta-talk related to the CDFs used by the teachers, the difference is remarkable. It can be concluded that the teachers in the present study explicitly mention the operative verbs or CDF type requested from students more frequently than when they use these in their discourse.

This is how the presence of the 34 occurrences are distributed among the six disciplines:

Taula/Table 21. CDFs explicitly requested by the teachers in the subjects.

	English	Economics	Maths	History	P.E.	Basque
Define (8)	8	0	0	0	0	0
Categorise (6)	3	1	2	0	0	0
Explain (9)	1	3	0	3	2	0
Report (4)	0	3	0	0	0	1
Evaluate (6)	2	0	4	0	0	0
Describe (1)	1	0	0	0	0	0

We have previously seen that the economics teacher was the teacher who did the most meta-talk when announcing which CDF she is going to perform. However, the English teacher is the teacher who most frequently asks for CDFs explicitly using operative verbs. The history, physical education and Basque language teachers often request CDFs in an implicit way.

As with the CDFs used by teachers, the type of meta-talk that teachers make when requesting CDFs is also *pre-emptive* meta-talk. It seems that mentioning the operative verbs explicitly can help learners to understand what they are required to do. However, some cases have been found when the operative verb requested do not coincide with the function students should do linguistically. This is the case of EXPLAIN, for example.

In the following extract, the teacher requires the student to "explain", but what the learners should do is to justify their answer (evaluate). The teacher uses the verb explain, but she asks a question starting with "why" who implies reasoning.

> Extract 122
> T4_E: Do you think globalisation is good or bad?
> Student 1: Both.
> T4_E: Good and bad? OK.
> Student 2: It's good, but it also has problems.
> T4_E: OK, it's good, why is it good, Nahia?
> Student2: Equality?
> T4_E: Equality? Why do you say that? **Explain** it to me.
> Student 3: it facilitates communication.
> Student 4: development.

In the following example students are required to describe, but the verb the teacher uses is EXPLAIN.

> Extract 123
> T3_H: What it asks is what different raw materials can be found in Africa. What you will have to do is a research, a general analysis. You have to make a list of the raw materials and place them in each state. You have to carry out a small study, and **explain** which raw materials there are.

Here, instead of EXPLAIN, the operative verb should be REPORT:

> Extract 124
> T3_H: Yes, the opinion at the end. You cannot give your opinion when writing about the historical moment, nor when making the analysis... In the analysis, remember the main idea and secondary ideas. And then you explain what it is said in the text.

In the next one, no CDF is requested, but the verb "AZALDU" is used to ask students for the name of a mountain:

> Extract 125
> T3_H: **explain** for example one mountain.
> Student: Kilimanjaro.
> Student 2: in Mozambique.
> T3_H: Kilimanjaro is one of the most famous.

Here, the English teacher uses the verb EXPLAIN, but the student is required to REPORT:

> Extract 126
> T2_En: **Explain** her a Little bit what the film was about.

As can be seen in the extracts, the verb *explain* is frequently used in Basque, and can have several meanings. Something similar happens with the verb report. In the following case, the teacher asks the student to report why Africa is not poor, and uses the verb REPORT instead of EXPLAIN/REASON:

Extract 127
T5_B: and is it not poor? **Tell** *(kontatu)* us, Nahia.

This misalignment between the verb used and the objective of the tasks may be caused by the fact that some Basque verbs have multiple meanings. But it may also imply a lack of awareness of CDFs on the part of the teachers, which might make it difficult for the learner to utter subject-specific CDFs.

In the following section, the CDFs used by students will be examined in detail.

5.3.5. CDFs used by students

"CDFs concern both teachers and students" (Dalton-Puffer, 2016), but to different extents. Teachers use CDFs from the point of view of being experts in the subject. However, in order for students to progress from novice to expert, they have to progress simultaneously along the conceptualising continuum, and the communication continuum by means of CDFs (Coyle and Meyer, 2021).

CDFs have also been identified in the students' discourse. If we compare the amount of CDFs used by students with the amount used by teachers, we see that students use only about a third of the CDFs used by teachers (174 against the 464 used by teachers). This implies that teachers continue to take the lead in class. Students use CDFs when they respond to teachers' demands, when they carry out tasks, when they make contributions and when they initiate interaction. So, the more we encourage students to speak out, and the more prominence we give them, the more CDFs they will have to use. Therefore, if we want our students to achieve deeper learning while developing different subject-specific discourses, cognitive-linguistic operations need to be performed by the students.

Taula/Table 22. CDFs used by students.

	Economics	Basque	Mathematics	English	Physical Education	History
Categorise (35)	0	1	2	3	0	1
Define (75)	3	2	12	17	0	1
Describe (132)	6	8	4	3	4	0
Evaluate (27)	19	8	0	2	0	0
Explain (103)	6	1	5	10	0	2
Explore (6)	9	1	0	5	0	0
Report (86)	6	12	7	17	0	1

There is a slight difference between what students are asked to do and what they actually do. This can be seen if we analyse and compare the CDFs requested from students, and the CDFs used by students (Table 23). Sometimes students use certain CDFs more times than they are asked to, sometimes less, and in the case of REPORT, students use this CDF as many times as they are asked to. It is of interest to explore why this might happen.

Taula/Table 23. Comparison between the CDFs requested from students and the CDFs used by the students.

CDFs	CDFs requested from students	CDFs used by students
categorise	16	6
define	40	35
describe	20	22
evaluate	21	29
explain	32	24
explore	11	15
report	43	43

After analysing all 174 CDFs used by students, we noticed there is no case in which the teacher asks for one CDF and the learners answer using another CDF. But sometimes it may happen that students do not respond to what teachers ask them to do. It is important to find out why this takes place. It could be for example that students do not

know the answer. It could also happen that the teacher asks more than one question in a row. In such cases, students usually only answer the last question. It could also occur that students make contributions without being asked to do so. We will now look at how students use these CDFs.

The CDF REPORT is the most frequently used CDF and also the lengthiest and most complete CDF used by students, and it is used everytime teachers ask them to report and summarise.

DEFINE is one of the most used CDFs by students. In English, students are asked to define in groups several words related to diseases and then they share the definitions with the whole group. Students have time to look up information on the internet and write them down. In these cases, the definitions are fairly complete and most of them include CATEGORISE such as in the next example:

> Extract 128
> Student: infectious diseases are **disorders** caused by organisms, such as bacterias, viruses, funghi or parasites.

However, at other times, students are asked to provide a definition straight away. In these cases, instead of giving a complete definition, students give examples, categorise, give a synonym, or the Spanish translation but are, in all cases, interactionally effective as Dalton-Puffer et. al, (2018) report.

> Extract 129
> T4_E: what does the word "deficit" mean?
> Student: lack
> Student: Non-infectious, not caused by infections.
> T4_E: What is bitcoin?
> Student: a type of inversion.

As can be seen in the Extract above, students use CATEGORISE both when they are asked explicitly to categorise, but also when they define, as teachers do.

In the students' discourse, the students' ability to reflect can be highlighted. Not only do they use the CDF EVALUATE when they are asked to do so, but the students also give their opinions on the topics being worked on and are critical of the information presented to them, both in the videos and when presented by the teacher.

Another frequently used CDF is EXPLAIN. Students use the connector *because* when reasoning in English and the ending *-ela/-lako* when explaining in Basque. But they often give short answers and do not complete sentences:

Extract 130
Student: **because** she refused.
Student: jaiotze-tasa altuagoa d**ela** (*that the birth rate is higher*)

Descriptions are also quite short, and they can sometimes be found within explanations and definitions. And in the cases where students use EXPLORE, we can find words like "maybe", supposition or conditional sentences, there are few cases from which to draw any conclusions.

In general, students' turns are quite short. They may comprise one or two words, and sometimes CDFs are incomplete. Sometimes students' use of CDFs is incomplete, and they are not always able to use a CDF by themselves, and require the help of the teachers in order to define, explain or report. Therefore, in the next section, we will analyse how students co-construct CDFs together with the teachers, how CDFs are scaffolded by the teachers, and how teachers respond to these acts of translanguaging.

Furthermore, it is worth noting that students use translanguaging in their answers. When they are in the English class, they use Spanish words as a strategy when they do not know how to say something in English. However, when they are talking in Basque, they also switch codes between Spanish and Basque on a regular basis, and they also use both languages in the same sentence:

Extract 131
Student: hori ez dala errealidadia, da lo que nos hacen ver. O los niños super pobres zuk emateko dirua ONGei y no se que, edo hau.
(Blue in Basque and Spanish in green)

Another issue that needs to be considered is that no meta-talk is used in students' discourse. Basturkmen et al. (2002) point out that both teachers and students can use meta-talk, although different studies show that student-realised meta-talk is not as frequently used as teacher-realised meta-talk (Hoffman and Hopf, 2015). However, "the correlation of meta-language and meta-linguistic knowledge appears to be of great advantage for learners" (Hu 2011: 181). One of the reasons for the lack of meta-talk realised by students may be the lack of linguistic labels, which are important to understand linguistic constructs (Ellis, 2004).

5.3.6. What strategies do teachers use to scaffold CDFs in the classroom?

A great deal of research in relation to scaffolding strategies in different subject areas has become available over the last decade. However, to our knowledge, there is no evidence

of studies about how CDFs should be scaffolded in classroom interaction. Therefore, we will examine how the six teachers taking part in the project do it.

In the present study two types of scaffolding have been identified. On the one hand, teachers try to help students scaffold CDFs that are not complete or not used correctly, both in terms of content and form, as these are inextricably linked. However, the CDFs performed by the students are not always scaffolded by the teachers, either because they are well performed or because teachers consider them to be valid. On the other hand, in order for the students to be able to perform the CDFs, subject related knowledge should be constructed and internalised by the students. The scaffolding of knowledge construction is also examined in the present study. Thus, this section will be structured into two parts. First, the scaffolding of the CDFs uttered by students will be examined, and then the analysis of how teachers scaffold knowledge construction needed so that students can perform CDFs will be presented.

5.3.7. Scaffolding of the verbal realisations uttered by students

We have previously seen that students are not always able to use the CDFs properly, either because of a lack of content or a lack of the way of expressing the content. Therefore, and as academic language is not automatically acquired, students need the help of teachers in order to verbalise the cognitive functions requested. In order for the mastery in the use of CDFs to occur, not only must knowledge be accessible and built, but also the means (linguistic forms) for its verbal representations need to be acquired (Dalton-Puffer, 2016). This author suggests that students who are required to produce definitions can be explicitly supported by being shown how to do so in terms of words and grammar (Dalton-Puffer, 2016). For this reason, teachers play a fundamental role in this process, as students require the teacher's help to make progress.

Scaffolding of verbal realisations might occur not only in interaction between teacher and students, but also between peers. However, in the present study, focus will be placed on teacher-students interactions. Initiation-Response-Feedback (IRF) resulted in the most repeated pattern in interaction. The IRF pattern consists of the teacher initiating the interaction, the students responding, and the teacher giving feedback to the students' responses. Other studies have also demonstrated that this pattern is still "the most common pattern in classroom interactions" (Dalton-Puffer, 2007; Saswati, 2018; Mortimer and Scott, 2003).

Even if Lackner (2012) critiques that the IRF pattern might distort the realization of discourse functions, as enough space for individual utterances is not offered, in this

section some examples will be presented in which CDFs are scaffolded within IRF sequences by giving students feedback on their responses.

However, scaffolding does not occur in all interactions. In some cases, teachers react to students' responses without providing the students with feedback so that they can improve their outcomes. Scaffolding will not occur, unless feedback is given to students and meaning is negotiated. Regarding the feedback provided by the six teachers, two types of feedback have been identified in teachers' talk: interactional feedback, which is limited to agreeing or disagreeing with the students' responses (Saswati, 2018), commonly referred to as IRE (Initiation-Response-Evaluation); and pedagogic feedback (Saswati, 2018), which aims at helping learners scaffold the use of CDFs not only by evaluating their outputs, but also making them improve their answers by means of various scaffolding strategies. The present analysis will focus on the latter, the IRF patterns which include pedagogic feedback. We will see which strategies the six teachers under analysis use in order to scaffold the CDFs used by students in teacher-student interaction, and how they use them.

Most of the IRFs under analysis are initiated by questions asked by teachers, the same way as Howe et al. (2019) states. However, depending on the type of question with which an interaction is initiated, the response of the learners will be different as reported by Howe et al. (2019). This will allow the feedback to focus more on some aspects of the CDF than on others, as will be seen in the excerpts presented along this section. Questions are also used by teachers while interacting in order to elicit CDFs and in order to scaffold student's responses.

Out of the 174 CDFs used by the students, 29 cases have been identified where students use a CDF which is not complete (either because of a lack of cognitive resources or discursive resources) and teachers help them to perform the verbalisation of these by encouraging them to develop their answers through the use of various strategies.Through the analysis of all IRF extracts, it has been identified how the CDFs used by the students are scaffolded and which strategies teachers use in the follow-up phase of the IRF patterns, which have been collected in the following table:

Taula/Table 24. Strategies used by the teachers when scaffolding CDFs uttered by students

	Econo-mics	Maths	English	Physi-cal Ed.	Basque	History
Providing examples	3	3	1			**7**

	11 str. 30 t.	7 str. 15 t.	10 str. 46 t.	1 str. 1 time	2 str. 2 times	1 str. 1 time	18
Asking questions / Elicitation. Types of questions: Funnel questions (4), further questions to elaborate the answer (6), asks for justification (6)	4	3	8				**15**
Clues	1						**1**
Evaluation. "This is a very good beginning".	1		3		1		**5**
Form-focused feedback		1					
Repeating the same question					1		
Requesting answers using academic language	1						
Amplifying	5		4	1			**10**
Provide the student with the word they need to complete the answer.			3				
Building on: information input	2	2	6				**10**
Giving the answer: modelling	3	1					**4**
Recast			4				**4**
Reformulation/revoicing	6	2	7				**15**
Repetition	3		5				**8**
Request for clarification	1						**1**
Request for reformulation		3					**3**
Request for translation			5				**5**
Providing supportive material						1	**1**

Some teachers use considerably more strategies than others, and in the same vein, some strategies are more used than others, being the most frequently used ones those in bold: elicitation by questions, revoicing, information input, and completing students' answers. Both the English and the economics teachers are the ones who use more strategies in order to scaffold students' answers. Furthermore, the English teacher uses such strategies more frequently than anyone, followed by the economics teacher and the mathematics teachers. In contrast, the physical education, Basque and history teachers hardly use any strategies to encourage the use and mastery of the CDFs used by the students.

Among all the strategies from the list, three types of strategies can be been differentiated. Some are used to scaffold various cognitive discursive functions, i.e. the same strategy is used by different teachers to scaffold sometimes a definition, and other times an explanation for example. However, other strategies are related to the scaffolding of a

specific CDF type. And thirdly, there are also a few strategies that are only used to scaffold the form, and not meaning.

In order to examine how these types of strategies have been used or how useful these three types of strategies are, the following table classifies the 18 strategies used by teachers according to whether they are general strategies that can be used to scaffold any type of CDF, to scaffold specific CDFs or to scaffold form.

Taula/Table 25. Scaffolding strategies regarding their function.

CDF TYPE	Strategies for scaffolding specific types of CDFs	Strategies for scaffolding any type of CDF	Strategies to scaffold form
REPORT (6)	Funnel questions Closed questions Modelling REPORT	Evaluation Reformulation Requesting for birformulation Repetition Recast Completing students answers Clues Input of information	Recast Requesting for birformulation Revoicing
DESCRIBE (1)	Modelling DESCRIBE Information input: providing students with definitions		
DEFINE (12)	Funnel questions Providing real examples Asking for more definitions of the same term Translation Comparison of terms Modelling DEFINE		
EXPLAIN (4)	Funnel questions Birformulation of explanations Modelling EXPLAIN		
EXPLORE (1)	Modelling EXPLORE Requesting for justification		
EVALUATE (5)	Requesting for justification Modelling EVALUATE		

CATEGORISE (1)   (no specific
                  strategies have
                  been found)

12 out of the 29 CDFs that are scaffolded through teacher-student interaction belong to the CDF type DEFINE, 6 to REPORT, 5 to EVALUATE, 4 to EXPLAIN, 1 to EXPLORE, 1 CATEGORISE and 1 to DESCRIBE. To a greater or a lesser extent, scaffolding of at least one of each type of CDF can be found.

When scaffolding the realisation of a CDF, several strategies are usually used and combined by the teachers along the same IRF sequence. These strategies are used to scaffold several types of CDFs, and together with such strategies, other specific strategies are also used by the teachers in the same sequence. The CDF type DEFINE is the by far the most frequently scaffolded CDF. It is also one of the most used by students. Consequently, more strategies (6) related to the scaffolding of this specific CDF than others have been identified, such as: translation or the comparison of terms, among others. In the following extract we can see how the English teacher asks the students to DEFINE certain terms and how she scaffolds the learners' answers:

1 I T	T2_En:	ok. Now, Telmo, non-infectious.
2 R S	Student 1:	Not infectious…
3 F T	T2_En:	you have to read it louder.
4 R S	Student 1:	ok. Non-infectious not caused by infections.
5 F+I T	T2_En:	not caused by infectious. Ok, it is a beginning. Someone of you have something else? // No one? Nora?
6 R S	Student 2:	diseases that are not contagious.
7 F+I T	T2_En:	diseases that are not contagious. Ok, more or less is that. One thing is having and infectious and another one is not having. / Now, can you give me examples of infectious diseases and not infectious? For example, Ainhoa.
8 R S	Student 3:	malaria, AIDS, flu.
9 F+I T	T2_En:	ok, so all of them are contagious by viruses, bacterias… Now, non-infectious, Maria?
10 R S	Student 4:	allergies, cáncer.
11 R S	Student 5:	esquizofrenia.
12 F+I T	T2_En:	allergies, cáncer, esquizofrenia… / Have you the same? Do you understand why those are not contagious?/
13 R S	Students:	yes
14 F/I T	T2_En:	really? Can you tell me why cáncer is not infectious?
15 R S	Student 2:	because one person can't contagious another one.
16 F T	T2_En:	some diseases can not be spread from one person to another person.
17 R S	Student 3:	but it can be spread in your body.
18 F+I T	T2_En:	aaah, but it can in your own body. You are right, Jon. For example, which non-infectious diseases can be spread from one part to another part of your body?
19 R S	Student 1:	Cancer.
20 R S	Student 4:	but it is non-infectious.
21 F T	T2_En:	yes, it is non-infectious, but it can infect other parts of the body. / ok, you did it great!

In the follow-up phases (F), the teacher uses several strategies to help learners build and complete the definitions. In line 5, the teacher uses the phrase "It's a beginning" to evaluate the student's response (evaluation). This implies that the definition is not complete, and the teacher asks for examples of the same definition, which helps to co-construct knowledge. Evaluation to responses is also carried out by using the phrase "ok, more or less is that" in line 7, and by repetition (line 7), reformulation (line 16) (Saswati, 2018) or by providing more information to complete students' answers. In line 7, after the teacher repeats the student's answer, the teacher also tries to improve students' outcomes by making them compare two terms, that are *infectious* and *non-infectious* diseases, as well as asking them for examples of each of the disease types. This comparison and exemplification might help students to differentiate and build both definitions, which is the aim of this IRF sequence. These two last strategies (*comparing terms* and *asking for examples*) are used specifically to scaffold definitions.

Apart from evaluating and completing the answers by means of the above-mentioned strategies, on several occasions, the teachers ask questions with which the IRF pattern is restarted, creating F+I and F/I phases. The former means that the follow up phase is composed of both, a follow up and an interaction; while the latter means that the follow up phase is an initiation. In lines 14 and 18, for example, funnel questions are used to ask for specification and completion of the CDF. These funnel questions require the student to understand the definition, and they have the aim of helping the students to carry out the given task. For this, the teacher uses closed questions, which serve as funnel questions and might be easier for the students to answer. According to Tang (2019: 318-319), this technique is usually used "to intuitively ask a narrow question with the aim of eliciting an expected answer".

After the students' answers, teachers often pose further questions for the students to develop their answers. Questions can be used to scaffold different CDFs, but depending on the type of CDF to be scaffolded, different types of questions are used. On the one hand, as we have seen in the example above, funnel questions are sometimes used to scaffold REPORT and EXPLAIN, for example, i.e. questions that seek precision, as these help to determine the answer. These questions can be either more closed or more open-ended depending on the information the teacher wants to seek. For EVALUATE and EXPLORE, on the other hand, referential questions are commonly used, which require justification, which is part of these CDFs. Now, two extracts are presented below. One showing how referential questions are used to scaffold the CDF EVALUATE, and another extract showing how to use funnel questions to scaffold REPORT.

On the one hand, in the following interaction, where the CDF type EVALUATION is used, the teacher uses referential questions to lead and scaffold the students' answers. Referential questions are characterised by being questions starting with "how" and "why". Thus, the students have to justify, give their opinion, reflect… to answer these questions, which implies a deep understanding of knowledge.

```
1 I T     T4_E: What do you think, is globalisation good or bad?
2 R S     Student 1: both.
3 F T     T4_E: good and bad? Ok.
4 R S     Student 2: it is good, but it causes some problems.
5 F/I T   T4_E: ok, it is goo. Why is it good?
6 F/I T   T4_E: T6_PE, why is it good?
7 R S     Student 3: equality…?
8 F/I T   T4_E: equality? Why do you say that? Explain it.
9 R S     Nahia: because…
10 F+I T  T4_E: Globalisation is good. Why? Most of you have said that it is good.
11 R S    Student 4: because it facilitates communication.
12 R S    Student 5: development.
13 F T    T4_E: because it facilitates communication, social relationships...
14 R S    Student 5: transport.
15 F+I T  T4_E: transport. Everything. Free trade is a great joy. We have no limits
          to satisfy our needs. That gives us freedom. And why could it be bad?
16 R S    Student 6: Because it closes small businesses.
17 F+I T  T4_E: the production of local products has fallen on deaf ears and small
          businesses have lost out. But if you were asked today, is globalisation
          an option? What would you answer?
18 R S    Student 7: yes.
19 R S    Student 8: yes, right now, it is a necessity.
20 F T    T4_E: ok, we will continue with this later. Now read the text.
```

In the excerpt above, in addition to taking a position for or against globalisation, students are also asked to justify their position and to give arguments every time they answer. It might be a good strategy to make students complete their answers while constructing knowledge. However, in this interaction, students share various ideas, but the interaction is not built on the students' responses. In line 17, for example, the teacher reformulates the student's answer, which is important, but instead of developing his idea, the teacher closes the student's answer, using a closed question, through which she asks the students whether they are for or against globalisation.

On the other hand, in the following example, the teacher asks students to REPORT what has happened in the film, but the student shows no ability to narrate it. The English teacher asks the student questions (both funnel and closed questions) through which the student should share the most important details of the film, and she keeps asking questions until they manage to build and report what happened in the film all together. Here, it is the teacher who leads the interaction and who controls the turn taking (Dalton-Puffer, 2007).

```
1 I T      T2_En: who can tell me where we were. // What has happened?
2 R S      Student 1: the boy…
3 F/I T     T2_En: what's the name of the man?
4 R S      Students: John
5 F+I T     T2_En: ok, what happened to the man?
6 R S      Student 2: he persuaded.
7 F+I T     T2_En: ok, he persuaded. Why?
8 R S      Student 3: because he worked for Diprasa.
9 F+I T     T2_En: ok, the ones belonging to Diprasa. What was Diprasa?
10 R S     Students: a pharma Company.
11 F+I T    T2_En: a pharma Company, right? Who does it produce?
12 R S     Student 4: pils.
13 F/I T    T2_En: Pils for what?
14 R S     Student 5: to proof them..
15 F+I T    T2_En: Those pils are proofed, Nora says. Where?
16 R S     Students: (no response).
17 F+I T    T2_En: with the African people. Why do you think this happens? What
            do you think?
18 R S     Student 6: because… de prueba.
19 F T     T2_En: ok. They are testing the medicine in African people.
```

The questions teachers ask to initiate and promote interactions with students are important, but the key to scaffolding knowledge, and in turn CDFs, is in the feedback phase. Thus, using appropriate questions may not be enough to scaffold CDFs. Students' answers or CDFs used by them should not only be evaluated, but also improved. On several occasions, teachers instead of continuing scaffolding students' answers, provide the correct answer, i.e. the required CDF is modelled. Modelling (Walqui, 2006) offers students exposure to how CDFs are performed, and it is used as a strategy to scaffold all CDF types. In the present study, modelling of defining, explaining, reporting, describing and exploring have been found.

```
1 I T      T4_E: In general, what can we conclude?
2 R S      Student 1: That the birth rate is very high.
3 F T      T4_E: That the birth rate in Africa is much higher than in Europe.
```

One of the main problems students face when learning a subject or expressing subject-specific content, is subject-specific terminology. This can be seen mainly in mathematics and economics. Terminology is part of academic language and subject-specific literacy. Subject-specific literacy requires mastering specific terminology as well. This can be seen in the following extract, where the student instead of using the term *unemployment rate*, uses the demonstrative "this" as a general word to refer to the term learnt in the subject of economics, and the teacher asks the student to use the proper term.

```
1 I T      T4_E: What will happen with the unemployment rate?
2 R I      Student 1: Decrease.
3 F/R T     T4_E: Decrease. So it is good. What do I want to show you with this?
4 R I      Student 2: if that decreases…
5 F/I T     T4_E: what is "that"?
6 R I      Student 2: unemployment rate.
7 F T      T4_E: that's right.
```

8 R I	Student 2: if the unemployment rate decreases and people are at work, people will consume more.
9 F T	T4_E: very good!

Moreover, as the same word can have different meanings depending on the subject and the situation, in order for students to use subject-specific terms, these are sometimes taught. In the following extract, for example, the economics teacher explains the meaning the verb "to grow" has in the subject of economics. She differentiates it with the meaning the verb commonly has.

1 I T	T4_E: Let's complete the information that we all have, because maybe we'll use this data for our own production. Come on, what are their characteristics?
2 R S	Student 1: that they are a group.
3 F T	T4_E: that it is a group.
4 R S	Student 2: great production capacity.
5 F T	T4_E: great production capacity, ok.
6 R S	Student 3: they are in different countries.
7 F T	T4_E: They are based in different countries.
8 R S	Student 4: There is usually a head office and then the others.
9 F T	T4_E: This head office is called the parent company and the subsidiaries. That is also important to know. There are multinationals in many places, in many countries, but there will always be a parent company in some way, a parent company. And the other subsidiaries. There is always one who is in charge in some way, who makes the organisation. The genuine one. Where that multinational started from and then expanded, grew, and has one there, another one there. They are their subsidiaries, but it's all one company. [...] Anything else? Some characteristics of multinationals have come out: the parent company has control over the subsidiaries. It is the parent company that controls and plans. Another characteristic, everything is centralised in the parent company. It is big as you said. **Multinationals are always growing. [..] Growing is part of multinationals. But not growing in size. Growing is about increasing production capacity. To sell more. That is their objective.**

The students mention characteristics of multinationals, each student shares one characteristic, but the full description is given by the teacher. It is worth mentioning that in this case, students' responses are short, and the teacher focuses only on whether the characteristics of the multinationals mentioned by the students are correct, without asking the students to elaborate their answers. However, in line 7 the teacher completes the student's answer by adding the verb to the response.

In the last part of turn 9, it can be seen that the teacher makes use of everyday language as a way to reformulate her explanation, and in order to facilitate the understanding of academic terms. The teacher defines and explains what the verb "to grow" means in economics: that growth does not mean in size, but rather that the company's production is larger. It is important to clarify and work on the academic language related to the subject. This strategy is often repeated by this teacher. However, it should be the

students who use academic language, not just the teacher. This interaction could also be used to ask the students to use academic language by asking them to give a full description of the multinationals, which would allow the teachers to scaffold not only the content, but also the linguistic forms used by the students.

Apart from the mastery of subject-specific terminology, students also need to impove they way to verbalise the content required. Some cases have been identified in which students do not do not express what they want to say in a correct way, as can be seen in the extract below. In this case, the student starts to EXPLAIN/DEFINE what a "time bank" means, and the teacher asks him to start the explanation/definition again. With the aim of helping the student, the teacher asks him specific questions, which scaffold the definition provided by the student:

1 I T	T7_M: does anyone hear about the time bank?
2 R S	Student 1: that is to make a barter. In order for them to give you something, you have to give them something. For example, when you can't find something you want.
3 F/I T	T7_M: **start again. Try to express that idea better..**
4 R S	Student 1: when you want to do a barter you need…
5 F/I T	T7_M: barter, what type of barter?
6 R S	Student 2: time.
7 F+I T	T7_M: time barter. And when you say doing a barter, what do you mean?.
8 R S	Student 1: for example, I do something, I spend my time doing something for you.
9 F/I T	T7_M: Giving private lessonsfor example. And what do I give to you?
10 R S	Students: money.
11 F T	T7_M: no, money no.
12 R S	Student 2: something else with your time.
13 F T	T7_M:That's it. For example, I give you private lessons, and you water my plants in summer because I'm away all month long.

This is a good example of how the CDF DEFINE can be built and scaffolded. Several strategies can be identified within the feedback provided by the mathematics teacher, such as funnel questions in line 5; asking the student to make an interpretation of her words, by asking the student to clarify the answer given in line 7; or giving examples of what a time bank means in line 9. Through these strategies, the learner builds up all the knowledge needed to be able to define the corresponding term. In addition, the teacher finishes the sequence by defining what a "time bank" is through an example. However, in order to complete the scaffolding of the CDF DEFINE, rather than the teacher giving the definition in line 13, students could be asked to define the term after the interaction that has been correctly led by the teacher.

Most of the strategies mentioned so far might be useful to scaffold meaning and form simultaneously. This means that even implicitly, form is also scaffolded, as in the process

of knowledge construction curricular content and language are inextricably linked, and which is in line with Saswati (2018), who claims that "IRF has the potential to increase language learning opportunities, as it is considered to be both form-focused and meaning focused".

Nevertheless, there are some cases where attention is just paid to form. In the following excerpt, for example, we can see that one student starts to answer the teacher's question in Spanish, but the teacher quickly interrupts him and asks him to answer in English.

```
1 I T      T2_En: ok, and what is chronical, Jon?
2 R S      Student 1: pues que…
3 F T      T2_En: pues que no, in English.
4 R S      Student 1: lasting in a long time.
5 F+I T    T2_En: lasting for a long time. / Ok, the difference between acute and
           chronical? What is the difference?
6 R S      Students 2: that acute is lasting for a very short time.
```

Furthermore, in line 5, the teacher also corrects a grammatical error the student has made in his answer. Instead of telling him that what he has said is not grammatically correct, the teacher repeats the answer given by the student, but correcting the error made by the student (recast). The strategy used by the teacher has a positive effect on other students, not only on the student who made the mistake. In line 6 we can see that another student uses the grammatical form corrected by the teacher when defining the following concept.

Regarding linguistic aspects, grammar is not the only aspect of language that is scaffolded in such interactions. Sometimes, the students are not able to use certain CDFs on their own because of a lack of proficiency in the language (not necessary subject-specific terminology), especially in English, as it occurs in the following example. The student does not know how to say a word in English, and she makes a gesture with her hands to describe what she wants to say. The teacher gives her the word she needs to complete the CDF CATEGORISE. Other ocassions focus is placed on form is when teachers ask for the translation of a term, when students use a word in Spanish while speaking in Basuqe or when academic language is required.

```
1 I T      T2_En: Which is the difference between epidemic and endemic?
2 R S      Student 1: that endemic is only in one place and epidemic can be…
           (moving hands)
3 F T      T2_En: anywhere.
4 R S      Student 1: yes.
5 F+I T    T2_En: great. Have you understood the difference now?
```

As has been mentioned before, feedback is not always given to learners' responses, leading to an absence of scaffolding. Students often do not complete whole sentences.

As we have seen in several examples, they give one- or two-word answers, and teachers take these answers as valid. Several cases have been identified where the linguistic form of the CDFs could be scaffolded, but this is not done. In the following extract, the teacher asks the students to describe African dances, and one of the students responds with a single word "instruments", instead of answering with a complete sentence and using the CDF DESCRIBE properly.

1 I T	T6_PE: what do African dances have in common?	
2 R S	Student1: instruments.	
3 F+I T	T6_PE: there are always drums. What else?	
4 R S	Student 1: movement.	
5 F T	T6_PE: yes, they have *loose hinges*, don't they?	

In this case for example, the physical education teacher accepts one-word answers. She does not ask students to elaborate their answers. This situation could be used as an opportunity to scaffold the CDF DESCRIBE.

Another issue that needs to be considered is that pupils frequently translanguage or directly answer in Spanish when the language of instruction is Basque or English. Among these actions, two types of translanguaging can be differentiated: when they use it as a strategy and resource for communication, which is frequently found in English classes; and when they use the hegemonic language, in this case Spanish, when the language of instruction is Basque, apparently because they are used to mixing the two languages on a daily basis. Regarding the former, in most cases, teachers give feedback and help pupils with the language by providing them with the correct word, as we have seen in. Regarding the latter, however, teachers do not often react and let pupils use Basque and Spanish interchangeably.

Student: Ura izan bihar da super inportantia, porque necesitamos eta ez degunez euki bihar… Esaten dabe ura izan bihar dala el siguiente petróleo.
T5_B: eta orduan salduko dute ura.
(*the parts in black are in Basque and the purple ones in Spanish*)

As has been mentioned above, when the CDF uttered by students is not complete, sometimes it is scaffolded and sometimes not. It should be noted that there is insufficient evidence to confirm that all the strategies employed by the teachers have a positive effect on the scaffolding of students' CDFs, since they are not given the opportunity to use the same CDF again after the feedback or correction.

5.3.8. Scaffolding knowledge construction as part of scaffolding CDFs

Besides scaffolding the CDFs uttered by students, conceptual knowledge must also be constructed to enable students to perform CDFs (Coyle and Meyer, 2021). Thus, the internalisation of knowledge is fundamental for the scaffolding of CDFs. Therefore, after presenting how teachers scaffold the CDFs performed by students through interaction, in this section we will analyse and present how teachers scaffold knowledge construction.

Previoulsy, we have seen that teachers talk more than students, and that they also use more CDFs. Moreover, teachers, occasionally, do not interact with pupils. Teachers tend to be the ones who give explanations, who teach the curricular content and who describe and present the activities to be carried out by the students. Thus, certain parts of the lessons are teacher-centred, and are termed as monologic classroom discourse by Dalton-Puffer (2007:31) where "longer stretches of coherent teacher talk is the classic lecture-type format for presenting curricular information". This way, even if students do not take part as active participants and attention is not paid to form, the content needed to use the CDFs is scaffolded.

The following table provides a list of strategies teachers use for knowledge construction:

Taula/Table 26. List of strategies teachers use for knowledge construction

	Economics	Maths	English	Physical Ed.	Basque	History	
Birformulation	1	2				1	**4**
Closed questions		9		1		12	**22**
Rethoric questions	42	18		5		5	**70**
Clues						3	**3**
Elaborating students' answers						1	**1**
Providing reald life examples	11	6				3	**20**
Amplifying	1					1	**2**
Summarising	2	1		1		1	**5**
Bridging	3	2			1	1	**7**
Modelling		4		1		2	**7**
Giving the correct answer	5	5	1		3		**14**
Translation	6	3			1		**10**
Using everyday language	4						**4**
Mediation. Comparison of terms	3						**3**
Repetition	1	2					**3**

	12 str. 80 times	11 str. 54 times	2 str. 2 times	4 str. 9 times	3 str. 5 times	10 str. 30 times	18 st times
Making connections between students' answers	1						**1**
Requesting more exercises		2					**2**
Providing the characteristics of a CDF type: "the simpler the definition, the better for us"			1				**1**
Information input (cannot be counted)							

In total 18 strategies have been identified. Some of these coincide with the strategies used to scaffold students' responses, for example, birformulation or providing real examples. However, most of the strategies identified differ from those presented in the previous section, such as bridging, the use of rethoric questions or synthesising what has previously been explained. In this case, these strategies cannot be associated with the scaffolding of a particular CDF, as it is not the CDFs that are scaffolded, but the knowledge necessary to be able to use the CDFs.

In the table above, it can be observed that the economics teacher and the mathematics teacher are the ones who use the most strategies, and most frequently. The economics teacher is also among the teachers who use the most strategies to scaffold the CDFs used by the students. However, in the case of several teachers there is a big difference between the amount of strategies they use to scaffold the verbalisation of CDFs and the knowledge construction. In the case of the English teacher, for example, in the previous section we have seen that she is the one who uses the most strategies for scaffolding verbalisations, but nevertheless, she is the one who scaffolds knowledge construction the least. The opposite is true for mathematics and history teachers, who use more strategies for knowledge construction than for scaffolding of the verbalised CDFs. Finally, physical education and Basque teachers use few strategies for both scaffolding knowledge construction and scaffolding the verbalisation of CDFs.

In the present study, students were exposed to exactly 464 CDFs by the teachers, through which teachers provide students with a great amount of input of information. Learners receive input of information by means of the CDFs teachers use to give explanations, to describe, to argue or to report (CDF1); by offering students with a variety of resources such as videos, links, maps, songs and readings; by modelling; and by bridiging. These strategies might facilitate the building of knowledge, which forms the

first main pillar and which is necessary to enable learners to use different cognitive discourse functions in due course.

The exposure of CDFs may be beneficial for the mastery of CDFs of students, as "teachers' use of discourse functions as transmitters and builders of content knowledge, from which students can model the discursive patterns of their field of specialization" (Doiz and Lasagabaster, 2021:59), as well as, can use them to construct and to internalise knowledge. The main objective of teachers in this activity type is to convey curricular content. The following extract, for example, shows how the economics teacher provides students with information by giving an explanation and definitions (CDF define) of certain macroeconomic concepts.

> T4_E: Macroeconomics analyses the global economic reality. Microeconomics analyses the behaviour of economic use, the behaviour of families, the behaviour of companies and the global functioning of macros. And this globality is so complex that in order to examine it, we have to resort to macro-magnitudes or aggregate variables. And the most important macro magnitudes or variables that are used are mainly related to three themes: the best known macromagnitude of prices, and you will be familiar with it, the CPI, the consumer price index, in Spanish the IPC. You have heard this many times. This is a macroeconomic variable that informs us about prices. Magnitudes mainly used in the production environment, and which has also been mentioned in the video, as GDP or PIB in Spanish, *producto interior bruto*, or gross domestic product. We will see the difference. And another magnitude that is also very well known is the unemployment rate. And what the unemployment rate gives us is information on labour. So we use macro magnitudes to be able to really interpret what is happening in a country from a macroeconomic point of view. That is, overall assessment to be made. OK, I'll come back later, calm down. [...] What is macroeconomics? Well, the economics that the economic system studies as a whole is part of science, yes?

The teachers also try to relate what they are learning in class to the reality of the students (bridging). For example, to explain what the term "deficit" means, the teacher asks the students to share their experience when they set up a bar in their village to raise money for the school trip and to think about whether they made or lost money at the end.

Other strategies that teachers use to help construct knowledge are related to language, such as the use of everyday language so as to help students understand the academic language (Nikula and Moate, 2018) as we have seen in a previous example, and of translation (Tang, 2019). There are several concepts and acronyms related to economics or mathematics that are common to use in Spanish and are more familiar to students in that language than in Basque. For this reason, teachers, taking advantage of the fact that all students are bilingual in Basque and Spanish, use translation as a resource to help students in the comprehension of certain terms and acronyms, as we can see in the following example:

T4_E: Consumer Price Index (CPI), in Spanish IPC.

The English teacher uses closed questions to avoid misunderstandings related to the language, ensuring that language is not an obstacle, as not all students have a good level of English. For example, one of the tasks carried out in the project is watching a film related to the topic of the project in English. While watching it, the teacher stops the film from time to time, and asks closed questions to make sure that everyone understands what is going on. Among these questions, we can find that the teacher uses translation (Tang, 2019) to check students' compehension:

1 I T	T2_En: they are talking about embassies. **What is embassy in Spanish?**
2 R S	Students: embajada.
3 F+I T	T2_En: embajada, yes. Everybody knows what it is?
4 R S	Students: yes.
5 F T	T2_En: ok.

After the students give the translation of the word "embassy" in Spanish, the teacher says that the answer is correct and asks the whole group if they all know what it means. The students answer yes, but the teacher does not ask them for a demonstration.

In line 3, another type of question that is repeated constantly can be identified. The aim of this type of questions is to make sure that the students understand what the teacher is presenting. These questions are often rhetorical and do not expect an answer from the students. Here is another example:

T5_B: Wait, look. Almost nothing is said in a comic. The comic shows, it insinuates. You don't say: "Ahh, everything here is desert". No, you see the story through the images. **Do you understand?** You need to take this into account.

The use of closed questions has been found in every teachers' discourse, although some teachers use them more frequently than others. Closed questions require short and limited answers, and the use of CDF is not required to answer them. Teachers usually use this type of questions with the aim of checking comprehension, which might help in the knowledge construction necessary to form CDFs, but we have seen previously that they are also used to scaffold the CDFs performed by the students.

The history teacher uses closed questions to help the students follow the explanations. While the teacher explains the content related to the subject of history, she asks questions to the students to involve them in the explanations and to see that they follow her. She is not the only teacher who does this, but the remarkable thing this teacher does is that she gives clues to the students so that they can answer what the teacher is looking for (see the following extract). The teacher knows the answer to the questions she asks

but the pupils may not know it. For this reason, the teacher gives the pupils the first syllable of the word as a clue. This scaffolding strategy is also mentioned by Van de Pol, Volman and Beishuizen (2010).

1 I T	T3_H: What happened in Africa?
2 R S	Student 1: Colonialism.
3 F+I T	T3_H: Conquest. Africa has a history, and a very important history. What do we find in Africa? Co…
4 R S	Student 2: Colonies.
5 F T	T3_H: different colonies.

1 I T	T3_H: What do we place in physical maps?
2 R S	Student 1: mountains and rivers.
3 F T	T3_H: on the physical maps all the mountains, rivers, lakes are shown. What happens now? You will have to place the most important mountains in Africa in your individual maps. All of them? No, some. And an important river for example, an important lake… Do you remember what we have in Africa? De…
4 R S	Students: Deserts.
5 F F	T3_H: yes, deserts. Sahara, for example.

One of the aims of the English subject in the project is to get familiar with the types of diseases that can be found in Africa. Therefore, definitions of diseases are requested and elaborated by the students. In the process of sharing and correcting the definitions written by the students, the English teacher also asks closed questions to ensure students' understanding, as can be seen in the following example:

1 I T	T2_En: Is there any illness which is at the same time infectious or non-infectious and chronical and acute? For example, cáncer. You said it is acute. **Is it infectious or non-infectious?**
2 R S	Students: non-infectious.
3 F T	T2_En: it is an illness that is acute and non-infectious at the same time. Can be a chronical one…? Give me a clear example.
4 R S	Student 1: asthma.
5 F T	T2_En: ok, asthma for example. There are people that have asthma for the rest of their lives. Ok, it is chronical. **Is it infectious or non-infectious?**
6 R S	Students: non-infectious.
7 F+I T	T2_En: ok. You see the difference now?
8 R S	Students: yes.
9 F T	T2_En: great.

The aim of the English teacher is to see that students are able to differentiate between infectious and non-infectious diseases. If we look at the students' responses, we can see that these questions can be answered correctly with just one word and CDFs are not needed. But, in the feedback phase, the teacher, in addition to evaluating the students' answers, she also develops the answers by giving definitions and examples, and thus helping in the knowledge construction.

We have shown that the aim of this type of question is to check understanding. The feedback given by the teachers is usually limited to saying whether the answer is correct or not, thus converting the IRF into IRE. But different strategies are sometimes used to both help students answer the questions, and to build knowledge, such as repeating the students' answers or adding clarifications to the answers. As can be seen in the examples presented, closed questions can be answered with one or a few words or even yes/no answers. This means that through answering closed questions, students are not provided with opportunities to use CDFs. However, even if this type of IRF sequences are not suitable for scaffolding the linguistic representations of CDFs, they may be valid and necessary at some points in order to build knowledge, which is necessary for students to be able to use the CDFs later on.

5.4.   LABURPENA

Nola deskribatzen dituzte proiektuaren aurretiazko ezaugarriak diziplinarteko proiektu batean diharduten irakasle eta ikasleek?

Atal honetan diziplinarteko proiektuetan parte hartzen duten zazpi irakasleekin egindako elkarrizketen eta ikasleekin egindako eztabaida taldeen analisia egin da. Atalak hiru azpiatal ditu: lehenengoan, irakasleek eta ikasleek ikasleen ezaugarriei buruzko ahotsak jaso dira; bigarrenean, irakasleen ezaugarriei buruzkoak; eta, hirugarrenean, irakaskuntzaren testuinguruari buruzkoak.

Emaitzek erakusten dute irakasleen eta ikasleen diskurtsoak desberdinak direla aurretiazko baldintzak osatzen dituzten hiru ezaugarri multzoei dagokienez.

Irakasleek aipatzen dute ikasleak oso desberdinak direla beren artean, ez bakarrik gaitasun orokorrei dagokienez, baita gaitasunari eta heldutasunari dagokienez ere. Irakasleek batzuetan ziurtzat jotzen dute ikasleek zenbait ezaugarri garatu dituztela, talde-lanean aritzeko gaitasuna adibidez, baina ikasleen eguneroko lanean konturatu dira gaitasun batzuk oraindik gehiago garatu behar dituztela. Hala ere, badaude zeharkako konpetentziak garatuta dituzten zenbait ikasle, eta horiek proiektuan ondo moldatzen direla ikusten dute. Aitzitik, trebetasun horiek gutxiago garatuta dituzten ikasleek zailtasunak izaten dituzte proiektuka lan egiteko. Ikasleek dituzten zailtasunen artean irakasleek azpimarratzen dituzte talde lanean aritzeko gaitasuna, lana antolatzeko gaitasuna, ikaskideen artean ardurak hartzeko gaitasuna izatea eta autonomoa izatea.

Talde-lana funtsezkoa da proiektuetan oinarritutako ikaskuntzan. Azterlan honetan, ikasleek talde berberekin lan egin behar dute egunero eskola-ordutegiko ordu guztietan, bi astez. Ikasleek uste dute talde-lanak harreman berriak ezartzeko aukera ematen diela. Baina, aldi berean, aitortzen dute denbora gehiegi ematen dutela taldekide berberekin, eta horrek batzuetan gatazkak eragin dituela taldeetan.

Hizkuntza-gaitasunari dagokionez, irakasle batzuek nabarmentzen dute ikasle batzuen euskara maila baxua, eta hizkuntza konpetentzia baxua lotzen dute ikasle batzuen ikasteko zailtasunekin.

Bestetik, elkarrizketetan irakasleak eta ikasleak motibatzen edo motibazioa gutxitzen dien hainbat alderdi identifikatu dira, eta ikasle eta irakasleak bat datoz aipatutakoekin. Motibazioa pizten duten alderdien artean ditugu proiektua egiteko aukeratzen den gaia, errealitatearekin duen lotura, taldekideak eta proiektuaren antolaketa. Bestalde, modu negatiboan eragiten die irakasleen pasibotasunak, haien iritzia kontuan ez hartzea, eta proiektuak azterketen aurretik egitea.

Ikasleek zein irakasleek diote irakasleen motibazioak eragin zuzena duela ikasleen motibazioan. Orokorrean, irakasle gehienek partekatzen dute motibatuta egoten direla proiektuka aritzen direnean. Hala ere, bi alderdi aipatzen dituzte haien motibazioan modu negatiboan eragiten dutenak: lan karga, eta proiektuak irauten duen bitartean batxilergoan eta DBHn aldi berean egoteko antolaketa zaila. Ikasleek diote irakasleak motibatuta daudenean haien jarrera ona eta aktiboa dela. Aldiz, irakasleak motibatuta ez daudenean, irakasleen jarrera pasiboa izaten da.

Bestetik, irakasle bakoitza bere arloan aditua denez, proiektuan zehazten dituzten helburuak askotan arloekin lotzen dituzte. Proiektuko helburua zein den galdetzerakoan, irakasle bakoitzak helburu desberdin bat aipatzen du. Batzuek arloarekin lotutako helburuak esaten dituzte, beste batzuek, aldiz, konpetentziak garatzea. Ikasleen pertzepzioa da proiektuan ere ikasgaien banaketa egiten dela, eta horrek diziplinartekotasuna zailtzen duela batzuetan.

Arloetan hizkuntzak duen rolari dagokionez, irakasle guztiek diote garrantzia ematen diotela hizkuntzari, baina denek ez dute hizkuntzaren lanketarik egiten. Hori ez egiteko arrazoien artean aipatzen dute kontzientzia falta eta ezjakintasuna. Ia irakasle guztiek generoen lanketarekin lotzen dute hizkuntzaren lanketa, baita terminologiarekin. Hizkuntzaren lanketa proiektuan ez dago sistematizatuta, ez dago argi noren ardura den hizkuntzaren lanketa eta ebaluazioa egitea.

Metodologia honek aldaketak ekarri ditu irakasleen eta ikasleen rolei dagokienean. Ikasleek aurretik aipatutako konpetentziak garatu ditzaten, irakasleek ere hainbat gaitasun garatu behar dituzte, besteak beste, arazoen kudeaketa, ikasleen beharretara egokitzeko gaitasuna, talde lanean aritzeko gaitasuna, erabakiak hartzeko gaitasuna eta erronkei aurre egiteko gaitasuna. Ikasleek diote irakasleek oraindik ez dituztela konpetentzia guzti horiek garatu, eta zenbait kasutan nabaria dela irakasleen jarrera pasiboa, motibazioa pizteko zailtasunak eta konpetentzia digital baxua.

Irakasleek garatu behar dituzten konpetentzien artean, ikasleen beharrak diagnostikatzeko konpetentzia dugu. Ezinbestekoa izango da irakasleak ikasleen gaitasunak, indarguneak zein ahulguneak identifikatzea. Elkarrizketetatik ondorioezta daiteke irakasleek diagnostikatzeko gaitasuna dutela. Esaterako, aipatzen da taldeak egiterakoan irakasle guztien azterketa bat egiten dela eta ikasleen ezaugarriak kontuan hartzen direla.

Irakasleek diote denbora asko eskaintzen diotela taldeak egiteari. Konfiantzaren Pedagogiak (Antero, 2015) proposatzen dituen irizpideak hartzen dira kontuan taldeak egiteko, gehienetan talde heterogeneoak, baina helburuaren arabera talde homogeneoak ere eratzen dira batzuetan. Irizpidea edozein delarik ere, irakasleen helburua da ikasleak gustura sentitzea taldean. Izan ere, ikasleen zein irakasleen ongizatea bermatzea da Konfiantzaren Pedagogiaren helburu nagusietako bat.

Bestetik, antolaketa ona eta koordinazioa ezinbestekoak dira proiektuetan. Irakasleek diote irakasleen arteko koordinazioa gako dela proiektua hasi aurretik, proiektuak irauten duen bitartean, eta baita proiektuaren ondoren ere. Urtetik urtera haien koordinazioa hobea bada ere, oraindik ere zaila egiten zaie proiektuaren antolaketa. Zaila egiten zaie batez ere, arloen artean loturak egitea. Ikasleek aitortzen dute batzuetan arloen artean egiten diren loturak ez direla naturalak. Irakasleak kontziente dira, eta proiektuan hobekuntzak egiteko denbora eskatzen dute.

Proiektuak aurrera egin ahala, ardurak aldatu egiten dira eta ikasleen erantzukizuna handitzen doa. Irakasleen nahia da ikasleak autonomoak izaten ikastea. Horretarako, askatasuna eta aldi berean erantzukizuna ematen zaie, baina rol aldaketa hori ez da erraza ez irakasle ez eta ikasleentzat ere.

Orokorrean, proiektuetan oinarritutako ikaskuntza irakasleentzat erronka bada ere, irakasle gehienek profesionalki garatzeko aukera gisa ikusten dute. Irakasleek nabarmentzen duten zailtasun nagusienetako bat ebaluazioa da. Proiektuan zehar autoebaluazioa, koebaluazioa eta heteroebaluazioa egiten da. Ebaluazioa egiteko

tresna nagusia errubrika da. Errubrikak erabiltzen dira eskatzen diren lanak, hau da, generoak, ebaluatzeko, eta baita proiektuen bitartez garatu behar dituzten konpetentzien garapena ebaluatzeko ere. Irakasleek diote hizkuntza kontuan hartzen dela errubrika guztietan, baina onartzen dute adierazleak ez daudela sistematizatuta, eta norberaren esku geratzen dela hizkuntzaren zein alderdi ebaluatu eta nola.

Azkenik, *family background and social support* kategoriaren inguruan ez da ezer aipatzen elkarrizketetan.

Nola lantzen da arloetako alfabetatzea ikas-materialean?

Metodologia atalean azaldu den bezala, materialaren azterketa egiteko kontrol-zerrenda bat diseinatu da PTDL markoan oinarrituta. Lau izan dira azterketa egiteko aukeratu diren arretaguneak: testu-generoak, funtzio kognitibo diskurtsiboak, hizkuntza akademikoa eta eguneroko hizkuntza, eta informazioa jasotzeko zein komunikatzeko erabiltzen diren formatuak.

Ikasleek performance artistiko bat egin behar dute Afrikaren egoeraren inguruan kontzientzia pizteko. Gainera, atal bakoitzaren amaieran, atal horretan landutakoa biltzen duen lan bat egitea proposatzen da. Arlo guztietan, matematiketan izan ezik, atal bakoitzaren amaieran eskatzen den lana testu-genero bat ekoiztea da. Eskatzen diren genero gehienak landu egiten dira, baina ikusi da arloen artean alde nabarmenak daudela generoen lanketari dagokionez.

Bai generoak lantzeko ariketetan eta edukia lantzeko proposatzen diren ariketetan FKDak ere eskatzen dira. Hala ere, materialak ez da horien lanketarik proposatzen. Arlo batzuetan hizkuntza akademikoa generoetara eta FKDetara mugatzen da. Beste batzuetan, aldiz, arloko terminologiaren eta hiztegiaren lanketa egiten da, ekonomian, matematikan, euskaran eta ingelesean, hain zuzen.

Eguneroko hizkuntzari dagokionez, ariketa gutxi daude non ikasleei eguneroko hizkuntza erabiltzeko eskatzen zaien, eta horietan bakarrean eskatzen da eguneroko hizkuntza hizkuntza akademikoa garatzen laguntzeko. Nikulak eta Moatek (2018) diote orain arte hizkuntza akademikoari baino ez zaiola arreta jarri, baina eguneroko hizkuntza eta hizkuntza akademikoa elkarri lotuta daudela, eta biak direla beharrezkoak.

Azkenik, materialean zehar eskaintzen den informazioa eta edukia formatu desberdinetan ematen da. Modu berean, ikasleei lanak formatu desberdinetan eskatzen

zaizkie: idatziz, ahoz, taula edo eskema baten bitartez, irudiz… hala ere, ez dira formatuen arteko joan etorriak (*semiotic translations*) bultzatzen.

Nola aldamiatzen dira Funtzio Kognitibo Diskurtsiboak irakasle-ikasle elkarrekintzetan?

Gelan ikasleek erabiltzen dituzten 174 FKDetatik 29 aldamiatzen dituzte irakasleek elkarrekintzan. Horretarako irakasleek elkarrekintza eta aldamiaje estrategia desberdinak erabiltzen dituzte. Irakasle batzuek beste batzuek baino estrategia gehiago erabiltzen dituzte.

Kasu batzuetan ikasleen erantzunak aldamiatzen dira formari dagokionez, eta beste batzuetan FKD horiek erabiltzeko ikasleek behar duten ezagutza da aldamiatzen dena. Teorian oinarrituta, esan daiteke FKDak erabiltzeko edukia eta eduki hori adierazteko formari erreparatu behar zaiola. Horregatik, edukiaren aldamiatzea egitea ere neurri batean FKDak aldamiatzeko modu bat izan daiteke.

Ikasleen berbaldien azterketan ikusi da irakasleen erantzunak motzak eta osatu gabeak direla askotan. Irakasleek hainbat estrategia erabiltzen dituzte ikasleei erantzunak garatzen laguntzeko eta erabilitako FKDak aldamiatzeko. Gehien erabiltzen diren estrategien artean topatzen ditugu: errepikapenak, itzulpenak, erantzunak garatzeko edo birformulatzeko eskatzea, irakasleak erantzunak osatzea, ikasleen erantzuna hizkuntza akademikoan errepikatzea…

Aztertutako elkarrekintzetan, FKDen aldamiatzeak IRF egituretan gertatzen dira. Sekuentzia horiek galderen bitartez hasten dira kasu ia guztietan. Irakasleek egiten dituzten galdera motek FKD mota jakin bateko erantzunak eskatzen ditu. Eta Irakasleak ikaslearen erantzunaren ostean ematen duen feedbacka edo erabiltzen dituen estrategien bitartez aldamiatzen dira ikasleen erantzunak. Ikusi da estrategia batzuk FKD guztiak aldamiatzeko balio dutela, beste batzuk aldiz FKD jakin batzuen aldamiajearekin lotzen dira.

Azkenik, irakasleek erabiltzen dituzten elkarrekintza estrategia guztiek ez dute FKDak aldamiatzeko balio. Estrategia batzuen bitartez arreta hizkuntzan bakarrik jartzen da, eta beste batzuetan ezagutzaren eraikuntzan, zeinetarako hizkuntza eta edukia behar diren.

Chapter 6:
DISCUSSION AND CONCLUSION

6. DISCUSSION AND CONCLUSION

The main goal of this research has been to examine how teachers involved in a multidisciplinary project in upper-secondary education address subject-specific literacies. To respond to the objective of the thesis, a project has been analysed taking into consideration the following aspects: the views of both teachers and students who participate in the project, the material designed by the teachers, and teacher-student interactions in the classroom.

This final chapter is divided into four parts. First, a general summary of the main results will be presented and these will be compared with the results of previous studies found in the literature. Second, to have a holistic view of the project, and thus better interpret the findings, we will see whether it exists any relationship between the teachers' views and approaches, the characteristics of the teaching material, and what happens in the classroom. Third, main conclusions will be drawn. Finally, strengths, limitations and future research will be noted.

6.1. DISCUSSION

6.1.1. How do teachers and students involved in a multidisciplinary project describe the entry context of the project?

With regards to the first research question, as research to date has proved that prior beliefs and experiences have an impact on the decisions made in the classroom, questions regarding the presage factors that compose the deeper learning agenda (Meyer et al., 2018) were posed to the 6 teachers taking part in the project and the 16 students. The findings indicate that teachers and students do not always agree on how to describe certain factors. Similarly, the teachers themselves also agree on some aspects but disagree on others.

Findings show that teachers' agreement is crucial for project success because even minor coordination issues can cause students' learning to fail. All teachers agree with the premise supported by Buck Institute of Education (2018), which is that multidisciplinary projects require careful planning and preparation, which include aspects such as the content to be taught in each area, collaboration and coordination among teachers, and the distribution of responsibilities, among others. As a result, teachers report in the interviews that coordination is sometimes a challenge for them, although they do try to improve it year by year.

In the face of difficulties, doubts or disagreements, not all teachers have the same views and opinions about all the aspects that make up the presage. Teachers claim that the two methodologies used in the school, Konfiantzaren Pedagogia (Antero, 2015) and Project Based Learning (Bell, 2010), provide the foundation for the majority of the practical decisions made in the classroom, such as how to make groups, how to manage the students during lessons, or how to design the assessment. Even so, not all teachers entirely agree with the implemented decisions.

What the teachers do agree on is that multidisciplinary projects enable and facilitate making connections between subject-specific contents and real-life experiences, which is in accordance with McPhail (2017) and Virtue and Hinnant-Crawford (2019). Based on this premise, the topics chosen in the project are real and current social issues. According to Fallas (2021), learning takes on greater meaningful when students investigate relevant topics and issues.

The teachers also consider the connection between the subjects that make up the project to be very important, but at the same time complicated. According to them, the content linked to each subject should inherently make sense; in other words, the chosen contents should be relevant to the project. This is a challenge for the teachers and both pupils and educators are aware of it, which has a negative impact on pupils' motivation. In a similar line, Pellegrino and Hilton (2012) and Saavedra and Opfer (2012) assert that for knowledge to be transferred, there must be linkages between different subjects.

For this, it is very important that all teachers are clear about what students have to do in each subject. When asked about the aim of the project, teachers mention different objectives, some related to their own subject and others to the project in general, demonstrating that goals are not shared by all teachers. However, according to Biggs and Tang (2011), clear goals are essential in order to increase students' motivation and to help them progress in their learning process. Furthermore, students are critical and share the view that some objectives are not met. Students notice that when everything is not well coordinated and organised, this has a negative impact on their motivation.

This can occur because each teacher involved in the project is a specialist in his or her discipline, and they have extensive knowledge of their respective subjects (Biggs and Tang, 2011). It is therefore important that each teacher reflects on the contribution his or her subject makes to the project and makes this known to the rest (Morin, 2010). The teachers recognise this and offer a variety of suggestions for improvement. For example, a debate that combines the six subjects was proposed so that students made

connections and applied everything they had learnt in the subjects in question. This is in line with McPhail (2017), who claims that multidisciplinary projects give students the chance to apply what they have learnt in class.

One of the goals and also challenges mentioned by all the teachers is to make students more autonomous, that is, to get them to understand that they must learn how to act and work independently and flexibly when encountering issues, rather than expecting teachers to lead the entire process. OECD (2016) lists this as one of the objectives of education. Condliffe (2017) and Virtue and Hinnant-Crawford (2019) state that teachers' objectives go beyond subject-related content to develop soft or generic skills. Teachers claim that students in this study are encouraged to work in groups, as in project-based learning collaboration and group work are essential (Virtue and Hinnant-Crawford, 2019). According to the interviewees, working in groups has an impact on interpersonal interactions, including those between students, between teachers and between students and teachers. Students do agree that working as a team enables them to forge new relationships, as Virtue and Hinnant-Crawford (2019) also argue, but students add that motivation can be affected positively or negatively depending on how well they get along or do not get along with their team peers.

Bearing this in mind, teachers are aware that putting students to work on their own may not be enough, and both teachers and students recognise that they still need to further develop the interpersonal domain/social skills defined by Pellegrino and Hilton (2012). Besides, according to some authors (Fullan and Langworthy, 2014; NRC, 2012; Saavedra and Opfer, 2012; Clayton, Costa and Kallick, 2016), students need to be given the space to develop the competencies, but they also need to be taught how to do so.

Another common goal among teachers is to ensure that students develop various competencies to become the protagonists of their own learning process by working through projects. According to teachers, as the project progresses, the tasks and responsibilities change, and the student's ability to make decisions grows, which Meyer and Coyle (2021) refer to as learning partnerships. Brooks et al. (2012) claim that when students participate in their learning process, their motivation increases. However, Coyle and Meyer (2021) suggest that teachers and students should collaborate to create the rubrics in order to increase student involvement in the educational process. But teachers recognise that they still face difficulties with assessment, they are not always sure about how to carry out the evaluation system and how to assess competencies, and this can be the reason why rubrics are designed by teachers, without the collaboration of the

students. Likewise, Bell (2010) also acknowledges that assessment is difficult in PBL because multiple assessment techniques should be used.

Among the skills and competencies required of teachers is *diagnostic competence*, which demands teachers to be able to diagnose the abilities of their students (Fullan and Langworthy, 2014). The economics teacher explains how she adapts the lessons class depending on how the students are feeling at any given time, what their mood is, or their ability to carry out a certain task, which is in line with Pajares (1992), who says that the diagnostic competence enables the teacher to take decisions according to students' abilities.

When teachers diagnose students' skills, teachers point out and problematise students' poor communicative skills. The Maths teacher summarises this idea by explaining that some students struggle to complete specific tasks because they do not understand what they are required to do, which prevents them from succeeding in Maths. In the same line, another teacher says that when correcting written exercises, she has to interpret what the students want to communicate, as they are not often coherently written. Meyer (2015) claims that students may have academic language deficits if the integration of language and content is not thorough. Similarly, some authors (Lorenzo and Trujillo, 2017; Pavón, 2018) argue that difficulties with students' first language proficiency (L1) are one of the causes of learning deficits. Given this situation, teachers recognise the important role that language plays in all disciplines, and they understand that working on subject-specific language is essential, which is in line with Cammaratà and Tedick (2012), who state that teachers must be aware of the role of language in learning and teaching in the field of knowledge.

However, findings show that teachers have neither a unified discourse nor practice relating how to address language in the subjects. When asking teachers about how they address language in their subjects, all of them mention terminology and orthography, and all teachers except for the Mathematics teacher mention the genres. This awareness of genres may be attributed to the long tradition of genre-based teaching in the Basque Country (Idiazabal, 2021). However, genres are rarely explicitly taught, but when they are, each teacher does it differently. Teachers claim that they sometimes do not work on a certain genre because students may have already learned it in another subject, usually in the Basque subject. Even though each subject construes and communicates knowledge in a different genre (Meyer, 2015), some genres are used across subjects (Morton, 2020). This author contends that knowing the structure of a genre is not enough to know how to use it; grammar and vocabulary are also important because each type

of genre has its own characteristics, and the linguistic requirements of the disciplines' specific genres are part of the discipline's cultural context (Linares, 2015). In the same vein, students argue that not all teachers approach language in the same way, demonstrating that teachers do not share a common approach to language.

Findings show that teachers are aware that subject-specific language and literacy should be worked on in the subject, but they are not always clear about how to do it. Many subject teachers believe that working on language is not their responsibility (Evnitskaya, 2019; Morton, 2020). Some teachers point out the need for coordination between language teachers and those of other subjects. According to Pavón et al. (2015), the need for this coordination is unquestionable, but in the present study, only the economics and the Basque teachers coordinate between themselves to assess certain tasks from content and linguistic perspectives, even if they are unsure how to do so. However, it is unclear how integration should be implemented (Pavón, et al., 2014). The lack of a shared understanding of the role of language in subject learning may indicate the need for training in this area.

Regarding training, teachers state that despite having received counselling and instruction in recent years, they still feel they need additional training in some areas such as project design training, Pedagogy of Trust training, ICT training, PBL methodology training, and cooperative learning training. Teachers, according to Blumenfeld et al. (1991), should be trained in project planning, execution, and management to work through projects.

Teachers and students both mention difficulties and challenges. Students frequently find it difficult to work independently and in groups, and they occasionally feel that the project is too long. Teachers, on the other hand, agree that the workload is more difficult and that they do not have as much time to devote to the project as they would like during those weeks. Teachers find the PBL approach challenging in general (Blumenfeld et al., 1991), but they see the projects as an opportunity to advance their careers.

Finally, teachers make no mention of whether each student's family background is taken into account, although Biggs (1989) does state that students' family backgrounds and social support should be taken into account when designing classroom environments. The reason for not mentioning families and family backgrounds could be that, as students progress through the educational stages their relationship with school and involvement in it decreases (Garreta, 2013).

It is worth noting that, although the PTDL framework is not used in the school, the majority of the presage factors are taken into account in the project. Several similarities can be found in terms of methodology, assessment, organizational aspects, the roles of both teachers and students, or the competencies they need to develop. Furthermore, the decisions made throughout the project, as well as before it, ensure students' well-being as this is the primary goal of Konfiantzaren Pedagogia (Antero, 2015), which is also consistent with Meyer et al. (2018).

6.1.2. How is subject-specific literacy worked on in the teaching material?

To answer the second research question, the teaching material used in this project was analysed. For the analysis, a thorough examination of the first two dimensions of the checklist was carried out since knowledge construction and knowledge sharing are the primary components of subject literacy (Meyer and Coyle, 2017).

Regarding the first two dimensions, genres and CDFs are present in the teaching material. In other words, both genres and CDFs are used and required to be used throughout the project. However, the analysis is concerned not only with whether they are used or not, but also with how the teaching material helps and supports the proper use and scaffolding of these.

Except for mathematics, the main final task required in all subjects is to produce a genre (to write an opinion essay, a text commentary...), with a total of 8 genres to complete throughout the project. Tasks may consist of a series of genre moves, which are the building blocks of individual genres and serve to teach the necessary content to later perform the genre. It might be appropriate to request genres in the project because they are not only useful for structuring a discipline's pathway (Meyer et al., 2018), but students should also learn how to express information in different genres (Meyer and Coyle, 2017). Furthermore, according to Mohan and Beckett (2003) by focusing on the genres on which content knowledge is built, we can unite the two goals, content and language. However, the findings show that in the current study, the material does not provide the same level of support for the production of each genre. In some cases, an explanation of the structure that the text must follow is provided, whereas in other cases, genres are simply required without explanation. Moreover, the rubric with which the tasks are corrected is not always available, and when available, the criteria for language assessment vary. On some occasions, the material also suggests some scaffolding stages that can be used to learn the characteristics of each genre, such as modelling and knowledge construction. According to the Pluriliteracies Teaching for Deeper

Learning (PTDL) framework, simply asking students to produce a sample of a genre is insufficient because genres have their own structure and verbal forms (Beacco et al, 2015). To use a genre, it is necessary to understand specific textual resources, grammar and vocabulary because each text or genre has its own "linguistic norms" (Morton, 2020).

Students should develop a progressive ability to express knowledge of this subject in an appropriate style, using appropriate genres to achieve the specific goals of communication forms (Meyer et al., 2015; Meyer et al., 2018; Coyle and Meyer, 2021; Morton, 2020; Beacco et al., 2015). However, the project is too short to determine whether there is any progress or not in this aspect.

If we examine the genres that are asked for in the material, we can see that most of them are discipline-specific genres. In the subject of history, students are required to make a report using a video and to write a text commentary, being reporting and accounting examples of historical typical genres (Beacco, 2010). In the subject of economics, an opinion essay and a personal reflection are asked, in line with the goals stated in Heziberri 2020, which is to provide a personal opinion justifying your stance on an issue. Regarding physical education, students are required to give instructions orally to younger students so that they learn about African games and dances. The results of the study by Salvador-Garcia et al. (2022) show that the instructive text is one of the most prevalent genres in the study of physical education because students receive instructions from the teacher on what to do, how to apply a technique correctly, and how to follow a set of rules for a game. Lastly, in the English and Basque subjects, a comic and an infographic are required, which are specified neither in the subject-related curriculum nor in the literature.

Research says that to acquire a particular literacy, students must comprehend and interpret the subcultures that comprise each subject area (Moje, 2008). This means that students must understand both the subject-specific content and the genres related to those subject areas (Dalton-Puffer et al., 2018), considering that the linguistic profiles of these areas of knowledge's characteristic genres are part of the subject's cultural context (Llinares, 2015).

The presence of CDFs in the material was also examined. All the CDFs used and requested from students were identified and it was examined whether these are scaffolded and how. Just a few studies have examined CDFs in educational materials thus far. As a result, it might be difficult to interpret and compare the results of this present study.

The presence of CDFs in the material varies depending on the subject. In total, 89 CDFs are requested, which are distributed differently across the six subjects. Maths (37) and economics (24) have the highest presence of CDFs, while P.E. (2) and Basque (2) have the lowest (6). The numbers are so small that no clear conclusions can be drawn but this will be compared later with the number of CDFs requested in classroom interaction.

CDFs are requested in the teaching material but the material offers hardly any guidance for the scaffolding of the CDFs. The CDFs are composed of specific content as well as a specific form of the language to be worked on. The exercises offered in the material focus on working on the content, but the material does not pay attention to the form of the CDFs. The teaching material should help learners progress and complete the tasks, as learners need to be taught how to express themselves well and progressively (Meyer and Coyle, 2017). If the teaching of CDFs is left to the teachers, there is a chance that some teachers may not pay attention to the proper use of the CDFs, since not all teachers have the same background and training. Bauer-Marschallinger (2022) suggests including understanding and production scaffolding techniques in the teaching material, such as language boxes, history tips, visuals, examples, impulse questions, etc. so as to assist teachers in guiding the scaffolding, especially if they are not language experts.

CDFs are part of academic language. In the current study, some features of academic language, like subject-specific terminology, are occasionally improved by asking for definitions and comparisons between concepts but other aspects, like the grammar necessary to utter CDFs correctly, are overlooked. Ting (2012) states that the teaching of academic language appears to be ignored in all subjects, and Meyer et al. (2015) claim that failing to focus on academic literacies may have negative effects on how deep knowledge is constructed and communicated. However, findings have shown that more CDFs are scaffolded during classroom interaction than in the teaching material.

Another way to develop and improve academic language is through everyday language (Nikula and Moate, 2018). In the analysis of the teaching material, the few times in which students are asked to use everyday language have been analysed, and it can be seen that the material does not propose back and forth between everyday language and academic language. Nikula and Moate (2018) say that more attention has been paid to academic language than to the development of everyday language, although both are inseparable and necessary. In the same vein, the PTDL framework suggests that everyday language helps develop and master academic language, and that students should be able to switch between academic and informal speech, and vice versa (Meyer et al., 2015).

On the other hand, the 8 genres are requested in various modalities with the written mode being the most used, which is in line with Polias (2006) and Mohan et al. (2010). Infographics and the comic are the most visual modalities, and the report in history and instruction in physical education are requested in oral mode. According to Meyer (2015), subject-specific discourses are multimodal, so for students to become pluriliterate, students must be able to express their understanding in a wide range of subject-specific modes. However, despite using multiple modes to represent knowledge in the different subjects, semiotic translations are rarely required in the teaching material. Students should also be able to convert knowledge from one mode to another, given that this is regarded as the key to subject literacy (Meyer and Coyle, 2017).

6.1.3. How are cognitive discourse functions scaffolded in teacher-students interaction?

To answer this research question we first analysed the presence of CDFs in the classroom interaction between teachers and students, and then we analysed how teachers scaffold the CDFs requested from the students.

In the present study, interaction happens in IRF patterns and is mostly guided by questions asked by the teachers, as Mercer (2000) also states. As we have seen, it is mainly the teacher who leads the interaction and who controls the turn-taking (Dalton-Puffer, 2007), but both teachers and students use CDFs in the interaction. The teachers use CDFs in order to give explanations (in the I and F phases of the interactions to describe, explain and report); and the students use CDF mainly to answer the questions posed by the teachers (report, define, evaluate).

The CDFs used by pupils are sometimes incomplete. However, these are not always scaffolded. Sometimes attention is solely paid to the scaffolding of one aspect: either the content or form; and on other occasions both aspects are scaffolded. This might be due to a lack of awareness on the part of teachers, which can be seen in the analysis of the meta-talk. The focus is often on the content itself and not on how the content is expressed; the proof of this is that translanguaging is accepted or that not all incorrect or incomplete CDFs of the students are scaffolded.

6.1.4. Presence Of CDFs In Teacher-Student Interaction

There are not yet many studies to compare data on the presence and role of CDFs in each subject. In addition to the nature of the subject taught, several factors that can influence the presence of the CDFs in the classroom, such as the individual teaching

style, the type of activities carried out, and the main objectives of the subject concerned may also have an impact on how many CDFs are performed in classrooms and by whom (Dalton-Puffer et. al, 2018).

The use of CDFs was identified, in line with Morton (2020), in the activities carried out in the classroom and the questions asked by the teachers, i.e. tasks are requested in the form of operative verbs.

Regarding the amount of CDFs uttered by teachers and students, these are used by teachers almost three times more often (464) than by pupils (174). In the study carried out by Salvador-Garcia et al., (2022) on the subject of Physical Education, only 25% of the CDFs that occurred during the lessons were uttered by the students. Similarly, in the studies reported by Dalton-Puffer et al. (2018) teachers use more CDFs than students in all subjects except English. The teacher uses only 5 more CDFs than the students in our English class, and it is the subject in which the students use the most CDFs. According to Slater and Butler (2015), the number of CDFs used by students is insufficient for developing students' knowledge and ensuring deep learning.

With regard to the presence of the CDF types, some CDFs have been identified at a higher rate than others. Findings have shown that the presence of CDF in each subject varies. More CDFs are used in the subjects of economics (240), English (119) and mathematics (128), and the least in Basque (66), history (62) and physical education (27). Given the peculiarities and characteristics of the subject, some CDFs are used more frequently in some areas than others. Doiz and Lasagabaster (2021) also state that the CDFs are not equally distributed in the subjects.

Dalton-Puffer et al. (2018) compared the types of CDFs that are prominent in each subject area (CDFs used by teachers and students) with the results of the various studies carried out so far. Three of the six subjects covered in the project (economics, history and English) have been studied in Austria and compared and analysed by Dalton-Puffer et al. (2018). The outcomes are not identical, but they are not that different either.

Regarding the subject of economics, DEFINE, EXPLAIN and DESCRIBE are the three most frequently used CDF types in the present study, whilst EVALUATE, EXPLORE and CATEGORISE are the least used. Comparing these findings with the studies gathered in Dalton-Puffer et al., (2018), some similarities can be found. The REPORT CDF type is the fourth most used in our study, while in Dalton-Puffer's study it is the most frequently used. Otherwise, the data are similar, EVALUATE, EXPLORE and CATEGORISE are also the least used types of CDFs.

In history, DESCRIBE and EXPLAIN are the most used CDFs in the two studies, and EXPLORE the least used (Dalton-Puffer et al., 2018). Doiz and Lasagabaster (2021) also examined the use of CDFs in English-medium instruction history teaching at university by three different teachers, and these authors found that the most frequent CDFs were DESCRIBE, DEFINE and EXPLAIN. Compared to the findings in Dalton-Puffer et al., (2018), as well as in the subject of economics, the CDF type REPORT is also the most different one.

The frequency of the CDFs identified in the current study and that collected by Dalton-Puffer et al., (2018) differ as well in the English subject. Our findings show that REPORT is the second most used CDF in the interaction, whereas it is the second least used in the study by Dalton-Puffer et al (2018). However, DEFINE and EXPLAIN are two of the most frequently used functions in both studies. It also corresponds with the fact that EXPLORE, like in the rest of the subjects, is used infrequently.

In the current study, the presence of CDFs is the lowest in physical education among the six subjects that comprise the project. The most common CDF type is DESCRIBE and the least common is DEFINE. This only partially corresponds with the findings of Celina Salvador-Garcia et al., (2022), who discovered that the CDFs DESCRIBE and DEFINE were the most frequently occurring functions in Physical Education classes.

In the case of mathematics, the findings of other studies do not match our data. DESCRIBE and EXPLAIN are the most frequently used functions in this project, but EXPLORE and REPORT are the most frequently used functions in Linneweber-Lammerskitten (2012). It also refutes the objectives stated by Heziberri (2020) which refer to hypothesis formulation (EXPLORE), justification (EVALUATE), and reasoning (EXPLAIN).

The topic of CDFs has received more attention in some subjects than in others. As a result, we lack data to compare our results in the case of the language subject, in this case Basque. Some CDFs have been identified in the curriculum regarding said subject, but even so, this brings us to the need to describe subject-specific literacy in language subjects.

In general, the dominance of DESCRIBE is consistent with most studies published to date (Kröss, 2014; Hofmann and Hopf, 2015; Bauer-Marschallinger, 2016; Lechner, 2016; Dalton-Puffer and Bauer-Marschallinger, 2019). This may occur due to the fact that other types of CDFs also contain descriptive elements, such as DEFINE, REPORT or EXPLAIN as pointed out by Dalton-Puffer (2016) or because EXPLAIN often serves

as an overall communicative function which contains other CDFs embedded within it such as descriptions, definitions and report. It has also been noticed that the boundaries between CDF types are fuzzy and that CDFs are usually embedded within each other, which makes the identification of CDFs difficult (as explained by Meyer et al., 2015).

One of the objectives of the project is to reflect on the situation in Africa. Throughout the project, teachers *reflect* and *give their opinion*s on the topics discussed, *argue* and *critique* the students' answers, and also *take a stance* on only some occasions. However, even if arguing is one of the main goals of the project and students are required to produce an opinion essay and a debate, the CDF type EVALUATE is not used as much as other CDF types. This CDF type is also not frequently used in the studies described in Dalton-Puffer et. al (2018) either. However, according to Beacco et al., (2015), the function EVALUATE should have more presence in the classroom as it is an important CDF type in the learning process of students.

Lastly, EXPLORE is by far the least used CDF in the classroom. In the study carried out by Lechner (2016) EXPLORE is also the most uncommon type. This author claims that this is not surprising given the complex lexico-grammar required for its realisation.

Meta-Talk

In order to scaffold CDF, teachers should ideally use strategies that scaffold both meaning and form, which, according to Walqui (2006), could be accomplished through meta-talk. However, in the present study the teachers' discourse contains a small number of instances of meta-talk. On some occasions, the operative verb or CDF type is explicitly used to elicit the function to be used. However, teachers do not specify how CDFs should be performed linguistically. According to a large amount of studies regarding teachers' meta-talk (Lackner, 2012; Dalton-Puffer, 2007; Kröss, 2014; Hoffman and Hopf, 2015; Lechner, 2016), not much metadiscourse on (teaching) how to use cognitive discourse functions can be found in teachers' discourse. Further supporting the findings of Hoffman and Hopf (2015), the current study's analysis of meta-talk also suggests that it occurs randomly and without any conscious effort, which, according to Lechner (2016), reveals a lack of awareness of the use of cognitive discourse functions.

The meta-talk used by the six teachers was examined, and 49 instances of meta-talk were discovered in total. We found that 15 corresponded to the CDFs used by the teachers themselves, and 34 corresponded to the CDFs that the teacher explicitly requested from the students. Only one occurrence belonged to the reactive meta-talk

type, while 14 belonged to the preemptive metatalk type. According to Basturkmen et al. (2002), proactive metatalk outnumbers reactive metatalk. However, regarding the meta-talk on specific CDF types, the findings are not completely in line with Dalton-Puffer et al., (2018). Further research is needed so that an interpretation of these results can be made.

Another important factor to consider is the absence of meta-talk in student discourse. Although multiple studies show that student-realized meta-talk is less common than teacher-realized meta-talk, Basturkmen et al. (2002) note that both teachers and students can use meta-talk (In Hoffman and Hopf, 2015), and Hu (2011:181) adds that "the correlation of meta-language and meta-linguistic knowledge appears to be of great advantage for learners". Ellis (2004) associates a lack of meta-talk among students with the difficulty in understanding linguistic structures. One reason for students' lack of meta-talk may be a lack of linguistic labels, which are necessary for understanding linguistic constructs (Ellis, 2004).

Scaffolding of the CDFs

Findings indicate that learners' CDFs are incomplete and teachers do not explain how to use the CDFs linguistically, but they often scaffold students' responses. CDFs are mostly scaffolded in IRF patterns. In the follow-up phase teachers use several strategies for students to elaborate or correct their answers, such as reformulations, revoicing, elicitation, repetition… Similarly, Bauer-Marschallinger (2022) adds that teachers should provide appropriate feedback regarding the use of CDFs, by means of strategies such as clarification requests, recasts, and explicit correction. Tedick and Lyster (2020) suggest that in order to help students scaffold CDFs in the written mode, the functions students are required to reproduce should be clear, as well as the grammatical features and vocabulary needed to perform the function. Other strategies teachers use to aid in knowledge construction involve language, such as using common language to help pupils in understanding academic language, as we have seen in a previous example, and translation (Tang, 2019). Translations are used in our context due to the sociolinguistic situation and the fact that both students and teachers are bilingual. According to Beacco et al., (2010), scaffolding techniques require the teacher to offer learners spontaneous assistance whenever students encounter linguistic obstacles that the teacher cannot anticipate when planning the lesson.

Findings have shown that some strategies serve to scaffold the form of CDFs, others scaffold both meaning and form, and others only meaning; and that some strategies are more useful than others, the ones that focus on the linking of the two meaning and form.

For mastery in the use of CDFs to occur, not only must knowledge be accessible and built, but also the means (linguistic forms) for its verbal representations need to be acquired (Dalton-Puffer, 2016). The most scaffolded CDF type in the present study is DEFINE. This might be in line with Bauer-Marschallinger (2022), who states that not only should linguistic forms and functions be taken into account when scaffolding a CDF, but subject-related terms should also be considered.

In line with Dalton-Puffer (2018) and Doiz and Lasagabaster (2021), teachers not only use strategies to help students improve their answers, but they also model the subject-specific language that students must learn, which according to Walqui (2006) and Dalton-Puffer et al., (2018), can serve as modelling for learners. Furthermore, regarding modelling, Tedick and Lyster (2020) add that the teacher should also model language before the activity to remind students of the language required to complete a task.

6.2. EMERGED CONNECTIONS BETWEEN THE THREE RESEARCH QUESTIONS

This study examined the role of language in an interdisciplinary project, including how language is addressed in each of the six subjects that compose the project, in the teaching material designed by the teachers, and in teacher-student interaction. After conducting the three analyses and the discussion, several connections between the three research questions were discovered, specifically between the teachers' linguistic approach shared in the interviews, the presence of the CDFs in the teaching material, and the scaffolding of CDFs within the teacher-student interaction, and we consider it is important to emphasise these connections.

The analysis results show that the presence of CDFs in the project is notable, demonstrating the fact that CDFs are used in subject pedagogies (Dalton-Puffer et al., 2018). However, there are differences in the presence of CDFs in the teaching material and interaction, as well as in each subject, as demonstrated by other authors (Doiz and Lasagabaster, 2021), and in the scaffolding of the CDFs throughout the project. A detailed interpretation of the data follows in order to better understand the role of CDFs in the project. In the teacher interviews, the term *Cognitive Discourse Functions* was not mentioned, but the teachers' linguistic perspective and the role of language in the subjects were discussed, which may help in the interpretation of the results.

6.2.1. Comparison of the presence of CDFs in the teaching material and in teacher-student classroom interaction

Regarding the first idea, CDFs have been found in both the teaching material and in the teacher-student interaction, but not to the same extent:

Taula/Table 27. Comparison of the presence of CDFs in the teaching material and in teacher-student classroom interaction

	Teaching Material			Teacher-Student Interaction			
	CDFs offered	CDFs requested	CDFs worked on	CDFs used by teachers	CDFs requested	CDFs used by students	Scaffolded CDFs
Economics	24	32	1	191	38	49	11
Basque	6	6	2	33	9	33	1
Mathematics	37	39	1	98	30	30	3
English	19	11	0	62	66	57	16
Physical Education	2	2	1	23	7	4	0
History	10	16	2	57	23	5	0

Regarding the CDFs that students are exposed to, if we compare the use of CDFs in the teaching material of each discipline and the teachers' use of CDFs in their respective subjects, in all cases students have a higher exposure of CDFs during classroom interaction than through the use of the teaching material. In total, the teaching material offers 98 CDFs, whilst the CDFs used by teachers and thus offered to students in teacher-student interaction reaches 464 CDFs, almost 5 times as many.

As far as we can see, the two subjects in which students are most exposed to the use of CDFs are economics and mathematics, followed by English, history, Basque and physical education. It is worth noting that the subjects of Basque and physical education offer students almost no exposure to CDFs through the teaching material and less exposure than the rest of the subjects during interaction.

Moving into the second column(s), looking at the contrast of the required CDFs both in the teaching material and interaction, the following can be observed. As we have seen above, the teachers require the students to use CDFs more frequently than the material does, 106 CDFs are required in the teaching material in contrast to the 173 CDFs found in the interaction. The mathematics subject is an exception to this, where the material requires the students to use 9 more CDFs than the teacher requires.

In general, the difference between the number of CDFs required in the material and the interaction in each subject is not striking, except in the English subject, where a larger number of CDFs are required in interaction than in the teaching material (66 CDFs in the interaction against 11 CDFs in the teaching material). It can also be observed that the subjects where the fewest CDFs are required are also the subjects where students are exposed to the fewest CDFs, which are Basque and Physical Education.

Two groups can be distinguished among the six subjects under consideration. Economics, English, and mathematics, on the one hand, and physical education, Basque, and history, on the other. In general, the number of CDFs in the first group is greater than that in the second group. This means that CDFs are given more attention in the subjects of economics, English, and mathematics than in the others since the presence of CDFs in Basque, physical education and history is lower both in the material and in the interaction. In fact, the teachers of these three subjects from the second group are the teachers who use the fewest CDFs in their discourse, the ones who require the fewest CDFs from the students, and the ones who scaffold the fewest CDFs. Moreover, according to Dalton-Puffer et al., (2018), it must be considered that the nature of the subject affects the existence (or absence) of particular CDFs.

The reason for the different teaching styles may not be related to the cultures of the disciplines but it may be conditioned to some extent by each teacher's approach, the way each teacher represents their subject, and their understanding of the role of language in the learning of the subject. Paying attention to CDFs makes the linguistic demands of content learning objectives more visible and relevant for subject teachers, who frequently do not consider language to be a part of their responsibility (Evnitskaya, 2019; Morton, 2020; Dalton-Puffer and Bauer-Marschallinger, 2019).

The biggest difference is found in the scaffolding of CDFs. CDFs are more frequently scaffolded in the interaction than through the teaching material, which is in accordance with the belief that dialogic teaching is considered to imply scaffolding (Alexander, 2020). On the one hand, as seen in RQ2, in the teaching material hardly any of the 106 CDFs required in the activities are scaffolded, whilst teachers scaffold 29 of the CDFs used by the student through the strategies collected in the previous research question. Even so, a big difference can be seen between the number of CDFs scaffolded by each of the teachers and how the scaffolding is carried out.

6.2.2. Relationship between teachers' views and the characteristics of both the teaching material and interaction

The semi-structured interviews conducted with the teachers help to interpret the findings presented so far. Teachers are not directly asked about how they address CDFs in the classroom, but about the importance and role that the language plays in their subject. Therefore, in the following lines, in order to better understand the different attention paid to the CDFs in the 6 disciplines, focus will be placed on what teachers shared in the interviews and we will try to relate their views with what happens in the project.

When asking the teachers about the role that language plays in their subject, all of them see the language as of great importance when learning a subject, and most of them say that language is assessed in their subjects. However, as previously reported, different linguistic approaches can be identified among the teachers, as seen in Garro et al. (2020). Some teachers relate language to cohesion and coherence, others to terminology, communicative competence, correctness…

The subject of economics is the subject where the CDFs have more presence (240). In the same vein, the economics teacher also shared that she pays special attention to how students articulate the content learned in the subject. Along with English, economics is the subject where students are exposed to the most CDFs. Moreover, after English, it is the second subject where most CDFs are requested and scaffolded. In her discourse, the economics teacher shows awareness of the role that language and communicative competence have in the subject of economics. She claims that she is aware that students do not express themselves (written) correctly and that she interprets what she thinks students want to say. However, although she always assesses the student's ability to express themselves when correcting the tasks, she admits that she does not work on it explicitly because this is addressed in the subject of Basque.

The subject of mathematics is the second subject where CDFs are more present. The mathematics teacher mentions the importance of mathematical language to learn mathematics. She mentions verbs such as *summarise* and *compare* to indicate the functions that students should perform with the content learnt. She identifies that the pupils have a lack of linguistic competence and that they are not always able to express themselves through mathematical language. The teacher considers it essential and compulsory to use appropriate terminology to talk about mathematical concepts.

Even though the teacher finds it of paramount importance that students learn how to use the mathematical language and she asks them to use it, she admits that she does not

explicitly teach the mathematical language that students should use in the subject. The teacher is aware that students will not master the mathematical language unless this is explicitly taught, but she admits that she does not know how to do it. This might suggest that through teacher-student interaction students are required to use 30 CDFs in the mathematics lessons, but only three of them are scaffolded.

Regarding the English subject, we have seen that it is the subject where most CDFs are required, 44% of the CDFs required in the project come from this subject. This might be evidence of what the English teacher states in the interview, that in the case of English as a foreign language, she understands the foreign language as a procedural language. In other words, the teacher claims that she gives importance to the use of the language, rather than teaching grammar explicitly. She believes that projects offer a great context to use the language. One of the objectives of the English teacher is that the students learn to use the language correctly. The high presence of CDFs and the scaffolding of these in the subject could be linked to this belief, since the more CDFs learners are required to use, the more opportunities they will have to use the language.

In contrast to these three subjects, in the subjects of history, physical education and Basque, less attention is paid to subject-specific literacies. In the subject of Basque, the CDFs have practically no presence in the subject, neither in the teaching material nor in interaction. This means that there has hardly been any interaction in the classroom. The teacher considers that language is not given enough importance in the project, and that, in general, explicit attention is not paid to the language in the project. He associates this issue with two challenges. On the one hand, he puts the development of the communicative competence in Basque under the responsibility of all teachers. He thinks that content subject teachers should also pay attention to the linguistic level of the pupils, but he is not sure whether content teachers are competent enough to correct the language used by pupils. Similarly, he does not see himself capable of correcting the tasks in the subject of economics, because he is not (does not feel) an expert in the discipline. Moreover, he does not consider himself a language teacher either, since he has a degree in Philosophy and not in languages. The fact that the teacher does not feel comfortable as a Basque teacher and that he is aware that they have not worked at all on the subject of Basque is reflected in the findings.

According to the Basque language teacher, aside from language being vehicular, he claims that language disciplines also have specific content, although it is not always clear what content is in the language subject (Coyle and Meyer, 2021). The teacher admits

that no content related to the subject of Basque has been worked on in the project. Students were required to write a comic. Learning how to use different types of genres is also one of the aims of the subject, but he does not see the point of this task. Although he was given the opportunity to improve the design of the subject in the project, he did not do it.

Regarding the subject of history, several researchers have examined the history subject, and their findings are not in line with ours. The teacher says that she places importance on both the content and the language used by the students. She tells the pupils what structure they have to follow when writing a text, and how to organise the paragraphs. According to her, when correcting, the teacher always assesses in addition to the content the following aspects regarding the language: coherence, relevance and cohesion. It can be interpreted from the interviews that the teacher is aware of the importance of language in the subject of history. That is why she always demands and asks the pupils to take it into account. However, in terms of CDFs findings indicate that few CDFs are requested from students, and only a few of them are scaffolded in the interaction. According to her, she does not work explicitly on the language mainly for two reasons: because by the first year of upper-secondary education students are supposed to be able to argue or make reflections; and because there is not enough time in the project to work on it explicitly, although she considers that it would be ideal. This might explain why the teacher did not scaffold any CDF used by the students in the teacher-student interaction. Moreover, this linguistic approach, which is more related to a general role of language than to a subject-specific language, could be related to the teachers' professional profile. The teacher is a philologist, not a historian, and it is her first year as a teacher.

Lastly, In the case of physical education, where CDFs are scarcely dealt with, the teacher focuses on students learning how to dynamise a physical education session, as this is the main objective of the discipline. Teacher-student interaction is not usually found in this subject, as most of the activities carried out in the classroom are practical. For this reason, students are only required to use language when presenting and dynamising the games in primary education. Regarding language, the teacher gives importance to the use of Basque and to the correct use of the language, but not to the development and mastery of subject-specific literacy. However, when asking her how students are taught to use language correctly, she states that she does not do it. Even so, she admits that content and language integrated learning is important, and she considers it something which, consciously and knowing how to do it, could be done in the subject.

To sum up, it can be seen that what teachers share in their discourses is reflected in what happens in the material and classroom interaction. In the present study, findings show that the understanding of both subject and subject-specific literacy directly influences the use of CDFs, which is key so that students develop subject-specific literacies. In other words, the cases in which teachers are more aware of the role that language plays when learning the subject matter, are the subjects where CDFs have more presence and more attention is paid to them.

6.3.   GENERAL CONCLUSIONS

Language proficiency is considered one of the keys to academic success. Moreover, (the role of) language becomes even more important in a context such as the one in which the present study is situated, where the language of instruction is a minority language, and in addition, pupils are required to develop a multilingual competence in three languages by the time they finish upper-secondary education. Furthermore, in order to meet today's challenges and achieve deeper learning, students of the twenty-first century must acquire a set of skills alongside learning the contents of various subjects and the corresponding subject-specific literacies. To achieve this, the curriculum (Eusko Jaurlaritza, 2014) advocates inter- and multidisciplinarity, although no guidelines are proposed for it. In this thesis, we wanted to cover both of these aspects. Therefore, we examined how different subject-specific literacies are addressed in a multidisciplinary project designed by the school teachers in the first year of upper-secondary education in a multilingual context where the main language of instruction is a minority language, and the other language of instruction is a foreign language.

First and foremost, we would like to recognise the school's initiative and the willingness of the teachers involved in the project, as designing and implementing multidisciplinary projects in upper-secondary education might be both challenging and difficult.

It has been difficult to study a multidisciplinary project from a framework designed for disciplines. We have seen that this framework contributes to the development of subject literacies through multidisciplinary projects. At the same time, research from this framework in the context of an interdisciplinary project has demonstrated the relevance of the CDF construct, and that the role of CDFs in the project can serve to focus on subject-specific language in all subjects. To our knowledge, this is the first thesis to examine the CDF's role in multidisciplinary projects and to describe how they are developed. The next step would be to investigate the development of subject-specific literacies in inter- and transdisciplinary projects.

The findings show that the project meets several of the aspects proposed in the PTDL framework, such as the connection between the project and everyday life, the various types of evaluation proposed during the two weeks, and the various types of groups in which students work, though there are still many challenges to overcome. In other words, despite the complexity, the study has demonstrated that PBL may be an appropriate methodology for ensuring the PTDL framework and that multidisciplinary projects can be a good opportunity to consolidate content and language integration, and thus develop

subject literacy. However, several challenges have been identified for the implementation of the PTDL framework through multidisciplinary and multilingual projects.

Some subject-specific literacies, such as science and history literacies, are more developed and studied than others in the literature. In the case of language subjects, however, it is not defined which CDFs students should master in order to become literate in the subject. It is uncertain whether the CDFs students need to master should be the same in all languages, or whether each language should have its corresponding ones, considering that the content addressed in the linguistic subjects is different. In the case of Basque, literature is one of the main topics covered in the subject, whereas English is taught as the language to teach another subject, i.e. a topic is chosen to be taught in English. More research in all subjects is still needed to list and define the corresponding CDF types of each discipline.

It can also be concluded that some issues such as academic language in the main language instruction are not addressed because it is assumed that students already possess that knowledge. Teachers frequently assume that upper-secondary students understand how to use language, make descriptions, define, or summarise in Basque, and as a result, teachers frequently pay attention to the content of the subject area rather than to the students' ways of verbalising the knowledge. Furthermore, we must remember that the students in this study learn in an immersion model with a minority language and that if students do not develop the language of instruction at school, they might have difficulties to develop it outside of school.

This study confirms that teachers are unfamiliar with the CDF construct, but findings have shown that CDFs are used in all subjects. However, there are differences in the presence and role of CDFs in both teaching material and teacher-student interactions across disciplines. We can conclude that, depending on the linguistic approach of the teachers, some teachers pay attention to their scaffolding of CDFs and students' linguistic competence both during interaction and in the teaching material, either consciously or unconsciously. It should also be noted, as previously stated throughout the analyses, that not all subjects devote the same amount of time to the project. Furthermore, some subjects, such as history, devote more time to independent work than to whole-group interaction with the teacher, as is the case in English. It would be interesting for future research to examine whether CDFs are scaffolded in student-student interactions during group work.

Moreover, teachers must be aware of the role CDFs play in the classroom in order to pay attention to their scaffolding, which does not always occur. Cases where CDF verbalisation is incomplete can be viewed as opportunities to assist learners in developing and mastering CDFs by asking them to lengthen their answers and providing them with feedback focused on both meaning and form, thus scaffolding both knowledge construction and linguistic verbalisation. It is the responsibility of teachers to provide opportunities for students to master the use of CDFs as students will struggle to develop subject-specific discourses unless this occurs. Therefore, it would be of great help if teachers were aware of the role CDFs play in the learning of the subject.

In contrast to CDFs, genres are consciously demanded and worked on throughout the project in this study. In interviews and during classroom practise, most teachers mention the genres. The 13-day project requires eight genres in total, although not all teachers address the genres in the same way, i.e. not every teacher evaluates and works on the genres in the same way. Furthermore, genre elaboration should be done one by one, which takes time, with 13 days not being long enough to work on all of them in depth. As a result, it would be better to request fewer genres and work on them more thoroughly. Furthermore, it should also be decided what macro genres students will be required to use, and which CDFs or micro genres students need in order to produce said macro genre. This study indicates that CDFs or micro genres are necessary for the formation of macro genres, and that CDFs are also essential in the interaction and development of subject-related content.

In general, it can be concluded that all six teachers are aware of the importance and the role language plays in the disciplines. However, they do not have a unified discourse or approach, nor is there a unified way of working on the specific language. As we have seen in this study, when some aspects are not systematised, it is up to the teachers to decide what to teach and how. However, considering linguistic aspects in the teaching material might help to systematise their development. Shifts between everyday language and academic language, for example, are more likely to occur in classroom interaction than in the material. However, if this is not suggested in the material, teachers may overlook it and fail to implement it. Another challenge is that each teacher must possess a high knowledge of their subject, as well as they must have a clear view of what students are supposed to do linguistically in the subject. Furthermore, in multidisciplinary projects, findings indicate that coordination between teachers is one of the key aspects when working in multidisciplinary projects. Since it can be seen that what teachers share in their discourses is reflected in their decisions taken in the classroom, coordination is

required not only for organisational aspects such as arrangements in the timetable or sharing responsibilities, but also in terms of pedagogical perspective: how teachers understand the subjects, the role of language in the subjects, classroom interaction… For this reason, spaces should be created before, during and after multidisciplinary projects take place to ensure that all the teachers taking part in the project share the same teaching and language perspective and ways of doing, and that coordination and organization are guaranteed.

What is clear is that all teachers are directly involved with language, regardless of the subject they teach, and that subject teachers are responsible for students developing subject-specific literacy. Furthermore, in a multidisciplinary project, as reported by students, when teachers' teaching styles differ greatly, it frequently causes them to lose track of what they are studying. Such testimonies also lead us to the conclusion that it is critical to understand students' opinions and perceptions, as they often differ from what teachers believe. Nonetheless, further research is needed regarding inter- and multidisciplinarity and the pluriliteracies model for teaching and learning.

6.3.1. Limitations, Strengths and Future Directions

There are some limitations to this research study that must be considered. The first one, shared by all case studies, is that findings cannot be generalised.

One of the main limitations of this work is that the PTDL framework is still evolving. Since the very beginning of the study, several difficulties and challenges related to theoretical underpinnings have arisen. Due to the framework's novelty, few studies on the topic can still be found, which could be useful as model research and for comparing and discussing findings. It has also been particularly difficult for us to identify the CDFs related to each subject due to the fuzzy boundaries and embeddedness of the CDFs construct. In addition, most research to date on CDFs implies studies focused on written language. For this reason, more research is needed to determine how CDFs should be examined in both classroom interactions and teaching materials.

Taking into account that only one multidisciplinary project was examined in this study broad generalisations related to CDFs are not possible. In the present study, even if some CDFs are more common in some subjects than others, CDFs cannot be linked to specific subjects, as the CDFs used in the project under study may also be dependent on the project's goal, the teacher's style, teachers' experiences, linguistic perspectives, and representation in the field, among other factors. This means that the results would have been different if we had investigated another multidisciplinary project on a different topic. As a result, more research would be required to describe subject-specific CDFs.

Regarding linguistic issues, the majority of previous studies have been conducted in English or German. Besides, it should be noted that, as Dalton-Puffer (2013) created the list of CDFs and operational verbs from the English literature, it is not always easy to translate or select the correct operational verb when working with data in a language other than English. The corpus in this study was in Basque, which presented several challenges during the analysis. Basque has a very young standard language, which means that some literacies are still very young or not fully defined. Furthermore, the language corpus in English is more extensive than the language corpus in Basque, which makes translating operational verbs difficult in some cases. The verb *azaldu*, for example, is ambiguous and can have multiple meanings. Its literal translation into English is to explain, but it can also mean to inform or describe, which can complicate the analysis. For this reason, it is not enough to translate operative verbs literally; it is also necessary to understand the meaning and communicative goal of the verb and to find the equivalent in the corresponding language.

Another limitation of this study is that we focused on subject-specific literacy, paying close attention to language but without analysing the content covered in each subject. Ideally, the content should be examined in collaboration with experts in the discipline, but the nature of the present research does not permit it.

Moreover, this is one of the first studies to describe and analyze the PTDL framework in Basque, requiring several terms to be created. However, despite the limitations mentioned thus far, the challenges and difficulties encountered while conducting the study can help to further develop the CDF construct and contribute to understanding how subject-specific literacies can be worked on through multidisciplinary projects, which are becoming increasingly common in schools, as well as to the description of five different subject-specific literacies in Basque.

Many aspects of PTDL remain to be analysed in the present study. Focus has been placed on subject-specific literacies, but future research could focus on the other two axes that comprise PTDL: "generating and sustaining commitment and achievement" and "mentoring learning and personal growth." In the same vein, future research should examine student progression to determine whether improving the material and training teachers in how to use different strategies to scaffold CDFs through classroom interaction improves student outcomes, as well as the strategies students employ during the learning process. In the present study, only two of the five dimensions of the checklist were examined, those related to subject-specific literacy. However, in order to determine whether the material is appropriate for achieving deeper learning, it is not sufficient to examine subject-specific literacies. All five dimensions must be taken into account.

We have also seen that, in order for the students to achieve Deeper Learning, it is essential that all teachers involved in the same multidisciplinary project share some views, as evidenced by the fact that teachers' perspectives are reflected in the classroom. Therefore, teachers should be trained in both the PTDL framework and in the CDFs specifically. As a result, for future studies, it would be beneficial to define what kind of knowledge and what kind of training teachers require regarding this framework. Among the aspects that teachers in this study have identified as necessary to improve are the following: metalinguistic awareness, a shared linguistic viewpoint, instructional strategies, and professional knowledge. This would aid in the systematisation of various aspects currently left to individual teachers. However, because there are new teachers in schools every year, it is sometimes difficult to ensure that all teachers receive the same training.

The idea that all teachers are language teachers is spreading. However, teachers are not always sure of their role in language education, and some of them believe they are not qualified to teach language in their subjects. The CDF construct assists in defining what subject teachers should focus on in terms of subject-specific language. Thus, this framework expands on the idea that all teachers should be aware of the role that language plays in their subjects.

It would be interesting to analyse how subject-specific-literacies are addressed in multidisciplinary projects in other educational stages, as well as in other specialties in upper-secondary education, such as science or technology specialties.

In addition, knowing that interaction is important for learning, the research conducted helps to better define the nature of the interaction. The CDF construct can be used to scaffold that learning. However, in general, and particularly in the case of the Basque Country, it would be necessary to investigate the interaction in many different contexts and subjects in order to see their potential. For future studies, the proposal could be to examine what CDF students need to develop in each subject within the project, and what content and forms of language students need to learn. In other words, CDFs can and should be used not only for defining the ultimate aims that students need to achieve, but also to decide what is going to be assessed. Besides, we found out that depending on the CDF that the teacher is attempting to scaffold, some specific sort of interaction strategies are employed. More research is needed to determine whether this can be generalised and how it is carried out in different contexts.

Lastly, since the curriculum is divided into subjects, most teaching materials are oriented toward specific subjects. As a result, usually, when designing multi- or interdisciplinary projects, creating teaching materials is also required. Another contribution of this work is the checklist developed to analyse the teaching material. It contains all of the characteristics that the material must have in order to meet the PTDL, and it can be used either to examine existing materials or as a guide for designing new materials. The use of the checklist may help to systematise some aspects that all teachers should take into account regardless of the subject they teach.

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8. APPENDIX

8. APPENDIX

APPENDIX 1

Overall picture of the project
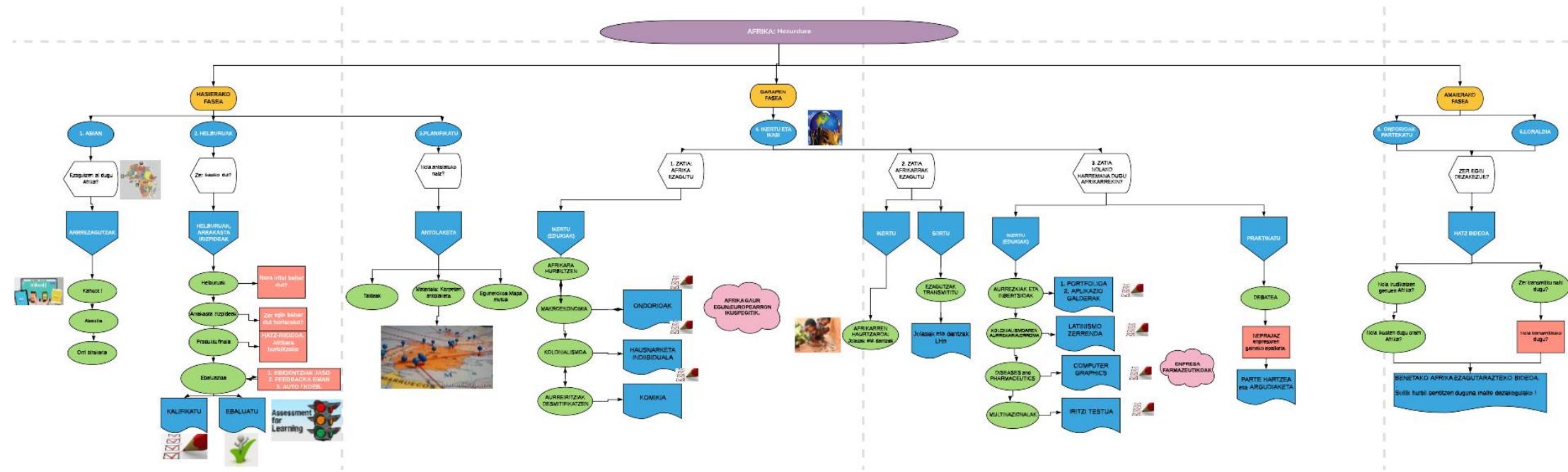
APPENDIX 2

ELKARRIZKETA IRAKASLEEKIN

Kaixo,

Zer moduz? Lehenik eta behin eskerrik asko zure denbora eskaintzeagatik ikerketa honetan laguntzeko, benetan garrantzitsua da niretzako. Mezuan idatzi nizuen bezala, aste hauetan jaso dudan informazioa osatzeko eta bertan sortu zaizkidan zalantzak argitzeko elkarrizketa bat egitea eskatu dizuet. Informazio guztia ezingo dut eskuz jaso, inporta zaizu grabagailua jartzen badut, eta horrela ez dugu denbora galtzen dena idazten? Esaten duzun guztia izango da baliagarria niretzat, eta informaziorik ez galtzeko erabiliko dugu grabagailua, ezin baitut dena eskuz jaso. Hala ere, gure lanean ez dugu izenik aipatuko eta konfidentzialtasun osoa izango duzue. Informazio hau neretzako izango da, era anonimoan aztertuko dut eta ez du inork gehiago entzungo. Nire tesiaren helburu nagusia da hizkuntza nola lantzen den aztertzea irakasleak batxilergoko diziplinarteko proiektuak diseinatzen, lantzen eta erabiltzen dituzuenean. Eta horretarako, eta zuen pertzepzioak, ikuspegiak eta esperientziak ezagutu ahal izateko, elkarrizketak egitea erabaki dut. Galderak metodologiaren, ebaluazioaren, koordinazioaren inguruan izango dira besteak beste.
Galderak egiten joango naiz, zerbait ez bada ulertzen galdetu lasai, bale?

- Hasteko, X, hobeto kokatzeko, X ematen duzu zuk, zein da zure perfila? Ikasketak, esperientzia…
- Zer moduz joan da Afrika proiektua?
- Egin duzue ebaluaziorik?
- Azalduko didazu urtean zehar nola egiten duzuen lan? Hau da, orain diziplinarteko proiektu bat egin duzue, baina urte osoan horrela egiten duzue lan?
- Proiektu hauek, diziplinartekoak, nola diseinatzen dituzue? Diseinatuta badaude, zein da bakoitzak egiten duen aportazioa?
- Berrikuntzan sartzeko jaso duzue formaziorik? Zein? Jaso duzue formakuntzarik proiektuetan lan egiteko?
- Irakasleen koordinazioa nolakoa da 7 ikasgai hartzen dituen diziplinarteko proiektu bat aurrera ateratzeko? Ze koordinazio maila eskatzen du?
- Bakoitzak nahi dituen lanak eskatzen ditu, ala koordinatu egiten zarete irakasle bakoitzak zein lan bidali erabakitzeko?

- Nola erabakitzen duzue arlo bakoitzetik zein lan eskatu?

- Zure arloan lan desberdinak eskatzen zaizkie, iritzi-testua adibidez, ezta? Lan hori egiteko zer nolako koordinazioa daukazu euskarako irakaslearekin? Nola lantzen dituzue eskatzen dituzuen testu generoak?

- Hizkuntza eta arloa: agian entzungo zenuke irakasle guztiok garela hizkuntza irakasleak neurri batean. Esango zenidake zein garrantzia ematen diozun zure ikasgaian hizkuntzari?

- Nola ebaluatzen da hizkuntza proiektu integratuetan? Nork ebaluatzen du?

- Zein da hizkuntza irakaslen rola ikasleak proiektuetan lanean daudenean?

- Ikasleen jarraipena nola egiten da? (tutorea). Tutoreak zein rol dauka?

- Lanen eta proiektuaren ebaluazioa nolakoa da? Autoebaluazioa egiten dute? Koebaluazioa?

- Eskatzen duzuen lan bakoitzeko ikasleei errubrika bat helarazten diezue. Azalduko zenidake nola sortu dituzuen errubrikak? Zer hartzen duzue kontuan?

- Zein izan da proiektuaren ebaluazio orokorra? Nork egiten du ebaluazioa? Irakasleek? Ikasleek?

Amaitzeko,

- Zer iruditzen zaizu positiboen?

- Zein zailtasun izan duzue orain arte?

- Besterik aipatzeko?

Esandakoaren laburpentxo bat egin, ideia nagusiak jaso eta eskerrak eman.

APPENDIX 3

BIGARREN ELKARRIZKETA IRAKASLEEKIN.

Galdera batzuk egin gabe utzi nituen, eta hauek argitzeko tartetxo bat eskatu nahi nizuke. Minutu batzuk besterik ez dira izango. Orain arte zuen lan egiteko moduaren inguruan hitz egin dugu, erabiltzen duzuen metodologiaz, proiektuen diseinuaz, zuen antolakuntzaz... Gaurkoan arreta ikasleengan jarri nahi dut.

- Bertan batxi egiten dutenak hemen DBH egindakoak dira? Noiztik ezagutzen dituzue ikasleak? Ala kanpotik datoz? Berriak badira zein nolako harrera egiten zaie? Ikasturte hasieran almenen proiektu bat egiten dute, harremantzeko eta ikastola ezagutzeko. Astebeteko proiektua da. Gaztelupen ere egiten da?

- Nola deskribatuko zenituzke irakasleak? Nola deskribatuko zenuke taldea? Zein aniztasun mota ikusten dituzu? Gaitasunak, ezaugarriak… Denen ezaugarriak kontuan hartzea lortzen duzue?

- Zer ebaluatzen da? Gaitasun kognitiboa? Konpetentziak?

- Ikasle bakoitzaren jarraipena nola egiten da? Zer egiten duzue denengana iristen saiatzeko?

- Taldekatzeak agian hauek kudeatzeko edo kontuan hartzeko balio dute? Proiektuak diseinatzerakoan kontuan hartzen da guzti hori?

- Proiektuak berdinak dira urtero. Urtero egiten da aldaketa/moldaketaren bat. Dauden ikasleen ezaugarriak kontuan hartzen dira moldaketak egiterako orduan?

- Motibatuta egon zarete bi proiektuetan? Nola bizi dituzue bi aste eta erdi hauek? Eta ikasleak? Motibatuta egon dira? Zein estrategia erabiltzen dituzu ikasleak motibatzeko? Eta nola egiten duzuen ikasleen motibazioa piztuta mantentzeko? Proiektuaren diseinuan kontuan hartzen dira ikasleak? Hau da, haien interesak, gaitasunak, aurrezagutzak...

- Bestetik, adituek diote ikasleek askoz hobeto eta modu esanguratsuagoan ikasten dutela ondo sentitzen direnean. Ikasleen ongizatea kontuan hartzen al da proiektuetan? Nola? Loturarik dauka konfiantzaren pedagogiarekin? Zein da konfiantzaren pedagogiaren helburua? Nola aplikatzen duzue proiektuetan?

- Konfiantzaren pedagogia klasean nola? Zer lortu nahi da? Zeintzuk dira helburuak?

- Ikasleekin jarraituz, zein da haien rola proiektuan? Badago nolabaiteko koordinaziorik ikasle eta irakasleen artean? Erabakiak hartzerako orduan, plangintza egiterako orduan... Learning partnerships.

- Amaitzen joateko, nolakoa da gurasoen/familien inplikazioa prozesuan zehar? Hau da, familiek zein nolako parte-hartzea dute komunitatean? Ez bakarrik proiektuetan. Batxi 1ean.

- Eta amaitzeko, nola definituko zenuke zuretzako pertsonalki zer den proiektuka lan egitea? Hiru adjetiborekin deskribatu beharko bazenu proiektuka lan egiten duzuen aste hau, zein adjetibo erabiliko zenituzke?

- Ikasgaien/diziplinen kultura. Mate, ekono, historia… zertarako? Laguntzen al digu mundua interpretatzen? Zuretzako zer da ingelesa (arloa)? Zergatik da garrantzitsua ingelesa ikastea?

- Proiektuetan eta proiektuetatik kanpo ikasgaiak lantzeari aldea ikusten diozu? Zein alde?

Esandakoaren laburpentxo bat egin, ideia nagusiak jaso eta eskerrak eman.

APPENDIX 4

FOCUS GROUP WITH STUDENTS

Lehenik eta behin eskerrik asko zuen denbora eskaintzeagatik ikerketa honetan laguntzeko, benetan garrantzitsua da niretzako. Informazio guztia ezingo dut eskuz jaso, inporta zaizue grabagailua jartzen badut? Esaten duzuen guztia izango da baliagarria niretzat, eta informaziorik ez galtzeko erabiliko dugu grabagailua, ezin baitut dena eskuz jaso. Hala ere, gure lanean ez dugu izenik aipatuko eta konfidentzialtasun osoa izango duzue. Informazio hau niretzako izango da, era anonimoan aztertuko dut eta ez du inork gehiago entzungo. Nire tesiaren helburu nagusia da hizkuntza nola lantzen den aztertzea irakasleak batxilergoko diziplinarteko proiektuak diseinatzen, lantzen eta erabiltzen dituzuenean. Horretarako, irakasleekin elkarrizketa batzuk egin ditut proiektuen inguruan, ea nola antolatzen diren, nola prestatzen duten materiala… Eta orain nahi dudana da, eurei egin dizkieten galdera batzuk zuei ere egin, ea bat zatozten ikusteko, bale? Galderak egiten joango naiz, zerbait ez bada ulertzen galdetu lasai, bale?

- Hasteko, aurreko astean amaitu zenuten proiektua. Zer moduz joan da? Gustora egon zarete?

- Motibatuta egon zarete bi proiektuetan? Nola bizi dituzue bi aste eta erdi hauek? Zerk laguntzen dizue motibazioa pizten? Zerk motibatzen zaituzte?

- Irakasleak motibatuta ikusten dituzue?

- Guztion ezaugarriak kontuan hartzen direla uste/sentitzen duzue?

- Proiektuko zein momentutan zaudete gustorago?

- Zein da zuen rola proiektuetan?

- Nola deskribatuko zenituzkete irakasleak? Zer moduz ikusten dituzue? Zerbait botatzen duzue faltan?

- nola definituko zenukete zuentzako pertsonalki zer den proiektuka lan egitea?

- Zer egiten zaizue zailena proiektuetatik?

- Zein momentutan sentitzen zareta gustoren proiektuan? Eta deserosoen noiz egoten zarete?

- Proiektuetan eta proiektuetatik kanpo ikasgaiak lantzeari aldea ikusten diozu? Zein alde? Zer eskaintzen du proiektuak, bestela eskaintzen ez dena?

- Zer hobetuko zenukete?

- Besterik aipatzeko? Zer gustatuko litzaizueke aldatzea? Zein proposamen egingo zenituzkete?

Esandakoaren laburpentxo bat egin, ideia nagusiak jaso eta eskerrak eman.

APPENDIX 5

1. CONTENT, LANGUAGE AND METACOGNITIVE PROGRESSION

CRITERIA	Starting Point	What will I learn?	Organizing myself	Africa in the world	From knowing Africa to knowing Africans	What is our relationship with Africans?	In exchange for a coin	We made them ill	Debate	Demystifying prejudices about Africa	Sharing conclusions	Performance
Different genres are offered	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Genres are required to be used	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Genres are explicitly taught.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
CDFs are offered	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
CDFs are required to be used	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
CDFs are explicitly taught	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

2. LINKING TECHNICAL LANGUAGE AND CONTENT LEARNING AT THE CONCRETE LEVEL FACTS

CRITERIA	Starting Point	What will I learn?	Organizing myself	Africa in the world	From knowing Africa to knowing Africans	What is our relationship with Africans?	In exchange for a coin	We made them ill	Debate	Demystifying prejudices about Africa	Sharing conclusions	Performance
Learners are asked to construct meaning with CDFs using colloquial language.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Learners are asked to construct meaning with CDFs using academic language.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Academic language is explicitly taught by offering models, examples, explanations…	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Information/content is presented in different forms: diagrams, graphs, pictures, texts…	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Information/content is required in different forms: diagrams, graphs, pictures, texts…	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

3 CREATING COGNITIVE CONFLICTS AND TAKING UP PRE-CONCEPTS OR MISCONCEPTIONS

CRITERIA	Starting Point	What will I learn?	Organizing myself	Africa in the world	From knowing Africa to knowing Africans	What is our relationship with Africans?	In exchange for a coin	We made them ill	Debate	Demystifying prejudices about Africa	Sharing conclusions	Performance
Learners are asked to make individual reflections and to discuss them within the group. "Answer and share" kind of activities.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Learners are asked to share their prior knowledge/preconceptions.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Learners can check if their prior knowledge is correct or not.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Misconceptions are identified.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Preconceptions and misconceptions are worked on.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

Learners are asked to confirm or deny information.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
There are true/false activities.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Learners are asked to make hypotheses.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Research on a topic is proposed.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
The content covered in the subject is presented from the beginning	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

4 MULTIDIMENSIONAL SCAFFOLDING

CRITERIA	Starting Point	What will I learn?	Organizing myself	Africa in the world	From knowing Africa to knowing Africans	What is our relationship with Africans?	In exchange for a coin	We made them ill	Debate	Demystifying prejudices about Africa	Sharing conclusions	Performance
Learners are required to search for information.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Help in searching for information is offered.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Learners are helped in organising and classifying the information (conceptual maps, synthesis...)	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
A final product showing what has been learnt is required.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Learners are provided with checklists.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

Checklists are designed by the learners together with the teachers.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Activities are designed by the learners together with the teachers.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Learners work individually, in pairs and in groups.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Prior knowledge is activated.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Learners evaluate themselves.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Learners are co-evaluated by each other.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Learners are assessed by teachers.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Feedback on language progression is provided.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

Feedback on content progression is provided.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Learners are asked to reflect on their learning progress.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

5 PROMOTING OF AFFECTIVE PUPIL CHARACTERISTICS AND ENGAGEMENT

CRITERIA	Starting Point	What will I learn?	Organizing myself	Africa in the world	From knowing Africa to knowing Africans	What is our relationship with Africans?	In exchange for a coin	We made them ill	Debate	Demystifying prejudices about Africa	Sharing conclusions	Performance
There are self-regulated activities.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
The final product is presented.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Answers can be checked before presenting them.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐
Content/activities/projects are related to the learners' real world.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

APPENDIX 6

Original extracts used in RQ1

Extract 1: T2_En: haien artean bada taldetxo bat oso exijentea dena haiekin eta gurekin ere bai. Exijentzia maila nahi altua daukatenak orokorrean. Badaude beste batzuk isilagoa, lasaiago egoten direnak, ez dutenak hainbeste esateko, baina ez dira hain exijentek haiekin ezta beraien buruekin. Eta gero dago beste talde txiki bat, nik uste, 2-3 izango dira, dabizenak apur bat galduta […] Oso exijenteak direnak bere gauza on eta txarrekin, talde horrek oso lan onak ateratzen ditu aurrera, exijentzia maila oso altua daukate irakasleekin, baina baita haien ikaskideekin ere, eta momento batzuetan egon dira gauza zakarrak ere: ez duzu ondo egin, egingo dugu guk, eta horrelakoak. […]Beste talde isil hori, edo talde ez hain autoexigente hori, euren buruarekiko autoexijentzia ez da hain altua, horiek lasai-lasai, formal, printzipioz ematen du lanean egoten direla, baina badago aktibidade falta bat zentzu horretan. (T2_En 8:8)

Extract 2: T6_PE 1. Ikasle bakoitzaren autoexigentziaren arabera ere bada. Ze batzuek pasatu dezakete hatz-bideoa egiten ordubete eta beste batzuek 5 ordu. Haien lan zama da ikasleen araberakoa, batzuk agobiatzen dira autonomia daukatelako, batzuentzako antolaketa eta autonomia ez dakite kudeatzen. Hiru ordu dituzte testu-iruzkina egiteko, eta ordubete pasatzen dute "egin behar dugu, egin behar dugu", baina ez dira jartzen. Beste batzuek, aldiz, euren buruarekiko autoexijentzia maila hain altua ez dutenek, talde lana "lasai eta formal" egitera eraman ditu, hala ere, horrek berarekin ekar dezake lanarekiko jarrera pasiboagoa ere.

Extract 3: T7_M: ba gela honetan lanerako harremanak dituzte. Ni ez naiz egon denbora asko proiektu honetan, baina badirudi lan konkretu bat egin behar denean eta denon aportazioak ezinbestekoak direnean, hor haserre batzuk egon dira. Badaude gela batzuk non insultatu egiten diren, hizkuntza txarra dute. Gela honetan ez, nahiko gela apala da, errespetatsua, nik uste zentzu horretan nahiko gela ona dela, egokia. Normalean gela amablea da zentzu horretan, eta beraien arten nik uste, behintzat orain arte ikusi dudana, nahiko normala, nahiz eta orain batzuk haserretu diren, baina haserretzea normala da. (T7_M 12:14)

Extract 4: T6_PE: Lotsatia dena ere dantzan ikusi dut. Ikusi ditut denak piña bat moduan. (T6_PE 4:4)

Extract 5: T2_En: Oso disruptivo, oso violento, komunikazio verbal violento zeukaten horiek oso lasai daude orain. (T2_En 10:10)

Extract 6: students
Ikaslea 1: ze gaude eserita leku berdinean eta jende berdinari begira, talde berdinean. Da super cansino.
Ikaslea 2: amaitu genuen con mal rollo taldean.
Ikaslea 3: bai, guk ere bai.
Ikaslea 2: bai, es que hiru aste talde berdinarekin hainbeste ordu…

Extract 7:
Ikaslea 1: baina kontua da, haiek egiten dutena dela: hauek badakigu lan egiten dutela, eta gero hain motibatuta ikusten ez ditugun horiek sartuko ditugu hauekin, eta horrela oinarri bat daukagu eta badakigu zerbait egingo dutela.
Ikaslea 2: baina hori ez zait ondo iruditzen.
Ikaslea 1: niri erezta. Bizitza honetan horrela da dena, baina…
Ikaslea 3: ikusten dituzu taldeak eta horrela dira: 3 langile, eta beste 3 ez langile.
Ikaslea 2: eta zergatik ez dituzte jartzen langileak direnak elkarrekin, benetan nahi dutenak lan egin, eta lanik egin nahi ez dutenak elkarrekin? Baina, lan egiteko gogoa duen norbait zergatik elkartu lan egin nahi ez duen beste norbaitekin, bere atzetik egon behar zarenean, eh, egin behar duzu hau, eta hau…
Ikaslea 1: irakasleentzako ere da egotea benga egin hau, benga orain hau. Ezer egiten ez duen talde bat izan beharrean eta haiek egotea gainean. Haientzako errezagoa da, baina nire nota que me lo he sacado con esfuerzo y dedicación besteek ez dutenean ezer egin.
Ikaslea 2: eta batxi da, behar dugu nota.

Extract 8: T3_H: batzuetan topatzen dira talde batzuekin non ez duten funtzionatzen haiek nahi duten bezala, eta orduan hor batzuetan frustratu egiten dira. Eta hau batez ere bigarren proiektu honekin talde batekin gertatu da. Ez dute aurrera egiten, ataskatu egiten dira, eta aurrera egitea kostatzen zaie (T3_H 11:10)

Extract 9: T3_H: Eta baita ikasleek talde lanean ikasteko. Da zerbait DBH guztian zehar egin dutena, batxilergoan ere egingo dutena, baina oraindik ere kostatzen zaiena. Eta batzuetan ez da ikusten zer den taldeko lana. Pentsatzen dute taldeko lana dela nik zati bat egingo dut, zuk beste zati bat, eta gero elkartuko dugu. Eta azkenean bada halako zerbait, baina ez da guztiz hori. Eta horretara daude ohituta. (T3_H 73:73)

Extract 10:
Student: taldean gaudenean 6 eta dagoela lan bat banatu egin behar duguna eta gero denona elkartu. Batek ez badu egiten ya, adios. Eta hor egon behar zara bere atzetik egin, egin, egin. Eta ez badu nahi, ez du egingo, baina zurea ere bada lana.

Extract 11: Student: ni adibidez oso urduri jartzen naiz. Ikusten dudanean norbaitek ez duela lanik egiten, beti esaten diot, "aber, egin!". Eta niri ez dit balio lan egiteak, ondo egin behar da. No me vale egitea bakarrik.

Extract 12: T7_M: proiektuetatik kanpo irakasleak gidatzen du, irakasleak esaten du zer eta noraino egin behar duten, guk gidatzen dugu dena, baina orain beraiek dira gidatu behar dutenak prozesua, eta zailagoa eta nekezagoa da. Eta batzuek nahi dutena da dena ematea. Ze batzuk gai dira eskatzen zaien guztia egiteko, baina honek eskatzen die planifikatzea, antolatzea… eta batzuek ez dute nahi.

Extract 13: T6_PE batzuk agobiatzen dira dituztelako hiru ordu lana egiteko, baina ez dakite kudeatzen eta antolatzen. Batzuek nahiago dute klaseak jaso eta ariketa hau, hau eta hau egin. Ez daude ohituta honetara, eta honek ziurgabetasuna sortzen du. Batzuk oso agobiatuta egon dira, batzuk arrazoiarekin eta beste batzuk gabe.

Extract 14: T3_H: Nik ez dizuet eman behar informazio guztia aurretik, zuek bilatu behar duzue. Eta momentu horietan agobiatu egiten dira. Ez dakitenean aurrean duten iturri hori fidagarria den ala ez, edo nola kudeatu guzti hori.

Extract 15: T6_PE: Batzuei ez zaie gustatzen lan egitea modu autonomoan, eskakizun maila hori. Batzuentzako erosoagoa da eseri eta bakarrik entzutea eta ikastea, modu tradizionalean.

Extract 16: T2_En: autonomoak izaten ikasi behar dute, baina akaso ez daude edade horretan, guztiz libre uzteko, eta gainera ez daude ohituta. (T2_En 64:64)
Extract 17: Student: daude pertsonak nota txarrak ateratzen dituena gehiago kostatzen zaielako, eta beste batzuk porque se la suda. Zure ondokoa saiatzen dela ikusten baduzu, lagunduko diozu eta hor bai egongo zara gustora, baina si pasa de todo ba

Extract 18:
Ikaslea 1: Eta hemen zuk topatu behar duzu teoria eta zu informatu behar zara. Ez dago azalpenik, gu iritsi behar gara horretara.
Ikaslea 2: ostras, ba niri kosta egin zitzaidan e. […] baina maten adibidez, hori egin genuenean, korrelazioarena eta, geunden super galduta. Azkenean da azalpentxo bat behintza, bestela da zuk egin hori ta zuk hori. Ezer jakin gabe, a lo loco. Azkenean lortu genuen, baina bua, zaila.
Ikaslea 3: zortzi ordu genituen dena egiteko, eta bi orriko zortzi testu irakurri behar zenituen dena ulertzeko, gero egiten hasi…
Ikaslea 4: teoria egin, ikerketarekin hasi, gero itxaron, galdetegia pasatu behar delako, eta jendeak erantzun arte zain. Gero parámetro estatistikoak atera eta gero korrelazioa. Dena lotuta doa, batek ez badu egiten, ezin da jarraitu, eta bat gaizki badao, gainontzekoak ere bai.

Extract 19: T2_En: baina nola ya ibilbide luzea daramaten hauek ikastolan, eta suposatzen denez konpetentzia antzerakoak dituztela (T2_En 50:50)

Extract 20:

T7_M: Eta batzuetan, errepikatzen dutenean konturatzen dira ez dutela ondo ulertu, ze ez dira gai azaltzeko zer egin behar den. Eta hor daude bi aukera: edo marrazki bidez azaldu edo ahoz azaltzea zer egin behar den. Eta askotan da hizkuntzaren arazoa. […] Buruketa bada konpetentzien maila gorena normalean zailtasunak dituzte hizkuntzarekin, buruketen ulermenarekin. (T7_M 28:28)

Extract 21: T3_H: Norarte iristen gara arrazoitzeko gaitasunean? Eta hor dago desberdintasuna ikasle batetik bestera, arrazoitzeko gaitasuna eta adieraztea.

Extract 22: T5_B: Orduan ba bueno, ez dakit sakontasunik ez dute. Gogoetarik eta ez dute egiten. Afrikako proiektuan adibidez, nik ikusi nituen aurreiritziak eta sinplekeri bat ziren. Eta gainera nik Afrikari gauza on bat ikusten nion, Afrikan eduki batzuk lantzen dira, eta nik uste haien perspektiba aldatuko zela, eman dute ekonomia, barne produktua, aberastasuna, eta pentsatzen nuen horrekin hausnarketa sakonagoa egin zitekeela, ez dakit gehiegi eskatzen diedan, askotan pentsatzen dut hori e.

Extract 23: T4_E: itsaso bat eta mundu bin debatea nola egiten den T2_Enk landu zuen, eta listo, orduan orain suposatzen da hirugarren proiektuan egongo balitz debate bat ez genukeela landuko, ya landuta dagoelako, egingo genuke erabili, aplikatu.

Extract 24: T5_B: 1. guk hori euskarako ikasgaian lantzen dugu eta gero proiektuan erabili egin du. suposatzen da landuta daukatela. Nik argudioak filosofian ere lantzen ditut. En teoria badakite, filon lantzen dut, euskaran ere landu dut, eta orduan da aurretik egindako lanketa bat gero hor erabiltzea.

Extract 25: T3_H: batxilergoan gaude, eta suposatzen da azalpenak, argudioak… guzti hori landuta dagoela aurretik, ikasturte honetan edo aurretik, eta badakitela. Euskaran ez dakit zer ematen den batxilergoko lehenengo mailan, baina testu guzti horiek ikusita dituzte. Iritzi-testuak ikusita dituzte, argudio testuak ikusita dituzte, arrazoitzeko gaitasuna izan behar dute ya batxi batean, eta guzti hori badakite. Eta kurtsoan zehar hausnarketarako testuak ematen zaizkienean hori guztia praktikan jartzen da. Ez da ezer ezezaguna haientzako. Gertatzen dena da erabilera.

Extract 26: T2_En: nik orokorrean ikusi ditut motibatuta, datuak ba gaia asko gustatu zaie, baina normalean proiektuetako gai guztiak gustatzen zaizkie. Egin ditugun ariketak interesgarriak suertatzen zaizkie, hori dakigu aurreko proiektuko baloraziotik. Atzo bertan ikasle batzuek esan ziguten: "eh, ikusi duzue egin duguna? Ikusi, ikusi". Behar dute gure feedback hori. Orduan, motibatuta nik uste orokorrean baietz (T2_En 2:12)

Extract 27: T2_En: isiltasun oso ia ordubetean. Izan zen apur bat zentzua hartzea ingelesak gizartean duen rolari ere. Ostras, es que ingelesa behar dut momentu honetan sarean eta gizartean mugitzen ari diren bai testu idatzi, ikerketa-lan eta bai bideo % 90 ingelesez daudelako. Nik uste haiek badirela kontziente eta zentzua topatzen diotela ingelesaren erabilerari askoz gehiago. Eta zer esanik ez errealismo puntu bat. Ingelesa erabiltzen gabiltza behar dugulako proiektu honetan, eta ez ingelesetik etorri zaigulako.

Extract 29: T4_E: momentuaren arabera. Momentu batzuetan oso motibatuta. Nik uste dut kostatzen ari zaigula haiek proiektua irudikatzen dute hasiera batean, eta hori ahalegindu garela aurten ere azaltzen proiektuetan ere lanean ari garela. Baina haientzako proiektua da light, eta konturatzen direnean ez dela hain light, ba barne borroka sortzen zaie. Atzo ikasle batek esaten zidan: jo, T4_E, hemen hiru ordu eserita… Eta esan nion: eta normalean ez zara egoten, ala? Eta ondokoak esan zion: eta bestela proiektuetan ez gaudenean ez zaude eserita ala? Horrek uste dut momentu batzuetan batzuei barne borroka sortzen diela. Ni igual dantzan egon behar nintzela pentsatzen nuen, eta hemen nago! Irakurri, ideiak ateratzen… Eta horrek batzuetan sortzen die bajonazo. (T4_E, 15:16)

Extract 29:
Ikerlaria: proiektuko zein momentutan egoten zarete gustorago?

Student 1: lan pertsonalean.
Student 2: ah, ni ez. Ni esaten digutenean zein den gure lana, egin behar duguna azaltzen digutenean, eta lanean hasten garenean ni hor gustora egoten naiz, hor proiektuari zentzua hartzen diot.
Student 3: normalean bukaerako produktuan.
Student 2: ni ere bai.
Student 4: nire ustez hasieran. Teoria dena ematen dutenean eta badakizunean zer egin. Igual esaten dizute ariketa bat egiteko eta ariketa hori taldean egiten duzu eta hor daukazu irakaslea. Klase normalean bezala baina proiektuetan.
Student 1: ni gustora egoten naiz antolaketa ona dagoenean.

Extract 32:
Student: eta beste gauza bat. Afrikako proiektuan adibidez, gaia interesgarria zen, baina gure bukaerako produktua izan zen antzerki bat egitea. Dagoela ondo, baina teknokoek adibidez bizikleta montatzea ba motibazioa handiagoa da, zientifikokoek krema bat egin zuten. Orduan ba bai, ematen duzu teoria, baina gero hori jakin behar duzu azken produktuan aplikatzeko. Baina guk zer. Dantza bat egiteko ez duzu behar ekono. Eta dantza egiten hasi ginen bi egun lehenago. Eta beste guztiak ez zuen zerikusirik izan azken produktuarekin.

Extract 33: Student: bai, eta gero eskatu ziguten iritzia hurrengo urteari begira hobekuntzak egiteko, baina beti ezin dugula egin guk nahi dugun modura. Eta guk ez dugu nahi gure modura egin, baina tarte bat ematen badigute historia egiteko, eta beste baten beste gauza bat, ez genuen ez bata ez bestea amaitzen, eta zen como… ez dugu ezer bukatzen.

Extract 34:
T5_B: Ikasleek ere ez diote loturarik ikusten. Gero esposizio bat egin beharko balitz nonbaiten edo, ba bueno, baina komikia egin eta irakasleari eman... Funtzionaltasunik ez dauka, eta beraiek ere ez diote ikusten.
Ikaslea 1: etortzen da terremotoa proiektuen ostean.
Ikaslea 2: eta hasi behar gara gogoratzen proiektuen aurretik zer eman dugun, jarri behar zara etxean ikasten eta gogoratzen zer zen.

Extract 35:
Ikaslea 1: orain ditugu hiru aste azterketetean sartuko dena emateko.
Ikaslea 2: etortzen da terremotoa proiektuen ostean.
Ikaslea 3: eta hasi behar gara gogoratzen proiektuen aurretik zer eman dugun, jarri behar zara etxean ikasten eta gogoratzen zer zen.

Extract 36: Ikaslea: denboran kokatuz gero ondo. Nik adibidez jarriko nituzke azterketa astearen ostean, eta horrela egon gara relajauta, presiorik gabe. Eta ikusten baduzu ikasgairen baten nota gehiago behar duzula, euskaran adibidez, ba proiektuan euskarari le das mas. Ez dakit e.

Extract 37:
Ikerlaria: proiektuan landu duzuena ez da azterketan sartzen?
Ikaslea 1: ez, orokorrean ez. Gauza batzutan igual bai, baina gehienetan ez, oso gutxitan.
Ikaslea 2: saiatzen dira arloetatik gaiarekin lotura egiten, baina gero azterketetarako ez digu balio. Proiektuetan hau dena lantzen dut, baina gero proiektua amaitu eta azterketarako ez dit balio, ta azterketan sartzen dena ikasi behar dut presaka.)

Extract 38: T6_PE: Motibazioa badaukagu, saiatzen gara, hasieran ere afrikarrez jantzita eta dantzan sartu ginen. Eta nahiz eta ez izan baliabiderik, ikasleak motibatu egin behar ditugu, sea como sea.

Extract 39:
Ikerlaria: eta zerk laguntzen dizue motibazioa pizten?
Ikaslea 1: taldean lan egiten dugunez, azkenean motibatuta egon behar zara eta lan egin.
Ikaslea 2: eta irakasleek ere asko eragiten dute. Irakaslea etortzen bada: a ver, egin behar duzue hau. Ba ez du motibatzen.
Ikerlaria: irakasleen jarrerak ere eragiten du motibazioan.
Ikasleak: bai.

Extract 40: T5_B: Proiektua bukatu dugu eta orain azterketa astean daude ya, niri 140 bat azterketa tokatzen zait zuzentzea, filokoak bakarrik. Erritmo hau ezinezkoa da, eta gero balorazio bat egin beharko dugu, baina korrika eta presaka egin beharko dugu denok gaudelako topera. Erritmoa oso gogorra da. Hemen dagoena pasada bat da, benetan e, ez da esateagatik lan asko egiten dugula, ze igual ez genuen egin beharko. Ordu pila bat sartzen ditugu. (T5_B 66:66)

Extract 41: T1_S: Nik proiektuekin, jo… izaten da karga bat irakasleentzako. Da extra bat argi eta garbi, eta hori ez da ona. Egongo bagina beste egoera batean, lasaiago, ez dakit nola… Guk lasaitasuna lotzen dugu beti karga lektiboarekin batez ere. Nik beti esaten dut karga bat dela, baina denbora gehiago izanda, pulitu genuke gehiago. Beti gaude hobekuntzetan pentsatzen, eta denborak jaten gaitu. Orduan, badakigu lan extra bat dela. Baina horregatik nik ez dut atzera egiten. Proiektuak egin egin behar dira. (T1_S 12:53)

Extract 42: T3_H: DBHko iraskasleekin ez da konpajinatzen, ezin dugu konpajinatu DBHko ordutegia batxilergokoarekin, orduan askotan zaintzak utzi behar ditugu. Hortaz, ez gara egoten ikasleekin nahi dugun adina, eta utzi behar dugu beste irakasle batzuen eskuetan, ez duenean ezagutzen proiektua hainbeste. Orduan koordinazioa ahalik eta hobeen egiten saiatzen gara, baina beti dago hutsune bat bete beharko zena. (T3_H 10:19)

Extract 43:
Ikerlaria: baina orokorrean gustora?
T4_E: bai, bai. Oso nekatuta. Ez da bakarrik proiektua, dauzkagu beste gauza batzuk: DBHn berreskurapenak, ebaluazioa… Baina bai, ondo-ondo

Extract 44: T3_H: Bada lan karga. Baina ikasleei aportatzen dien moduan eta zenbait eremu aktibatzen diren moduan, irakasleengan ere nolabaiteko efektu bat sortzen duela. Ni proiektuko aste horietan nahiko gustora egoten naiz. […] Nik proiektuen inguruan daukaten iritzia positiboa da. Niretzako gainera irakasle berria izanda, zentzu horretan, nik orain arte ikusi dudana izan da guztiz kontrakoa, eta iruditzen zait proiektuen bitartez lantzen den horrek balio duela pertsona bera garatzeko, ez da bakarrik arlo akademikoan, eta bere ezagutzak eta konpetentziak garatzeko. Bi aste eta erdi hauetan, klasea gogotsu hartzen dut, eta aportatu dizkit zenbait gauza, ikasleen moduan ikasi egin dut nik ere. Irakasleak nola funtzionatu behar duen talde baten barruan adibidez, ze punturaino esku-hartu behar duzun beraien lan horietan... Niretzako positiboa da.

Extract 45: T5_B: Ni ere ez naiz oso sutsua agertzen proiektuekin, baina kontran ere ez. Nik egin behar dudana egiten dut, baina hori ere antzeman egiten da apurtxo bat. Nik argi dut zuzen eta ondo egingo dudala, baina entusiasmorik igual ez dut adierazten. (T5_B 5:6-36)

Extract 46: T5_B: aurrekoan esan nizun nik humanistikoko proiektuetan landutakoaren eta azken produktuaren kataia hori ez dut ikusten. Eta ez dakit horrek ze puntura arte motibatzen duen.

Extract 47:
Ikerlaria: irakasleak zer moduz ikusten dituzue?
Ikaslea 1: nik batzuk ondo.
Ikaslea 2: batzuk no saben ni por donde les da el viento.

Ikaslea 3: batzuk ondo, baina beste batzuk…
(…)
Ikaslea 4: Batzuk etortzen dira eta zer egin behar dugu? Ez dakit, jarraitu lanarekin.
Ikaslea 5: adibidez Afrikako proiektuan lehenengo egunean jantzita etorri ziren, eta oso way egon zen.
Ikaslea 6: bai, eta beste batzuek esaten dizute kronograman jartzen duena egiteko, baina kronograma gaizki zegoen, ez zuen kuadratzen. Baina bueno.
        (…)
Ainhoa: bai, irakasle batzuk daude oso sartuta proiektuan, eta beste batzuk ba ez dakite non dauden ere ez. Gero talde bakoitzak bere tutorea dauka ere, eta adi egoten da taldea nola doan.

Extract 48: T5_B: Gero ez dakit proiektua zertarako den ere. Nik uste nuen proiektua zela metodologikoki aldaketa bat gauzak lantzeko, beste batzuek igual ulertzen dute klasean landu eta gero hor erabiltzea.(T5_B 40:40)

Extract 49: T4_E: haien iritzi kritikoa nahi dugulako eta horren aurrean beti egotea erne. Hori da lortu nahi dena, eta hori lortzeko aitzakiak erabiltzen ditugu. (T4_E 16:16) (…) Nik uste helburua ere dala ikasten dugunak lagundu behar digula gure ingurunea ulertzen, eta ez direla gauza isolatuak. Proiektuen bidez hori da lortu nahi dena: ezagutu behar ditugu gauza batzuk ulertzeko gure ingurunea, zentzua daukatela ikusi. (T4_E 26:26).

Extract 50: T2_En: Eta seguramente egin beharko litzateke, hori bada helburua. Hori bada gainera ikasle-profila, ikasle-profilean ikasle euskaldunak izatea nahi badugu. Iparra zein den ahaztu gabe. Gure erronka handiena da nola lortu iraskaleek ikasle-profil hori aurrean izan dezaten denbora guztian eta euren ebaluatzeko irizpideekin, euren edukiekin, euren konpetentziekin lotu. Nik nola egingo dut nire proiektutik, nire ikasgaitik, ikaslea euskaduna izan dadin, konpetentea izan dadin, nola egingo dut kooperatiboa izan dadin. (T2_En, 50:50)

Extract 51: Ekiñe: bakoitzak daki berea. T4_Erek adibidez daki ekonona, baina igual ekonon gaude T2_Enrekin, eta klaro daukat duda bat eta igual ezin dut jarraitu egiten testua. Behintzat denek jakitea zer gabiltzan ematen momentu oro. Batzuetan galdetzen diezu eta erantzuna da: "niri hori ez galdetu, nik hortaz ez dakit ezer".

Extract 52: T2_En: Eurek esaten dute antolaketa, baina hori hitz egin behar da ea zer dagoen horren atzetik, gure antolaketa, eurena ez den ondo gauzatu… hori eurei galdetzeko gauza bat da. Nik uste dut eurek sentitu dutela ikasgaiak etorri direla bata bestearen atzetik. Eta momentu batzuetan haria ikusi dute eta beste batzuetan ez.

Extract 54:
Ikerlaria: Zuzentzerako orduan T5_Bekin (euskarako irakaslearekin koordinatzen zara?
T4_E: klaro. Hizkuntza arloan hori badaukate adostuta, eta jadanik aurretik landuta daukate hori ikasleek. Argudio testua badaukate landuta T5_Bekin. Nik bakarrik aplikatu egiten dut, horregatik ez dut ezer azaldu, ze suposatzen da badakitela. Hori hizkuntzan landu dute.

Extract 55: T7_M: T7_M: bai, bai, edo ez dutelako arretarik jarri. Zer eskatzen du? Zuzenaren zer? Ondo pentsatu behar duzu, zuzen honen elkarketa puntu honetatik pasatuz. Ez dute denbora hartzen, lehenengo irakurketa horrekin aurrera doaz. Matematikan hizkuntzak eragina duela argi dago. Zeinek landu behar duen, ba nik buruketak lantzen ditudanean saiatzen naiz duen garrantzia adierazten. Nik egunkaria irakurriko banu, ekonomiako atala, nik ez dakit gai horren inguruan asko, ba normalean bi-hiru aldiz irakurri behar izaten dut ondo ulertzeko. Zuek azkar egiten duzue dena, orduan saiatzen naiz eskatzen: irudika ezazu eskatzen duena, edo errepika ezazu ahoz ariketan eskatzen dena. Nik horrela egiten dut, baina ez dugu adostu, edo esan, konpromezua hartzen dut buruketa baten aurrean beti-beti-beti rebote hori egiteko. Norberaren esku geratzen da, nik egiten dut, baina besteek igual ez. Egin beharko litzatekeela bai, nire ustez gainera, biak elkartu beharko ginateke, euskarako irakaslea eta ni. Hizkuntzakoak ez du zertan mateko edukia menperatu, eta nik matematikatik teoria lantzen dut, baina hori lantzeko dauden estrategiak erabiltzeko pistak eman ahalko zizkidan. Bion artean egin beharreko zerbait ikusten dut. Guk askotan teorian galdetzen duguna da esaldia zuzen edo oker dagoen eta erantzuna argudiatu. Hori da modu bat, baina daude mila. Hori ere hizkuntza da. Matematika jakin behar duzu, baina adierazi egin behar duzu. Oso lotuta dago hizkuntzarekin. Hizkuntzakoak ez garenok azaldu beharko genieke hizkuntzetakoei zer lantzen

dugun, hizkuntzaren presentzia non ikusten dugun batez ere eta hori lantzeko haiek pistak eman. Halako zerbait, baina ez daukat ideiarik ere ez.

Extract 56: T3_H: Hatz-bideoarekiko adibidez errubrika bat zegoen sortuta eta aurten errespetatu egin da. Moldaketaren bat edo beste egin genuen, baina funtsean errubrika berdina zen. Zer gertatzen da adibidez testu-iruzkinean? Ez zegoela errubrikarik, orduan hemen irakaslearen esku dago. Edo bat, zuk zehazten dituzun irizpide horien baitan ez diozu garrantziarik ematen hizkuntzari eta zuk beste gauza batzuk kalifikatzen dituzun. Ea zuzen dagoen, edukia ondo dagoen, estruktura ondo dagoen… edo bai, nik egin dudana. Errubrikan baldin badago, irakaslea derrigortuta dago kasu egitera errubrika horretan dagoenari, eta azaltzen bada parametro bat dela hizkuntzaren erabilera, koherentzia eta guzti hori, ba bai. Baina ez badago ezer sortuta eta zure baitan antolatu behar baduzu guzti hori, ba igual batek egingo du, eta beste batek ez. Gertatzen dena da ekonomiatik eta matematikatik ez dakit nola bideratzen duten gai hau, baina historian hizkuntzaren presentzia ba igual konparatzen baduzu matematikarekin gehiago da, iruditzen zait pisu bat izan behar duela. Bestela edukia ez badago ondo idatzita, edukia ez duzu ondo transmititzen. Historiaren aldetik badago zentzu gehiago edo ikasleak lotura gehiago egingo du hizkuntzarekin matematikako eragiketa batean edo ekonomiarekin. Adostasun batera iritsi beharko ginateke irakasle guztien artean, eman beharko geniokeela garrantzia.

Extract 57: T3_H: Gertatzen dena da ikasleen aldetik agian txipa aldatu behar dutela. Nik ematen dut historia eta historiako edukietara mugatzen dira, baina ez. Azkenean historiaren bitartez hizkuntza lantzen ari zara berdin-berdin. Eta orduan ba alde horretatik ba guzti hori kalifikatzen baldin baduzu nire ustetan, eta nire iritzi pertsonala da kalifikatu beharreko zerbait dela, ze azkenean lan bat itxuroso egoteko edukia ondo egon behar da, baina edukia ondo egoteko hizkuntza aldetik ere ondo egon behar da. Ez dut uste hori finkatuta dagoenik aurretik, nik uste irakasle guztiak gaudela ados zentzu horretan, baina ez dago sistematizatuta. (T3_H, 10:59)

Extract 58:
Ikaslea 1: ekonomian edo maten zerbait idazten dugunean, ez digute zuzentzen. Ez dago gramatikalki zuzenduta.
Ikaslea 2: ekonoko kontzeptuak zuzentzen dira, baina ez hizkuntza.
Ikerlaria: hizkuntza ez zaizue zuzentzen lanetan?
Ikasleak: gutxitan. Oso gutxitan. Batzuetan bai, oso nabarmena bada bai.
Ikaslea 3: T3_Hek bai.
Ikaslea 2: esaten dute gainera, edukia hartzen dugu kontuan, ez hizkuntza.
Ikaslea 1: notaren % 5 edo % 10 edo da hizkuntza.
Ikerlaria: errubriketan bai hartzen da kontuan, ez?
Ikaslea 4: zerbait igual bai, baina gero ez dute hartzen kontuan.

Extract 59:
Ikerlaria: arloetako irakasleek sortzen dituzten errubrika horietan nahi dut jakin ea sistematizatuta dagoen errubrika horietan hizkuntza kontuan hartzen den.
T2_En: galdera oso ona. Batzuetan badakit baietz, beste batzuetan ez. Euren esku geratzen da, seguraski dauzkagu horrelako aztarna batzuk egin denaren aurretik, ze aurretik oso lan garrantzitsua egin da HIZPROkin. HIZPRO bere garaian hemen oso potente egon zen, eta jende oso potentea egon zen HIZPROn sartuta. Zer gertatu zen? Baliabideak eta dirua amaitu zirenean HIZPRO desagertu egin zen, eta hor galdu egin gara. Berriro dispertsatu gara, eta berriro jo dugu ikasgai bakoitzetik irakasle bakoitzak erabakitzera zein punturaino sartzen den, difuminatu egin zen. Ni hemen ez nengoela badakit lan oso garrantzitsua egin zela, eta aztarnak geratzen direla badakit, baina ya ez da ikastolaren helburu bat, eta hori igarri egiten da. Badakit matematikatik garrantzia handia ematen zaiola definizioari, argumentatzeari...

Extract 60: T2_En: egia da ere proiektu honetan ingelesetik landu landu ez dela landu berez ezer. Bai ikusten dugu batxilergoan, edo bizi ditugu hizkuntzak oso ikasgai prozedimentalak moduan, eta horrek askotan dauka zerikusia ikasgai horietan dauden irakasleekin. Gu bagara ikuspegi horretakoak, ez zaigu hainbeste inporta lantzen den edo ez hizkuntza. Beste batzuek hainbeste garrantzia ematen dioten moduan, guk ez hainbeste. Orduan, gure tendentzia beti izan da beste gauza batzuk ingelesez ematearen kontu hori.

Extract 61: T5_B: Nik esaten badut komikia kendu behar dela, ez dakit nik besteek nola hartuko zuten. Ikasleek ere ez diote loturarik ikusten. Gero esposizio bat egin beharko balitz nonbaiten edo, ba bueno, baina komikia egin eta irakasleari eman... Funtzionaltasunik ez dauka, eta beraiek ere ez diote ikusten. Edo behintzat komiki bat egingo dugu, fundamentuzkoa, inprimatuko dut eta liburuxka aterako dugu, eta begira Arizmendiko batxilergoko ikasleek egin dute hau eta saldu egingo dugu, edo oparitu edo ez dakit. Artikulu bat idatziko dugu multinazionalei buruz, ba onenak zergatik ez ditugu bidaltzen goienkariara, ez dakit, falta zaio benetako izate hori. Denbora gehiago behar duzu. Eta ba hor ba hizkuntzak garrantzia gehiago hartuko lukee. Itxurazko proiektu bat egin behar dugu, argitaratu, goienkarian edozer ez dute onartuko. Ze gainera ziur nago artikulu interesgarriak idatziko dituztela batzuek. Baina horrek eskatzen du denbora, dedikazioa. (T5_B 66:66)

Extract 62: T7_M: Nik 30 urte daramatzat modu batean lanea, bueno, eboluzio batekin, baina orain indagazio lan bat dago, pentsatu beharra zein konpetentzia landu nahi ditugun eta horren arabera azken produktua diseinatu, Xtend plataformara igo. Eta gainera honek eskatzen digu talde lanean aritzea. Ni banabil matematikan bakarrik edo beste batekin ba a mi aire. Hemen ez. Lan asko eskatzen du, eta taldeko lan handia. Eta gero ba Xtend plataforman eta horrelakoetan ausardia. Dena dago plataforma, jakin behar duzu aldaketak egiten, azkar, prest egon behar duzu. (T7_M 45:47)

Extract 63:
Ikaslea: eta batzuetan ortografia akatsak egoten dira. Gaizki azalduta, gaizki idatzita, eta batzuetan onartu egiten dute, ui, bai gaizki dago.

Extract 64:
Ikaslea 1: batzuk ondo, baina beste batzuk… Hau da iritzi pertsonala, baina nire ustez behar dute kurtso bat edo zerbait ikasteko nola funtzionatzen duten ordenagailuek. Ematen dugu dena ordenagailuetan eta ez dakizu nola sartu xtend-era?
Ikaslea 2: egunero daukate problema ordenagailuarekin.
Ikaslea 3: esaten badidazu noizean behin erabiltzen ditugula… baina dena egiten dugu ordenagailuan. Hori bat, eta gero ere ba proiektuak hasten daude eta gauza batzuk hobetzeko daude, baina ematen du batzuek ez dutela nahi proposamenak entzutea. Batzuk oso itxiak dira. Gure iritziak jasotzen dituzte, baina gero ez dakit benetan kontuan hartzen diren. Nik alde hortatik ez dut ikusten komunikaziorik.

Extract 65:
T4_E: Nik adibidez atzo erabaki nuen azken hausnarketa ez egitea arrazoi desberdinengatik: uste nuelako momentu honetan ez zutela horren beharrik, egiten dituztelako hausnarketak, entzuten ditut eta ikusten ditut, orduan ez zidan ezer aportatu behar eta haiei ere ez. Erabaki nuen kentzea. Pasa den urtean gehiago kostatzen zitzaien, orduan hor hobetsi nuen hausnarketa pertsonala egitea, nahi nuelako. Horrelako egokitzapen puntualak bai, eta moldaketak ere egin ditut pasa den urtetik hona.

Extract 66: T4_E: niretzako zailtasun handiena da bertan inplikatzen garen irakasleen artean nahiko genuke askoz koordinatuago egotea, eta nik nahiko nuke denbora gehiago egotea batxi batean, bizitzeko beraiekin proiektuaren osotasuna. Eta hori da faltan somatzen dudana. Disfrutatzeko haiekin batera bertan egon behar zara, eta nik azkenean egin dituzten ordu guztietatik, bai egon naiz 4 ordu baino gehiago, dela berez tokatzen zaidana, 8 ordu baino gehiago egin ditut, nire denbora librea ere dedikatu diot, ostiralean nire lan orduak amaitzean adibidez, baina hori gure arteko koordinazioa. Eta ikasleen eta taldeen jarraipen zehatzagoa egiteko denbora falta. Ze batxilergoan gauden bitartean DBHn ere gaude, eta hori koordinatzeko… Hori da koska salbaezina. Orduan onartu behar dugu eta listo.

Extract 67: T2_En: Ikasleek bai sentitu dute, haien pertzepzioak jasotzen ditugu, hori da interesatzen zaiguna, ez dela hain ondo antolatuta egon. Guk ez genuen ulertzen oso ondo zergatik, ze uste izan dugu inoiz baino ebidentzia gehiago izan dituztela ondo antolatzeko, bat da kronograma hasiera-hasieratik partekatu izana, beste bat da garbi eduki izana ikasgai bakoitzetik zein ito zeuzkaten, beste bat izan da saiatu garela nolabait klasean sartzen ginen bakoitzean helburua gogorarazten eta non gauden horregatik… baina sentitu dute nolabait, eta nik uste gehiago joan dela ikasgaien fusioa ez dela benetan eman. Eurek esaten dute

antolaketa, baina hori hitz egin behar da ea zer dagoen horren atzetik, gure antolaketa, eurena ez den ondo gauzatu… hori eurei galdetzeko gauza bat da. Nik uste dut eurek sentitu dutela ikasgaiak etorri direla bata bestearen atzetik. Eta momentu batzuetan haria ikusi dute eta beste batzuetan ez. (Ainhoa, 1:52)

Extract 68:
Ikerlaria: bale, batetik espazioak. Besterik?
Ikaslea 1: denbora. Zegoen erdian. Azterketa astea adibidez astebete lehenago hasi eta orain proiektua egin. Egin genuena izan zen: gaiarekin hasi, aste bat, proiektua, aste bat, aste santu eta orain presaka dena ematera.
Ikaslea 2: eta orain ez gara gogoratzen proiektu aurretik zer eman genuen. Alazne: orain adibidez matematikako azterketan sartzen zaiguna eman genuen duela ia bi hilabete.

Extract 69: Ikerlaria: eta zer moduz ikusi dituzue arloen arteko lotura horiek?
Ikaslea: ba kasu batzuetan ondo, eta beste batzuetan ez zekiten nola sartu eta pegote bat izan da.

Extract 70: Ikaslea: bai, eta batzuetan euren arteko komunikazioa ere ez da oso ona. Adibidez, irakasle bat etortzen da ordezkapen bat egitera, ze batzuetan nahiz eta ekono egiten egon T4_E ez da egoten beti, imajinau beste irakasle bat datorrela, ba haien artean ez dira ondo koordinatzen.

Extract 71. Ikaslea: ez genituen lanak bukatzen. Zen como adibidez, iritzi testu bat egiteko eman ziguten ordu erdi, obviamente ez genuen bukatu. Iritzi testua uzten genuen erdizka, ekonoko hausnarketarekin hasten ginen eta gero hurrengo egunean berriro iritzi testua. Esan genien denboraren antolaketa gaizki zegoela, eta orduan oraingoan lan autonomorako ordu gehiago sartu dituzte, baina sobratu egiten ziren. Nik uste dut joan direla de un extremo al otro.

Extract 72: T6_PE: nik uste dut hor ere badaukagula hobetzeko pila bat, ze ez dago denborarik. Falta zaizkigu baliabideak, eta hori da gabiltzana eskatzen. Ideia oso ona da, baina gu barnetik ere kontziente gara baliabideak behar ditugula. Idealena izango litzateke goizero goizero, edo proiektuaren hasieran eta bukaeran elkartzea, eta esatea: gaur iritsi gara hona. Talde honek hau, eta besteak hau. Baina ez daukagu denborarik, eta tristea da esatea, baina izaerak eta izaerak daude. Irakasle bakoitzak ere bere izaera dauka eta bere ardurak. Eta karo, batzuek burua batxin daukate, eta beste batzuek DBHn. Baliabideak falta zaizkigu ere bai, ez da erreza. Hemen denok igotzen gara olatura, baina batzuetan flotadora faltan. Denbora prestatzeko, koordinatzeko… ze karo hemen daude mila kontu, orduan ez da lehentasuna. Igual batxilergoan bai, baina DBHn ez, orduan zaila izaten da. Baliabideak alde horretatik. Eta gu koordinatzeko denbora gutxi daukagu, baina bueno, hori gure barne arazo bat da.

Extract 73: T2_En: Konfiantzaren Pedagogiaren markoak argi esaten digu rolen arabera egindako taldekatzeak egin behar direla. Eta beti jotzen dugu gainera, markoak hala adierazita, ikaskuntza erreal eta on baterako talde hetereogeneok behar direla. Egia da talde homogeneoek momentu batzuetan ere ondo funtzionatzen dutela, ez dugu deskartatzen, baina gure tendentzia da hetereogeneoak egitea. Eta hetereogeneoen barruan hor daude irizpide batzuk: dominantzia rola, hainbat irizpide kontuan hartu behar ditugunak. Eta gutxi gorabehera igual izen horiekin ez, baina horietan oinarrituta egiten ditugu talde hetereogeneoak.

Extract 74: T1_S: Eta gure kezka beti izaten da hori. Taldea guk egin edo haiei utzi. Taldeak dauka pisu handia. Guk egiten ditugu taldeak, ba klaro, askotan hetereogeneoak. Eta batzuetan nik badaukat koska hori pertsonalki, talde homogeneoak zergatik ez? Talde homogeneoak nik beste batzuetan egin izan ditut, eta arreatu egiten dute. Honekin edo bestearekin atera egin behar dut. Eta batzuetan talde homogeneoetan ere da premiatzea batzuei beti daudelako asko ematen, eta igual gutxiago jasotzen. Eta aurrera egiteko haiek ere eta motorrak izateko batzuetan homogeneoak ere badira. Baina klaro, proiektuaren arrakastara begira ba batzuetan egin dituzu hetereogeneoak. Eta hori ere ez da erraza.

Extract 75: T4_E: Egiten duguna da: lehenengo esaten dugu, zein izan daiteke taldeko liderra? Ezagutzen ditugunez, hainbat pertsona identifikatzen ditugu, eta orduan horiek ipintzen ditugu bakoitza talde batean, gero, afinidadea: non ikusten dugu daudela inkonpatibilidadeak? Bi pertsona edo hiru ezin dira elkarrekin egon, hori ere kontuan hartzen dugu. Pertsona oso langileak eta dauzkatenak zailtasunak, baina oso langileak direnak, honentzako apoyoren bat izan daitekeena... eta horrela ahalegindu ginen egiten.

Extract 76: T3_H: Saiatzen gera talde horretan ikasleak izan dezan norbait nolabaiteko afinidadea duena, gustora sentitzen dena berarekin lanean.

Extract 77:
Ikerlaria: eta gustora zaudete?
Ikaslea: segun taldea. Tokatu ahal zaizu talde bat desastre, edo langilea.

Extract 78:
Ikaslea 1: bai, T7_Mk adibidez talde homogeneoak egin zituen, eta horietan beti moldatzen zara hobeto. Denok daukazuelako erritmo berdina edo.
Ikaslea 2: nik uste dut hori ondo dagoela, baina azken finean ez. Ze ondo dabizenak juntatzen badira, ba talde horrek ondo funtzionatuko du, baina beste talde baten ondo ez doazen horiek elkartzen badira, ba gehiago kostatuko zaie lana ateratzea.
Ikaslea 3: bai, baina elkartzen badituzu maila ona daukana eta ez daukana, maila altuagoa daukanak egiten amaituko du.
Ikaslea 4: bai, baina horregatik ez dago ondo, baina beste partetik bai, ze zu ere motibatu egiten zara eta lan gehiago egiten duzu.
Ikaslea 5: nik uste dut arazoa ez dela hori. Azkenean nik penkatzen badet baina lan egiten badut, eta jarrera ona badut, ba lan egingo dut, baina ez badut ezer egiten. Nik 4ko bat badaukat baina saiatzen banaiz, eta 4ko bat daukan beste batekin elkartzen didate, baina ez duenak ezer egiten, nire saiakuntzak ez du ezertarako balio behar. Baina 7ko bat daukan norbaitekin jartzen badidate eta ni saiatzen banaiz, ba igual berak aterako du 6,5 baina nik igual 5eko bat.

Extract 79:
Ikaslea: lan autonomoan zu autoexijentea ez bazara, azkenean taldekoa denez, hiruk nahi badute lan egin eta hiruk ez… hiru horien artean egiten da lana eta besteak gora begira egoten dira.

Extract 80: T2_En: Saiatzen gara zentzu horretan malguak izaten. Nik uste dut ikastolaren ikuspegia zentzu horretan dela proiektuan zer eta bestela ere ikasleen beharrei erantzun behar zaiola. Momentu horretan (gelatik) irtetzeko beharra badauka, irten dadila. Nik uste dut Konfiantzaren Pedagogiaren markoa aplikatu denetik, gauza txiki horietan ikusten dela.

Extract 81: T5_B: Kontrolak ihes egiten digu. Ikasleak mugitu egiten dira, batetik bestera, batzuk mobilarekin, askatu eta beste muturrera joaten dira. Igual behin proiektuetara ohituta, ba igual bai, baina oin ematen du… kafea hartu ta buelta ta. Nik horrelako gauzak ez ditut aguantatzen, puntualidadea ez da errespetatzen. Baina igual nire arazoa da e.

Extract 82: T3_H: Ikasleekin nolabaiteko kontaktu bat mantentzea ikasle-irakasle artean. Konfiantzaren pedagogiatik ere abiatuta, nik uste hori ez badago, azkenean ardatza haiek dira, baina inguruan izan behar dituzte zenbait irakasle laguntzen dietenak beraien bide hori jarraitzen, eta nik uste irakasle batek proiektuetan lan egiteko izan behar duela lehenengo bere buruarengan konfiantza eta ikasleei ere eman behar zaie konfiantza eta laguntza hori, beraien bidea egin ahal izateko.

Extract 83: T2_En: talde bakoitzak tutore bat dauka, eta tutoreak feedback-a ematen dienean da apur bat galdetzea zer moduz dauden, nola moldatzen diren, ea gure laguntzarik behar duten…

Extract 84: T6_PE: proiektuen programazioa ez da itxia. Azken produktoak ere desberdinak dira. Ikasleek aukera dauka bere izaeraren arabera alde batetik edo bestetik juteko. Ez dira guztiz itxita. Guk ematen dizkiegu galdera gidari batzuk. Baina azkenean haiek bideratzen dute proiektua azken finean. Bai dago bideratuta proiektua. Ikasleen izaeraren arabera, malgutasuna itzela dago proiektuan, eta horrek ere, gainean egotea eta beste era batera irakasleengan sortzen da ziurgabetasuna. Eta igual hortik dator ere eurek uste duten koordinazio falta. Baina

klaro, gu irekita egon behar gara haien mugimenduetara ere bai. Bai izan beharko litzake koordinazio mutuo bat, baina oraindik asko daukagu ikasteko.

Extract 85:
Ikerlaria: zuen rola proiektuetan zein da?
Ikaslea: irakasleek esaten dutena egitea.

Extract 86:
Ikaslea: eta gero ere ba proiektuak hasten daude eta gauza batzuk hobetzeko daude, baina ematen du batzuek ez dutela nahi proposamenak entzutea. Batzuk oso itxiak dira. Gure iritziak jasotzen dituzte, baina gero ez dakit benetan kontuan hartzen diren. Nik alde hortatik ez dut ikusten komunikaziorik.

Extract 87: T4_E: erronka. Nire lanaren inguruko hausnarketa egiteko aukera paregabea. Ni behintzat proiektuaren aurrean jartzen naizenean esaten dut, a ver, ondo enfokatu dut, hau nola eraman dezaket, nola moldatu dezaket… Estrés punto bat ere sortzen dit, kontrola galtzen dudalako, eta behartzen nauelako beste irakasleekin oso ondo koordinatuta egotea. Eta askotan ziurtasun hori falta zait, ondo koordinatuta gaudenaren ziurtasuna. Iruditzen zait dela esperimentatzeko aukera ezin hobea eta sormena garatzeko kriston eszenatokia. Eta nire arlotik ikusten dut aukera ematen didala ikusteko ekonomia gure bizitzan txertatuta dagoela, ez da gure bizitzatik kanpo dagoen ezer. Egiten dugun guztia ekonomia da, edo ekonomiara ekarri dezakegula. Edozein proiektuan garbi daukat topatuko nuela modua landu beharreko gauzak txertatzeko. Ikusten dut beste arlo batzuk izan dezaketela arazo gehiago, oso espezifikoak direnak, baina nire arlotik aukera ikusten dut, baita ere ikasleekin batera ikusteko arloa ez dela hor dagoen gauza bat, baizik eta gure bizitzan integratuta dagoen zerbait.

Extract 88: T5_B: nik uste dut proiektu kontu hau oso ondo dagoela zientifikoko, teknologiako adarretankoentzat. Horientzat uste dut egokiagoak izan daitezkeela. Adibidez, hauek krema egin dute, ni duela hiru urte joan nintzen irakasleen aurkezpena entzutera, eta karo, zuk txosten bat egin behar baduzu krema nola egiten den zehazteko, txosten horrek badauka funtzionalidade bat: txostena ondo egin behar dut krema ondo egin ahal izateko. Batek balio du zerbaitetarako, eta azkenean kataia horretan sartzen dituzu edukiak, txostenaren lanketa, dena dago bideratuta horretara. Afrikako proiektuari hori falta zaio. Argudio testua nora doa? Debatera? Eta debatera nora doa? Irudipena ematen dit, eta denok ez gaude ados e, hau dela aktibidade pila bat batu ditugula guk. Amaieran zer egin zuten, antzerki bat? Ba bueno, antzerkia egin zuten haien buruentzat ez?

Extract 89:
Ikaslea 1: nik proiektuak batxilergoan ez dut ikusten.
Researcher: zergatik?
Ikaslea 2: nik uste dut batxilergoa dela gehiago, bakoitzak bere ikuspuntua dauka eta norberak bere lan egiteko modua eta nik lortu behar dut nota niretzako, ez dut taldean lortu behar, ze batek egiten badu txarto, niretzako ere da txarra.

Extract 90:
Ikasle1: kontua da DBH4n adibidez, denbora dagoela horretarako, eta bizitzako kontuak lantzeko, baina orain gabiltza super… ez da momentua nire ustez.
Ikaslea 2: bai, eta DBHn gainera konpetentzia astea izaten da, o sea, errealitatean aplikatzeko. Zergatik ez da sartzen hori hor?

Extract 91: T2_En: laguntza jaso genuen arren diseinuan ez genuela zerbait eraldatzailea egin hasieratik, orduan proiektuaren diseinua egiterako orduan, elkartu genituen ikasgaiak eta hortik irten ziren proiektuak. Ez zegoen helburu oso garbi bat eta helburu horretatik eratorritako proiektua, hori ez zen, zen irakasgai batzuk elkartu eta behetik gorako proiektuak sortu ziren, orduan horren ebaluazioa ere gehiago izan da ebaluazioa itoka, ikasgai bakoitzak jarri ditu bere itoak, kontrastatu dugu ez zela gehiegi ez gutxiegi ikasleentzako, eta hortik jo dugu ebaluazioan. Orduan ikaslearen ebaluazioa egiterako orduan guk esaten duguna da ikasleak dauka trimestreko nota bat. Hori aldatu nahi dugu, baina oraingoz horrela egiten dugu. Nota horren % 25 izango da proiektua. Eta % 25 horren barruan, nota orokorra zatituko da bitan, ikasgaiak eramango du % 70 eta jarrrerak, parte-hartzeak, karpeten antolaketak… gainontzeko % 30a.

Gauza horiek guztiak ikasleei jakinarazteko, eta ikasleek beti ebaluazioa argi izan dezan, helburuak eta horretarako egin behar duena, errubrikak erabiltzen ditugu. Gure ebaluazio tresna estrella da errubrika. Jarrerarako irizpide batzuk ditugu ipinita, karpeten antolaketa, euskararen erabilera, auto/koebaluazioa, norberak bere burua ebaluatzen du talde lanean, eta gero besteak, nota hori tal cual hartzen dugu kalifikaziorako. Hori da zati bat, euskararen erabilera, denboraren antolamendua eta karpeten antolaketa. Hori guztia da jarrera. Eta gero dago mapa mutua. Beti-beti erabiltzen ditugu errubrikak.

Extract 92: T3_H: Lan bakoitzerako errubrika bat daukagu, baina gero beste bat daukagu jarrera neurtzeko. Errubrika hori adibidez irakasle guztiek erabiltzen dugu, ikasle guztiak berdin kalifikatzeko. Debaterako adibidez ere errubrika bat dago, ez da kalifikatzen, baina ebaluatu egiten da.

Extract 93: T6_PE: hori idatzita dago proiektuan eta ikasleek momentu oro daukate eskura zer den emango dena arlo bakoitzetik eta zer den ebaluatuko dena, eta zeintzuk diren kalifikatzeko itemak.

Extract 94:
T3_H: nik pertsonalki, bai. Agian hizkuntzetako irakaslea naizelako eta nik ere hori jaso dudalako. Baina gero ikasleek ez dute ulertzen askotan. Eta ez bakarrik horrelako lanetan, testu-iruzkinetan eta, azterketetan ere bai. Azterketak zuzentzen dituzunean, ikasleek ez dute ulertzen batzuetan zergatik bi ikasleren notak desberdinak diren. Eta erantzuna bai, berdina ari dira esaten, edo nik ulertu dezaket zer ari zaren esaten, baina adierazmena ez da berdina, eta hortaz… niri adibidez lehenengo ebaluaketan hori gertatu zait ikasle batekin. Ez zuen ulertzen zergatik ez nion puntuatzen izan behar zuen puntuazioa bere ustetan, eta karo, nik esaten nion ahalegina egiten dudala ulertzeko zer nahi duen esan, baina hori ez dago adierazita. Baina nik uste hori ya irakasle bakoitzak neurtzen du zein puntura arte eman nahi dion garrantzia horri.

Extract 95
T5_B: keba, ez dituzte ikusi ere egingo. Baten batek eskatzen badit emango diot, baina gehienek nota bakarrik eskatzen dute. Hori ere nire lana bada, baina paso. Interesa duenak eskatuko du. Beraien logikatik euskara arloko % 25aren % 10 edo izango da.

Extract 96
T6_PE: ez dia oso dantza landuak. Zuk in zeinke bi pauso eta ya dantzatzen zabiz dantza afrikarrak. Errepikatzen die mugimenduak. [...] Nik dantzau neike hola (dantza egiten du mugimendu oso sinple baina exagerauekin), dantzan nao e, afrikano dantzatzen nao. Edo dantzau neike mugitzen dana.

Extract 97
T7_M: Adieraz nahi dizuedana da askotan karteletan UTB jarriko duela, Urteko Tasa Baliokidea. Beste karteltxo bat ikusiko bagenu. Itxoin e, adibidez, hemen beste kartel bat. Max kontua. Laboral Kutxak dauka beste oferta bat, dala, kontu korrontea izan beharrean edo gazte kontua izan beharrean da Max kontua. Eta esaten du komisiorik gabe, hau da, zabaltzearren kontua ez duzula ordaindu behar ezer. Beti erabilgarri, hau da, edozein momentutan atera dezakezu. Ez lehen bezala, zela bono bat hiru urtetara, nik hiru urtetan ezin dut ezer atera. Eta eskaintzen digutena zer da? %2,5. 2,5 txikia da, baina UTB. Ikusten duzue azpian UTB jartzen duela beti?

Extract 98: T4_E: bai, pertsonok kontsumituko dogu gehiago, eta horrek eragina izango du K-n. Por supuesto handia daitekeela K. Eta helburu makroekonomiko bat bada BPGa handitzea, hazkunde hori nondik etorri leike? K handitzen bada handituko da. I handitzen bada baita ere. G handitzen bada baita ere, eta esportazioak handitzen badira baita ere. Garbi dago edozein handituta handituko dala.

Extract 99: T3_H: Orain arte ikusi dezue zertan aritu garen historiako zatian. Bakoitzak zuen mapa sortu duzue, egon ginen hitz egiten mapa mota desberdinen inguruan, azkena landu genuen lehengaiekin batera kolonien mapa. Zertarako balio digu mapa horrek? Izan zen ikuspegi generala izateko. Ikusteko nola zegoen banatuta Afrika kolonietan. Bakoitzaren mende zein zegoen. Zer gertatzen da orain kolonialismoa lantzen hasiko garela? Ba Afrikaren banaketaren ignuruan hitz egiten hasi behar gera. Hemen ditugun lehenengo bi galderak dira lurralde honetan

Afrikan nola markatzen diren mugak. Ea Euskal Herrian bezela, mendikateek, ibaiek… mugatzen duten muga, edo ea beste moduren batean egiten den.

Extract 100: T2_En: ok. And they were talking about that in the film too. They have a debt with Kenya. They feel guilty for what is happening in Kenya.

Extract 101: T4_E: Gaurko prentsa begiratuta, badakizue gaur zer publikatu dan? Kongon Zizekedik irabazi dituela Kongoko hauteskundeak. Azaroak 30ean egin ziren hauteskudeak, eta emaitzak gaur, urtarrilak 11n, eman dira. Datu bezala.

Extract 102: T7_M: UTB da Urteko Tasa Baliokidea.

Extract 103: T4_E: NPG nola definitzen dot? Nazio bateko faktoreak erabiliz, epe jakin batean ekoizten diren amaierako ondasun eta zerbitzuen guztien balioa.

Extract 104: T5_B: Guana da esklaboak saldu eta erosi egiten dituztenak.

Extract 105: T2_En: acute can be cáncer but alzheimer is chronical.

Extract 106: T4_E: Mikrok aztertzen zuen erabilera ekonomikoaren portaera, familien portaera, enpresen portaera… eta makrok funtzionamendu globala.

*Extract 107: T2_En: yes, flu can **be** sporadic.*

*Extract 108: T4_E: enpresa internazionalak **dira** multinazionalak.*

Extract 109: T7_M: hor akzionistak egoten dira, eta normalean akzionista horiek nahi dutena, zer da? Pila bat banku pikutara joan dira, baina akzionistak izan direnak diru asko eraman dute poltsikora. Bai, zeregina da dirua irabaztea eta akzionisten artean banatzea. Kutxak ez. Kutxek ez dute helburu berbera.

Extract 110: T2_En: What has Tessa discovered that is so serious in all that?

Extract 111: T7_M: Zuetariko batzuek egin dizkidazue galdera. Adibidez, batek galdu dit ea zer den bitcoin. Zer da bitcoin?

Extract 112: T2_En: the difference between acute and chronical? What is the difference?

Extract 113: T3_H: zergatik da lehenengo mailakoa?

Extract 114: _E: Zer uste duzue, ona ala txarra da globalizazioa? [...] Globalizazioa ona zergatik? (CDF2 EVALUATE)

Extract 115: T3_H: Lehenengoa, forma, edukia eta jatorria. Gogoratu ze testu mota dan, ze motatako edukia lantzen duen, eduki politikoa dan, eduki historikoa dan, edo eduki soziala, edo dena delakoa (CATEGORISE). Gero, egilea eta une historikoa, ba bilatu beharko duzue interneten egilearen inguruko informazioa, ze Jules Ferrick ez degu aipatu hemen (REPORT, DESCRIBE). Nik komentatzen dizuet Frantziako abokatu garrantzitsu bat izan zala. Frantzian izandako esku-hartzea Afrikan oso garrantzitsua izan zan. Kolonialismoaren garaikoa da. Barne analisia gogoratu hirugarrena, azalpena laugarrenean (EXPLAIN) eta bosgarrenean sintesi bat (REPORT-summarise) eta zuen iritzia plasmatzeko aukera duzue (EVALUATE-opinion).

*Extract 116: T2_En: **Explain** her a little bit what the film was about.*

Extract 117: T2_En: why do you think a government support a drug Company in that way knowing that they are testing medicines in Africa? (open-ended question. CDF required EVALUATE).

*Extract 118: T4_E: nola **definitzen** dugu Barne produktu gordina? Herrialde baten barruan eta denbora zehatz batean ekoitzitako amaierako ondasun eta zerbitzu guztien guztirako balorea da. Definizio horretan daude hiru gauza beltzez jarrita: denbora zehatz batean. Inportante.*

Normalean BPG beti ematen digute epe bati dagokion datua, normalean urtea izaten da. Amaierako ondasun eta zerbitzuak. Zer esan nahi du horrek? BPGera kontabilizatzera iristen diren ondasun eta zerbitzuak dira bukaerakoak. bukaerakoak zeintzuk dira? Guk, pertsonok konsumitzen ditugunak, kontsumora datozenak. Eta haien balorea. Orduan BPGa eurotan gure kasuan. Eta estatu batzuetan dolarretan edo. Ekoiztu den guztia zenbat euro dira, eta hori neurtzerakoan lotzen da BPG. (DEFINE)

*Extract 119: T3_H: hasi behar naiz hurrengo blokea **azaltzen**. Ya jarri zerate martxan. Ikusi det jarri dizkiezuela izenak. Helburuak landu dituzue, badakizue zeintzuk diren helburuak proiektu honenak. Aurrera egingo degu, ez naiz hortan geldituko. Zer da orain hasiko garena lantzen? Ba niretzako da zatirik interesgarriena. Geografia pixkat ikusten hasiko gea. Ez dakit zer moduz ibiliko zeaten Afrikaren geografiaren inguruan. (EXPLAIN)*

*Extract 120: T6_PE: atzo Davidek **kontau** zaban bezela, eta izan zan super interegarrixa, berak ezakan materialik jolasteko. Oso desberdinak zian, bai jasarren bizipenak, Tetuanen, Fatimaren amanak eta bai Davidena. Berak ezakan baloirik, jolasten zaban mila gauzatara, baina ez zeukon materialik, pareta batekin parkour itxen zeban. Baina bera zoriontsua zan hau, esan zaban bueltatuko zala. (REPORT)*

*Extract 121: T7_M: Eta nola kalifikatuko zaizuen, gero esango dudan bezala, testuen bitartez. Testu horiek ez badute egitura zuzena, **ez badago ahalegin bat eginda sintesi bat egiteko** eta benetan gura dituzun ideiak ondo adierazteko, ez dira zuzenak izango. Horrek esan nahi du ez baduzue hori egiten, suspenso atera dezakezuela ere bai. Nik testu bat egiten dudanean ematen du ya por lo menos un aprobado y de ahí para arriba. Pues no. **Testu bat egituratzeak kosta egiten du, sintesi egoki bat izan behar du**, desde luego esaldiak esanguratsuak, garbiak, akats gabekoak, ulergarriak. Batzuetan bueltan ematen zaizuenean es que nik esaldi hau ulertu ere ez dut egiten. Horrelako 4 bat esaldi aurkitzen baditut testu batean, hori ez da zuzena… Orduan, testu askokin egingo dugunez lan, niri 4 testu tokatzen bajat irakurtzea. **Ez naiz hasiko laburpenak egiten, sintesia egiten dena irakurri aurretik. Batzuek egtien dute, lehenengo irakurtzen hasi eta ya laburpena egiten hasi. Eta hori ez da posible. Lehenengo irakurri testu guztiak, kokatu apur bat. Jakin de qué va. Jakin zer dan han komentatzen dana, eta orduan ba bueno, ba ideia inportanteenak hartu eta joan nahi baduzue eskematxo bat egiten. Eta hor ya sintesi bat egin dezakezue.** Baina beti ere testua irakurri duzuenean, ez a la primera de cambio. Hori gogoratu. Da bakarrik ikusi dudana ekiditzeko edo ea hobeto egiten dugun hasieratik.*

Extract 122:
T4_E: Zer uste duzue, ona ala txarra da globalizazioa?
Ikaslea 1: bixak.
T4_E: ona eta txarra? Bale.
Ikaslea 2: ona da, baina ditu ere arazoak.
T4_E: bale, ona da. Zergatik da ona? // aber Nahia, zergatik da ona?
Ikaslea 3: berdintasuna…?
*T4_E: berdintasuna? Zergatik esaten dozu hori? **Azaldu**.*
Ikaslea 2: (ez da ulertzen)
T4_E: en teoria ezta? Bale. Globalizazioa ona zergatik? Jende askok esan dozue ona.
Ikaslea 3: errazten dabalako komunikazioa.
Ikaslea 4: garapena.

*Extract 123: T3_H: Galdetzen dizuena da, ya kokatuta dituzuenean estatuak ze lehengai desberdin topatzen ditugun guk afrikan. Egin beharko dezuena da azterketa, analisi orokor bat. Zerrendatu behar dituzue ze lehengai dauden eta kokatu estatu bakoitzean ze lehengai dagoen. Eskatzen dizuen azterketa txiki bat egiteko eta **azaltzeko** zeintzuk diren*

*Extract 124: T3_H: bai, iritzia bukaeran. Bigarren puntuan une historikoa eskatzen duenean hor ezin duzue jarri zuen iritzia. Edo barne analisia egiten duzuenean ere… Barne analisian gogoratu, ideia nagusia eta bigarren mailako ideiak. Eta laugarren puntuan ya **azaltzen** duzue testuan esaten dena.*
Extract 125:
*T3_H: **azaldu** adibidez mendi bat.*

Ikaslea: Kilimanjaro.
Ikaslea 2: Mozambiquen.
T3_H: Kilimanjaro da adibidez ezagunetako bat.

*Extract 126: T2_En: **Explain** her a Little bit what the film was about.*

*Extract 127: T5_B: Eta ez da pobrea, ala? **Kontatu**, Nahia.*

*Extract 128: Student: infectious diseases are **disorders** caused by organisms, such as bacterias, viruses, funghi or parasites.*

Extract 129:
T4_E: zer da defizita hitza berez.
Student: falta.
Studet: Non-infectious, not caused by infections.
Teacher: Zer da bitcoin?
Student: inbertsio mota bat.

Extract 130:
*Student: **because** she refused.*
*Student: jaiotze-tasa altuagoa d**ela**.*

Extract 131: Student: hori ez dala errealidadia, da lo que nos hacen ver. O los niños super pobres zuk emateko dirua ONGei y no se que, edo hau.

TEACHER-STUDENT INTERACTIONS

1	*I*	*T*	*T2_En: ok. Now, non-infectious.*
2	*R*	*S*	*Student: Not infectious…*
3	*F*	*T*	*T2_En: you have to read it louder.*
4	*R*	*S*	*Student: ok. Non-infectious not caused by infections.*
5	*F+I*	*T*	*T2_En: not caused by infectious. Ok, it is a beginning. Someone of you have something else? // No one? Nerea?*
6	*R*	*S*	*Nerea: diseases that are not contagious.*
7	*F+I*	*T*	*T2_En: diseases that are not contagious. Ok, more or less is that. One thing is having and infectious and another one is not having. / Now, can you give me examples of infectious diseases and not infectious? For example, Ainhoa.*
8	*R*	*S*	*Ainhoa: malaria, AIDS, flu.*
9	*F+I*	*T*	*T2_En: ok, so all of them are contagious by viruses, bacterias… Now, non-infectious, Eider?*
10	*R*	*S*	*Eider: allergies, cáncer.*
11	*R*	*S*	*Ikaslea: esquizofrenia.*
12	*F+I*	*T*	*T2_En: allergies, cáncer, esquizofrenia… / Have you the same? Do you understand why those are not contagious?/*
13	*R*	*S*	*Ikasleak: yes*

14   F/i   T   T2_En: really? Can you tell me why cáncer is not infectious?

15   R   S   Ikaslea 2: because one person can't contagious another one.

16   F   T   T2_En: some diseases can not be spread from one person to another person.

17   R   S   Ikaslea 3: but it can be spread in your body.

18   F+I   T   T2_En: aaah, but it can in your own body. You are right, Izaskun. For example, which non-infectious diseases can be spread from one part to another part of your body?

19   R   S   Ikaslea: Cancer.

20   R   S   Ikaslea 4: but it is non-infectious.

21   F   T   T2_En: yes, it is non-infectious, but it can infect other parts of the body. / ok, you did it great!

1   I   T   T4_E: Zer uste duzue, ona ala txarra da globalizazioa?

2   R   S   Ikaslea 1: bixak.

3   F   T   T4_E: ona eta txarra? Bale.

4   R   S   Ikaslea 2: ona da, baina ditu ere arazoak.

5   F/I   T   T4_E: bale, ona da. **Zergatik da ona?**

6   F/I   T   T4_E: aber Nahia, **zergatik da ona?**

7   R   S   Nahia: berdintasuna…?

8   F/I   T   T4_E: berdintasuna? **Zergatik esaten dozu hori?** Azaldu.

9   R   S   Nahia: (ez da entzuten)

10   F+I   T   T4_E: en teoria ezta? Bale. **Globalizazioa ona zergatik?** Jende askok esan dozue ona.

11   R   S   Ikaslea 3: errazten dabalako komunikazioa.

12   R   S   Ikaslea 4: garapena.

13   F   T   T4_E: errezten duelako flujoa, gauza sozialak ere erraztu dezakelako, komunikazioa, irten gaitezke danak…

14   R   S   Ikaslea 5: garraoia.

15   F+I   T   T4_E: garraioan… dana. Komertzio librea da gozada bat. Bakoitzak dituen beharrak asetzeko ez dauzka mugak. Askatasuna egon leike. **Eta zergatik izan leike txarra?**

16   R   S   Ikaslea 6: enpresa txikiak jan itxen ditxualako.

17   F+I   T   T4_E: globalizazio honetan indarra fokalizatu daitekeela batzuengan bakarrik. Eta orduan ba komertzio txikiak, bertako produktuen ekoizpenak… galtzaile irten direlako. Baina zuek gaur egun, esango balizute aukera da globalizazioa bai ala ez?

18   R   S   Ikaslea 7: bai.

19   R   S   Ikaslea 8: bai, oin bertan biharra dao.

20   F   T   T4_E: gero bueltatuko gara hona. Zuek irakurketa egin eta gero bueltauko gera hona.

1   I   T   T4_E: Orokorrean zer ondorioztatu dezakegu?

2   R   S   Ikaslea 1: jaiotze-tasa oso altua dela.

3   F   T   T4_E: Afrikako jaiotze-tasa Europakoa baino askoz altuagoa dela.

1   I   T   T4_E: Zer gertatuko da langabezi tasarekin?

2   R   I   Ikaslea 4: jaitsi.

3   F/R   T   T4_E: Jeitsi. Orduan ona da. Zer demostratu nahi dizuet horrekin?

4   R   I   Jon: hori jeisten bada…

*5   F/I   T   T4_E: **hori zer da?***

6   R   I   Jon: langabezi tasa.

7   F   T   T4_E: hori bai.

8   R   I   Jon: langabezi tasa jeisten bada eta jendea lanean baldin badago, jendeak gehiago kontsumituko du.

9   F   T   T4_E: oso ondo!!

1   I   T   Benga, ze gauza urten dira. Goazen osatzera danok daukagun informazioa, ze gero igual hortik datuak erabiliko ditugu gure produkzio propiorako. Benga, ze ezaugarri dituzte?

2   R   S   Ikaslea 1: talde bat direla.

3   F   T   T4_E: talde bat dela.

4   R   S   Ikaslea 2: ekoizpen gaitasun handia.

5   F   T   T4_E: ekoizpen gaitasun handia, ados.

6   R   S   Ikaslea 3: herrialde desberdinetan daude.

7   F   T   *T4_E: herrialde desberdinetan daude kokatuta.*

8   R   S   *Ikaslea 4: egoten dala zentral bat eta gero beste batzuk.*

9   F   T   *T4_E: zentrala eta gero beste batzuk. Zentral horri deitzen zaio matrizea eta bestiak filialak. Hori ere inportantea da jakitea. Multinazionala dago toki askotan, herrialde askotan, baina beti egongo da ama nolabait, matrizea. Eta besteak filialak. Filialak dira bere menpe daudenak. Beti dago bat nolabait agintzen duena, antolaketa egiten duena. La genuina. Nundik hasi zan multinazional hori, eta gero joan zan expanditzen, handitzen, eta dauka han bat, han beste bat. Hoiek dia bere filialak, baina dana da enpresa bat. [...] eta orduan ba hori da. Beste zeozer gehixo? Irten dira inportanteak e. / Beitxu, multinazionalen ezaugarri batzuk: matrizeak kontrola du filialengan. Kontrola eramaten duenak eta planifikazioa da matriza. Beste bat, dena zentralizatzen da matrizean, planifikazioa. Dimentsio handikoa, hori esan duzue zuek. Hazkunde etengabean daude beti multinazionalak. [...]* **Multinazionalen senan dago handitzea. Handitzea ez da tamainoz. Handitzea da ekoizpen gaitasuna handitzea. Gehiago saltzea. Hori da haien helburua.**

1   I   T   *T7_M: norbaitek entzun du denboraren bankua?*

2   R   S   *Jon: hori da zuk truke bat itxeko, ósea eurak zuri zerbait emateko zuk eman behar diezu eurei, baina por ejemplo da zuk nahi duzun zerbait aurkitzen ez duzunean.*

3   F/I   T   *T7_M: aber,* **hasi berriz. Saiatu ideia hori hobeto adierazten**.

4   R   S   *Jon: truke bat itxen bihar dozu…*

5   F/I   T   **T7_M: truke, ze truke mota?**

6   R   S   *Ikaslea 4: denbora.*

7   F+I   T   *T7_M: denbora trukea.* **Eta denbora trukatzea esaten dugunean zer esan gura dogu?**

8   R   S   *Ikaslea 4: ba igual nik itxen dot zerbait, nere denbora dedikatzen dot zuri…*

9   F/I   T   *T7_M: klase partikularrak ematen adibidez. Eta nik zuri?*

10   R   S   *Ikasleak: dirua.*

11   F   T   *T7_M: dirua ez hombre.*

12   R   S   *Ikaslea 4: ez, beste zerbait zure denborarekin.*

13   F   T   *T7_M: hori da. Adibidez nik zuri ematen dizkizut klase partikularrak, matematikakoak eta zuk neri udan landareak ureztatzen dizkidazu hilabete osoan kanpoan nagoelako.*

1   I   T   *T2_En: ok, and what is chronical, Jon?*

2   R   S   *Jon: pues que…*

3   F   T   *T2_En:* **pues que no, in English.**

| 4 | R | S | Jon: lasting in a long time. |

5   F+I   T   T2_En: lasting for a long time. / Ok, the difference between acute and chronical? What is the difference?

6   R   S   Ikaslea 5: that acute is lasting for a very short time.

1   I   T   T2_En: Which is the difference between epidemic and endemic?

2   R   S   Alazne: that endemic is only in one place and epidemic can be… (eskua mugitzen)

3   F   T   T2_En: anywhere.

4   R   S   Alazne: yes.

5   F+I   T   T2_En: great. Have you understood the difference now?

1   I   T   T6_PE: zer daukate komunean dantza afrikarrek?

2   R   S   Ikaslea1: instrumentuak

3   F+I   T   T6_PE: beti daude danborrak. Zer gehixo eukitzen dute?

4   R   S   Ikaslea 1: mugimendua

5   F   T   T6_PE: bai, bisagra solte, ezta, Jon?

T4_E: Makroekonomiak aztertzen du errealitate ekonomiko globala. Mikrok aztertzen zuen erabilera ekonomikoaren portaera, familien portaera, enpresen portaera… eta makrok funtzionamendu globala. nola internazionalizatzen diren gauzak. Eta globaltasun hori hain konplexua da, eta globaltasun hori ikertzeko, jo behar dugu makromagnitudeetara edo deitzen aldagai agregatuak. Eta erabiltzen diren makromagnitude edo aldagai garrantzitsuenak hiru gaien bueltan ibiltzen dira: prezioen inguruko makromagnitude ezagunena, eta ezaguna egingo zaizue, KPI, kontsumo prezioen indizea, gazteleraz el IPC. Hau askotan entzun dozue. Hori da aldagai makroekonomiko bat. ematen digu informazioa prezioen inguruan. Ekoizpenaren inguruan batez ere erabiltzen den magnitudea, eta bideoan ere aipatu da, BPG edo PIB gazteleraz, producto interior bruto, edo barne produktu gordina. Eta baita ere gutxiago erabiltzen den nazio produktu gordina. Ikusiko dugu desberdintasuna. Eta beste magnitude bat ere oso ezaguna da langabezi tasa. Eta langabezi tasak ematen diguna da lanaren inguruko informazioa. Orduan makromagnitudeak erabiltzen ditugu benetan interpretatu ahal izateko zer gertatzen ari dan herrialde batean ikuspegi makroekonomiko batetik. Hau da, egiteko ebaluazio globala. Bien, Hona gero etorriko naiz, lasai. Orduan, hemen daukagu, ekoizpeneko fuertiena da Barne Produktu Gordina, prezioetan PKI, eta enpleguan langabezi tasa. Orduan, berriro errepikatuko dugu. Zer da makroekonomia? Ba sistema ekonomikoak bere osotasunean aztertzen duen ekonomia zientziaren atala da, bai? Eta zer lortu nahi du? normalean azterketa bat, ikerketa bat edo jarraipen bat egiten dezunian da datuak eukitzeko ekintza bat aurrera eramateko. Orduan, zeintzuk dira helburu makroekonomiko garrantzitsuenak? Barne produktu gordinaren hazkundea lortzea. Horren atzetik joango dira martxan jartzen diren hainbat politika diferente. Hori lortzera bideratuko dira, eta bideoan ere PIB handitu duten herrialdeak gauza pozgarri bezala aipatzen da. Beste helburuetako bat zein izango da? Ba langabezi tasa ahalik eta txikiena izatea. Eta jotzen bagara prensara hilero-hilero ematen digute langabezi tasaren datuak. zein bilakaera izan duen aurreko hilabetearekiko, aurreko urtearekiko… erreferentzia desberdinak eukitzeko. Beste helburu bat zein izango da? inflazioa kontrolatzea. Inflazioa zer da? prezioen gora beherak eta kontrolatzea.Hori ere helburu makroekonomiko bat izango da. Defizit publikoa murriztea.

T4_E: kontsumo prezioen indizea (KPI), gazteleraz el IPC.

T4_E: multinazionalen senan dago handitzea. Handitzea ez da tamainoz. Handitzea da ekoizpen gaitasuna handitzea. Gehiago saltzea.

*1   I   T   T2_En: they are talking about embassies. **What is embassy in Spanish?***

2   R   S   Ikasleak: embajada.

3   F+I   T   T2_En: embajada, yes. Everybody knows what it is?

4   R   S   Ikasleak: yes.

5   F   T   T2_En: ok.

*6   T5_B: itxoin, begira. Komiki batean ez da ia ezer esaten. Esan ez da esaten. Komikiak erakutsi egiten du, iradoki egiten du. Ez dozu esaten: ahh, hemen dana desertua da. Ez, hori irudi bidez istorixuan ikusi egiten duzu. **Ulertzen diazue?** Hori erreflejatuta geratu daixela hor. Ez dakit ze asmatu dezakezuen. Irudien sekuentzia bat. Istorixo bat montau.*

1   I   T   T3_H: Afrikan zer gertatu zen?

2   R   S   Ikaslea 3: kolonialismoa.

*3   F+I   T   T3_H: konkista. Afrikak badu historia eta historia nahiko garrantzitsua. Zer topatzen dugu Afrikan? **Ko…***

4   R   S   Ikaslea 4: koloniak.

5   F   T   T3_H: kolonia desberdinak.

1   I   T   T3_H: Honezkero zuek jakingo dezue. Mapa fisikoetan zer kokatzen degu?

2   R   S   Ikaslea 1: mendiak eta ibaiak.

*3   F   T   T3_H: mendiak, ibaiak, lakuak… hoiek danak azaltzen dira mapa fisikoetan. Zer gertatzen da orain? Mapa motak ikusten ditugunean egin beharko duzuena da zuen mapa indibidualetan Afrikako mendi garrantzitsuenak. Guztiak? Ez, baten bat. Ibai garrantzitsu bat adibidez, laku garrantzitsu bat. Gogoratu Afrikan zer ditugu? **Ba…***

4   R   S   Ikasleak: basamortuak.

5   F   F   T3_H: bai, basamortuak. Saharakoa adibidez.

*1   I   T   T2_En: Is there any illness which is at the same time infectious or non-infectious and chronical and acute? For example, cáncer. You said it is acute. **Is it infectious or non-infectious?***

2   R   S   Ikasleak: non-infectious.

3   F   T   T2_En: it is an illness that is acute and non-infectious at the same time. / Can be a chronical one…? Give me a clear example.

4   R   S   Ikaslea 8: asma.

*5   F   T   T2_En: ok, asthma for example. There are people that have asthma for the rest of their lives. Ok, it is chronical. **Is it infectious or non-infectious?***

6   R   S   Ikasleak: non-infectious.

7   F+I   T   T2_En: ok. You see the difference now?

8   R   S   Ikasleak: yes.

9   F   T   T2_En: great.

2   R   S   Ikasleak: non-infectious.

3   F   T   T2_En: it is an illness that is acute and non-infectious at the same

APPENDIX 7

Access to the teaching material:
https://drive.google.com/drive/folders/1RAE8MPYAwrcq9ITdVkNZmkcZJ4Z6Fk69