

SECONDARY SCHOOL STUDENTS' DIGITAL COMPETENCE DEVELOPMENT: ANALYSING THE IMPACT OF THE "EKI" EDUCATIONAL RESOURCE

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Key Words

Digital competence, secondary education, digital competence assessment, educational resource.

Abstract

This article analyses the development of secondary students' digital competence by means of the education resource created by the association of Basque schools. The education resource, known as EKI Project, was developed together with the aimed exit profile as regards digital competence. The latter is based on the DIGCOMP framework and defines the level that students should achieve at the end of secondary education by using the designed material, EKI. A content analysis is being carried out with the educational resource in order to classify the different activities into the categories of the previously defined digital competence exit profile. The aim of the present study is to examine if the exit profile defined could be achieved by the activities proposed. The preliminary results show that some specific areas of the digital competence defined by the exit profile are more developed than others. Further research must be carried out, in order to ensure that the main question is answered.

Theoretical Framework

The association of Basque schools created educational resource called EKI, both in digital and paper, with the aim of developing 21st century skills. The education resource, known as EKI Project, is based on three main axes: the Basque curriculum, competence based and the pedagogy of integration.

As regards the first axis, most schools in the Basque Country agreed on the Basque Curriculum for compulsory education in 2009. The purpose was to create a curriculum to education Basque young people for whom Basque and Basque culture are central. The EKI educational resource was designed to answer to the objectives stated in the Basque Curriculum.

Secondly, as far as competence-based learning is concerned, the EKI Project was designed following that approach. According to Ala-Mutka (2011, p. 18) competence could be defined as “the ability to use knowledge and skills with responsibility, autonomy and other appropriate attitudes to the context of work, leisure or learning”. Based on the definition provided, the association of Basque schools suggests that secondary school students must gain skills, knowledge and attitudes for all situations in life: thinking and learning, communication, living in society, being themselves and problem solving knowing how to do things and get things done.

The third main axis is the integration of content areas by which help students to face with real situations. Indeed, as Roegiers (2016) claims the integration of content area is essential to pedagogy is essential to give each learner the cognitive, gestural and emotional capability, enabling him or her to act concretely in complex situations as a responsible citizen. This kind of approaches will help students getting used to find and use resources when needed, both, individually and in groups, and to transfer the aspects learned to different situations.

The association of schools of the Basque Country also defined the exit profile related to digital competence based on DIGCOMP framework (Ferrari, 2013) and identified the minimum level. The meaning of Digital Competence has varied over time. In fact, some national and international frameworks, such as ISTE (2016), Norwegian Directorate for Education and Training (2012) or Generalitat de Catalunya (2015) define students digital competence. However, digital competence will be defined as the confident, critical and creative use of ICT to achieve goals related to work, employability, learning, leisure, inclusion and/or participation in society. Digital competence is a transversal key competence which, as such, enables us to acquire other key competences (e.g. language, mathematics, learning to learn, cultural awareness) (Ferrari, 2013, p. 2) in this paper. In order to synthesize the different proposals developed, the Joint Research Centre Institute for Prospective Technological Studies (JRC-IPTS) created the DIGCOMP framework (2013).

The DIGCOMP framework (Ferrari, 2013) is divided into five levels. The first one defines five competence areas including: information, communication, content-creation, safety and problem solving. The second level introduces particular competences for each of those five areas (Table 1). The third one describes levels for each competence while the fourth one outlines examples of knowledge, skills, and attitudes applicable to each competence (Table 1). The fifth level displays a contextual elaboration by providing examples of the applicability of the competence for different purposes.

TABLE 1. DIGCOMP: OVERVIEW OF FIVE DIMENSIONS

Dimension 1	Information		
Dimension 2	I.1 Browsing, searching and filtering information		
Dimension 3	A - Foundation	B - Intermediate	C - Advanced
Dimension 4			
Knowledge example	Understands how information is generated, managed and made available.		
Skill example	Adjusts searches according to specific needs.		
Attitude example	Has a proactive attitude towards looking for information.		
Dimension 5			
Learning	I can use a search engine to find details about a specific type of heat energy.	I can find a range of sources of information about a specific form of heat energy by entering proper key words, and I can use a refined search to locate the most appropriate sources.	I can find a range of sources of information about a specific form of heat energy using different search engines and advanced searches, and I can also use online databases and searches through linked references.

Objectives - Hypotheses

To our knowledge, research conducted on the field has mainly been focused on students' digital competence (Canary Islands Govern, 2015; Generalitat de Catalunya, 2015; Welsh Government, 2018) and investigations carried out on specific educational resources is still scarce (HITSA, 2015). And that is precisely the aim of the research paper: to get new insights on the development of students' digital competence focusing on the educational resources used.

Furthermore, the main aim of the research study is to analyse the development of the minimum level of the digital competences defined in the exit profile.

Methodology

Content analysis is a method of analysing written, verbal or visual communication messages (Cole, 1988). Moreover, content analysis is a research technique replicable and valid inferences from data to their context with the purpose of providing knowledge, new insights, a representation of facts and a practical guide to action (Krippendorff, 2004, p. 18). In fact, as Berg & Lune (2012) state it helps to identify patterns and themes in a detailed and systematic way (Berg & Lune, 2012). Another definition of content analysis is -systematic assignments of communication content to categories according to rules and the analysis of relationships involving those categories using statistical methods (Riffe, Lacy, & Fico, 2005).

Content analysis was chosen in the present research study to obtain further in-depth information on the educational resource. The content analysis has been done with the educational research in order to make inferences between activities and the exit profile.

The analysis was based on the conceptual framework proposed by (White & Marsh, 2006) and the next steps were followed: (1) Establishing hypothesis or hypotheses; (2) Identifying appropriate data (EKI educational resource); (3) Determining sampling method and sampling unit; (4) Establishing data collection unit and unit of analysis; (5) Establishing coding method; (6) Coding data; (7) Checking for reliability of coding; (8) Analysing coded data; and (9) Writing up results.

Results

The preliminary findings show that some areas of the digital competence defined in the exit profile, such as information, communication and content creation are highly developed by means of the activities proposed by the EKI educational resource. Besides, the results show that some content resources such as maths, natural sciences and social sciences could accelerate the development of the digital competence areas mentioned before. However, it needs to be highlighted that some other data are being analysed at the moment.

Conclusion

The aim of the present research is to examine the impact of the EKI educational resource on the level set in the exit profile taking into account students' digital competence development. This study will prove useful in expanding our understanding of how digital competence could be developed.

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