Is Team Entrepreneurial Orientation important in generating creative business ideas? The moderating role of team-perceived heterogeneity and the individual creative mindset

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Abstract

PURPOSE: *The study aims to unveil if Team Entrepreneurial Orientation (TEO) facilitates identification of creative market opportunities understood as novelty and quality business ideas. Entrepreneurial Orientation (EO) has rarely been measured at a team level and few studies have attempted to examine the relationship between EO and actual creative outcomes. The proposed research model searches for new patterns that can foster creativity of entrepreneurial teams. In addition, the research adds the moderating effect of perceived team heterogeneity and individual creative mindset (Growth-Creative and Fixed-Creative Mindsets) as contingency variables to improve the understanding under which circumstances the entrepreneurial teams generate creative business ideas.* ***METHODOLOGY:*** *The research sample comprises entrepreneurial teams from the Mondragon Team Academy in the Basque Country, Spain. The survey data were collected after the entrepreneurial teams performed idea generation. The applied experiment of idea generation of entrepreneurial teams has not been generated for the purpose of the study but it formed part of the natural processes of the selected sample of teams. The novelty and quality of business ideas were evaluated by experts in the field. The data relationships were analyzed through partial least square structural equation modeling (PLS-SEM).*

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***FINDINGS**: Entrepreneurial Orientation of teams leads to product-market entries but not necessarily to novel product-market entries. Entrepreneurially oriented teams have a greater tendency to generate quality and slightly modified existing business ideas rather than to generate novel market opportunities. The applied moderators present different interaction results with the studied relationships. Specifically, individuals with a Fixed-Creative Mindset in a team have an antagonistic interaction on the TEO-Quality relationship. Team-Perceived Heterogeneity and Growth-Creative Mindset of individuals have no effect on either the TEO-Quality or the TEO-Novelty link. **IMPLICATIONS:** The research demonstrates the importance of contextualization of the nature of creativity in EO as a crucial antecedent of market innovations. Our study adds to the literature and practice by providing evidence that EO at a team level (TEO) plays a critical role in exploring product-market entries, given that TEO facilitates Quality outcomes only. Entrepreneurially oriented teams do not easily achieve Novel outcomes that allow them to enter new markets. Individuals with Fixed Creative Mindset in a team should be avoided as they block the relationship between Team Entrepreneurial Orientation and Quality. Likewise, our study supports the validity of Entrepreneurial Orientation at a team level, which can lead to more suitable practical implications for a team and its creativity management if applied. It could help in developing appropriate team formation and team management practices. **ORIGINALITY AND VALUE:** The study proposes rare and unique EO analysis at a team level and at young companies' level (start-up). The study contributes to the original and overlooked in the literature conceptualization of EO within Schumpeter's perspective of "creative destruction" in entrepreneurial activities. The examined theoretical foundations of EO led to clearer antecedents of behavioural effects of entrepreneurial teams towards product-market entries. The study initiates, identifies and calls for new further research lines to contribute to a greater and contingent understanding of how entrepreneurial teams generate creative business ideas, especially, novel business ideas, which are necessary for "creative destruction", the EO construct itself and overall economic development.*

***Keywords:** entrepreneurship, creativity, team, entrepreneurial orientation, creative outcomes.*

INTRODUCTION

During a time when product and business model life cycles are shortening, entrepreneurs' capacity to generate new market opportunities has become even more crucial from a scientific and practical perspective (Pérez-Luño, Wiklund, & Cabrera, 2011). New ideas for ventures, however, are rarely the product of a single entrepreneur working in isolation. Rather, they are devised by a team of entrepreneurs (Jin et al., 2017). For decades, teams have been more effective than individuals in generating more novel and higher-quality ideas (Barczak, Lassk, & Mulki, 2010; Kier & McMullen, 2020). Much of the experimental literature on team creativity has its antecedents

in the brainstorming paradigm performed with groups prepared ad hoc for the study in question, in limiting laboratory environments, focusing on the quantity rather than the quality of the ideas generated (Kurtzberg & Amabile, 2001; Yuan, 2019). The literature has largely been limited to empirical studies exploring the personality of 'creative' entrepreneurs (Palmer, Niemand, Stöckmann, Kraus, & Kailer, 2019) without considering actual creative performance and the collective generation of creative performance outcomes. Subsequently, we still lack sufficient understanding of how entrepreneurial teams actually form creative ideas for business development (Gundry, Ofstein, & Monllor, 2016; Yuan, 2019).

For the purpose of clarity, this study addresses the concept of creativity through the dimension of an outcome, a *product*, viewed as a creative idea generated by a team of entrepreneurs. We define a creative idea within the key creativity features: quality (useful, effective and implementable solution) and novelty (Amabile, 1997; Ylitalo, 2017). In entrepreneurship, novelty refers to the originality, newness, and distinctiveness of business opportunities compared with existing products or services in the market (Perry-Smith & Mannucci, 2017). Meanwhile, the usefulness (quality) of creativity guarantees that customer needs are better served and allows entrepreneurs to obtain potential economic benefits (Gruber, Kim, & Brinckmann, 2015). In general terms, creativity in entrepreneurship drives differentiation, and competitiveness (Zhou, Wang, Song, & Wu, 2017). Not surprisingly, therefore, scholars (Covin & Slevin, 1989; Lumpkin & Dess, 1996) have been trying to understand the tendency of entrepreneurs to create, discover and exploit new product–market entries. The studies have resulted in the evolution of the most common construct in entrepreneurship literature, known as Entrepreneurial Orientation (EO) that captures and reflects the strategic orientations of entrepreneurs (Lumpkin & Dess, 1996) towards the creation of new value on the market. Even though creativity seems to be the very explicit outcome of EO, it has not been fully explored yet and especially, in the currently common context of entrepreneurial teams. Without a doubt, EO and creativity dimensions can enhance each other, providing the base for our study that connects EO at a team level and creativity in a new explanatory and causal research framework.

In this regard, our study applies an Entrepreneurial Orientation (EO) construct, which in broad EO-performance relationship studies has rarely included creativity as its specific type of performance outcome and has rarely been conducted at a team or entrepreneurial team level (Kollmann et al., 2017). Our study, therefore, extends and advances the research domain with three key contributions.

Firstly, following the suggestions of Kollmann, Stöckmann, Meves, and Kensbock (2017), Covin et al. (2020) and Wales et al. (2020), it alters the context of analysis by conceptualizing EO at a team level (Team Entrepreneurial Orientation, TEO) and at emerging firms (start-up) level including the pre-organizational phases of entrepreneurship (prior to startup existence) (Lumpkin & Pidduck, 2021). For the team-level analysis, we extend the common aggregate models of the individual-level construct, which contributes to a better understanding of TEO (Covin et al., 2020; Fellnhofer, Puumalainen, & Sjögrén, 2017). The young firm's level analysis enhances the understanding of the processes and outcomes surrounding EO and entrepreneurial teams (Kollmann et al., 2017) at an early stage of entrepreneurial activity, without the corporate structures influence on team members' orientation.

Secondly, our study applies the contingency view (Linton, 2016) to better comprehend the conditions, situations, and context under which the TEO is actually reflected in creative outcome performance: novelty and quality of the generated business idea (Amabile, 2013). Our study adds two novel moderating effects: Team-Perceived Heterogeneity and individual creative mindset to expand an understanding of the link between TEO and creative outcomes. It enables us to detect whether and when TEO leads to potential new product-market entries that can "creatively destroy" (Schumpeter, 1934) the current economic paradigms, verifying the accuracy of the theoretical foundations of EO (Wales et al., 2020).

Thirdly, our study stresses the distinction between creativity and innovation. It views creativity as the first stage of innovation (Gundry et al., 2016). Detecting the TEO-creativity relationship and revealing the factors that affect the generation of creative ideas by entrepreneurial teams, can explain and anticipate the whole range of future performance outcomes, specifically, TEO-market entry innovation leading to clearer antecedents of behavioral effects of entrepreneurial teams towards further performance outcomes.

The paper is structured as follows. First, we discuss the theoretical arguments and empirical evidence regarding TEO, creativity and the link between them, building our hypotheses. Next, we present the method used to test these hypotheses. We then present and discuss our results. We conclude with an assessment of how the study's findings contribute to the literature on EO and creativity, their practical implications for entrepreneurs, and the possible direction of future analyses.

LITERATURE REVIEW AND HYPOTHESES

Team Entrepreneurial Orientation and Creativity

After almost five decades of research, Entrepreneurial Orientation (EO) has become one of the most widely studied areas in entrepreneurship literature (Wales et al., 2020). EO explains the tendency to discover and exploit new products–market opportunities "lead[ing] to new entry" (Lumpkin & Dess, 1996, p. 139). The original conceptualization of EO by Covin and Slevin (1989) defines EO as innovative, proactive, and risk-taking behaviors of entrepreneurial entities in the generation of new product-market entries. Lumpkin and Dess (1996) launched the idea that competitive aggressiveness and autonomy should also be EO dimensions. Many authors use the three original dimensions while others use different combinations of the five (Wales, Gupta, & Mousa, 2013). Independently from the dimensions applied, the essence of the definition of EO suggests that creativity is somewhat its integral part and that some aspects of EO are a catalyst to adapt creativity in the process of new entry development (Yi, Amenuvor, & Boateng, 2021).

The aspect of creativity in EO has been mentioned even before its commonly known origins in the early studies of Covin and Slevin (1989) and Lumpkin and Dess (1996). The most important theoretical foundations of EO are based on Schumpeter's (1934) perspective of economic development and especially innovation and entrepreneurship, which has often been overlooked in EO research. Relating to Schumpeter's early ideas, entrepreneurially oriented entities are defined based on their tendency to embrace new practices and go beyond the current state-of-the-art: such as new and creative ideas, novelty, and experimentation (Lumpkin & Dess, 1996). This concept was used by Schumpeter (1934) to stress the influence of creativity on the creation of new products, services or organizations that act as new entrants or agents of change that "creatively destroy" extant economic regimes and in doing so, generate possible new areas of growth (Wales et al., 2020) revolutionizing the economy (Corte & Gaudio, 2017).

Consequently, novelty and usefulness (also known as quality) emerged as the key concepts of creativity and were further used by its key proponents, Amabile (1997) and Sternberg (1999). In this regard, both elements of creativity are also fundamental in entrepreneurship, but they require to be effectively implemented. The business idea may be novel, but its acceptance by the market is dependent on its real usefulness. On the other hand, the idea may be useful, but if it is already applied, it will not generate new value on the market (Corte & Gaudio, 2017). Along similar lines, Schumpeter's oft-overlooked theory naturally links Entrepreneurial Orientation and creativity

in trying to explain that an EO entity's role is to elevate new entries to the level of market disruptors. It is also reflected in the most recent exhaustive bibliometric meta-analysis by Wales et al. (2020), which argues that the Schumpeterian perspective of the role of "creative destruction" within EO should be the center of any future development of EO research. Following scientific calls, Schumpeter's theory has become the basis of our new research framework.

Previous studies have already explored a number of EO performance frameworks, with most focusing on financial performance (Hughes, Chang, Hodgkinson, Hughes, & Chang, 2021) or new venture performance (e.g., sales volume, sales growth, market share) (Donbesuur, Boso, & Hultman, 2020; Lumpkin & Dess, 1996). The relationship with the intermediate steps, such as EO-creative performance outcomes, is not very clear in scientific literature. We can detect, however, some indirect insights in scientific papers on EO-innovation (Rauch, Wiklund, Lumpkin, & Frese, 2009), where scholars have consistently established (across different national cultures, firm sizes or industries) that greater product/market entry innovation is associated with greater EO and its separate dimensions such as proactiveness and greater risk-taking. Similarly, Pérez-Luño et al. (2011) stated that the launch of "new to the world" product appears to be a result of EO. Zhai et al. (2018) and Wang, Dass, Arnett, and Yu (2020) found that EO affects engagement in activities that enable new value creation and innovation performance. Additionally, Donbesuur et al. (2020) proved the positive influence of EO on the discovery of market opportunities and its enhancing effect on firm performance.

None of these scholars have sufficiently considered whether EO is closely associated with "entry" into new or established markets, either with new or existing goods or services. All too often, scholars associated the launch of new products with the generation of novel ideas when, indeed, they might often be the effect of adopting and modifying what others have already developed (Pérez-Luño et al., 2011). Scholars limited their conclusions to the quantity of the innovations (Pérez-Luño et al., 2011) or indirect outcome assessments, such as level of expenditure on R&D research for new value creation (Wang et al., 2020), the opinion of top management towards opportunity discovery activates (Donbesuur et al., 2020), and scale of success relative to major competitors in terms of introducing new products (Zhai et al., 2018). The common corporate level, somehow limited the evaluation of EO and the creativity–innovation link to the opinion of managers, heads of departments, executives, directors, and not the exact "creators" of the outcomes.

The so far seen EO, as a firm or business unit construct, has taken homogeneous and similar approaches neglecting other perspectives of analysis and hampering the future of EO development in the literature

(Linton, 2016). Not many researchers have critically examined the EO-performance relationship. It is common to see in EO studies that many researchers adopt a universalistic view assuming the notion that there is a universal law that higher EO will always result in higher performance (Linton, 2016). There is a need for more of a contingency view, perceiving EO as beneficial in certain situations or contexts, and explaining in more detail under which circumstances the EO-performance can be straightforward or not (Linton, 2016).

According to Lumpkin and Pidduck (2021), if EO is to continue reflecting what it means to be entrepreneurial, it is clear that the concept needs to evolve to accommodate the diverse manifestations and venues for entrepreneurship that are now evident to a global community of researchers. Kollmann et al. (2017) proposed to expand the level of analysis from the firm-level context to downstream levels including the individual, team, entrepreneurial team and emerging young firm, where the organizational structure or hierarchical administrative systems do not mask the effects of the team members' orientation on collective performance. Like Lumpkin and Pidduck (2021), we consider that EO should be part of the conversation towards firm birth, nascent entrepreneurship, and the topic of what happens prior to and during firm formation, which is why the study focuses on early entrepreneurship activities of a team prior to the start-up formation, such as generation of novel and quality business ideas. Capturing EO at a team level (Kollmann et al., 2017) and at the early stage of entrepreneurial activity (emerging start-up) (Lumpkin & Pidduck, 2021) can explain the path and behavioral effects of entrepreneurially oriented teams towards launching new entries completing the more contingency view.

Despite several calls to understand better the way in which individuals, individually and collectively, contribute to entrepreneurship through entrepreneurial behaviors grounded in EO, little empirical research is dedicated to the teams in which they work. Within teams, individuals can choose to deploy entrepreneurial behaviors grounded in EO (Covin et al., 2020). The commonly known aggregation of individual EO (termed IEO) (Covin et al., 2020) to calculate EO at the team level (TEO) does not sufficiently capture whether the entrepreneurial behaviors are really manifested by individuals to improve team performance. Hence, in our study, we understand TEO as the perception of individuals towards the collective manifestation of entrepreneurial behaviors of EO within the team. The key behaviors of TEO include an ability of a team to act autonomously, a willingness to innovate and take risks, and a tendency to be proactive with regard to new market opportunities.

The EO construct in the team-level context has not been contrasted yet with numerous performance outcomes and it is a quite unexplored area of study. EO has been contrasted with entrepreneurial team performance (Kollmann et al., 2017) or TEO with work group performance (Fellnhofer et al., 2017). In both cases, the relationship has been positive but again only within a corporate context (with reference to top/senior management teams). The effect of the construct on team innovative performance has been recently addressed by Shahid et al. (2022). The authors, however, applied EO at an individual level and as a mediator between team identification and team innovative behavior, understood as creativity (idea exploration and creation) and innovation (idea championing and implementation). In both cases, the mediating effect of EO has been proven positive. The team context in EO studies has occasionally been addressed in the scientific literature. Yet, from the overall team performance perspective, teamwork quality is an important success factor of innovative projects (Hoegl & Gemuenden, 2001) and teams for years have been considered more effective in generating more creative outcomes than single individuals (Barczak et al., 2010; Kier & McMullen, 2020). The empirical evidence, although, regarding the influence of teamwork, and within the EO domain, on the success of teams with creative and innovative tasks is still scarce.

Given the state of the literature, we posit the following hypotheses:

H_1. Team Entrepreneurial Orientation (TEO) is positively related to the novelty of a business idea

H_2. Team Entrepreneurial Orientation (TEO) is positively related to the quality of a business idea

Team-Perceived Heterogeneity: Moderator TEO-Creativity

Prior EO research has already analyzed the possible impact of heterogeneity within work groups (Fellnhofer et al., 2017). In general terms, deep-level heterogeneity can have beneficial effects whenever it functions as an informational resource (Knippenberg, Ginkel, & Homan, 2013). Teams that are heterogeneous in perspectives, knowledge, experiences or information may build upon more complex informational resources, which encourage higher-quality decisions, more advanced solutions to work problems, and greater creativity (To, Fisher, Ashkanasy, & Zhou, 2021), and finally leading to improved team performance (Knippenberg et al., 2013). In this context, Heavey, Simsek, Roche, and Kelly (2009) concluded that working group heterogeneity allows the group to accumulate comprehensive information

with reference to exploring and exploiting entrepreneurial opportunities. Kollmann et al. (2017) have stressed that individuals' heterogeneity leverages the EO of a group, in turn improving collective performance. Fellnhofer et al. (2017), rather than taking the common aggregation of individuals' heterogeneity, instead measured the individual's perception of group heterogeneity and its significant relationship with TEO. Previous studies mainly focused on the heterogeneity effect (individual or group) on variations in TEO and further performance. Our study, therefore, seeks to observe Team-Perceived Heterogeneity as a moderator between TEO and creative outcomes of entrepreneurial teams, in order to detect whether it strengthens or weakens the relationship. Team heterogeneity in the form of demographic heterogeneity has been used as a moderator in previous studies (Ferrier & Lyon, 2004) observing the relationship between team behavior and team performance. However, it has not been tested in TEO-creativity relationships, either in the form of (perceived) deep-level heterogeneity or at entrepreneurial team level. Our study, therefore, posits the following hypotheses:

- H_3. Team-Perceived Heterogeneity strengthens the relationship between TEO-Novelty of a business idea
- H_4. Team-Perceived Heterogeneity strengthens the relationship between TEO-Quality of a business idea

Individual creative mindset: Moderator TEO-Creativity

The logic of applying individual inputs in our team-based research model lies in previously assumed theories (Baer, Oldham, Jacobsohn, & Hollingshead, 2008) that team creativity is based on individuals' creative ideas and their team's capacity to perceive and utilize such ideas. However, the empirical evidence for this disjunctive model of team creativity is rather scarce. It is more common to perform the additive model conceptualizing team creativity as being conditioned by the sum or average of the creativity of the individual members (Yuan, 2019). Integrating individual inputs into team creativity by additive models is an oversimplification (Yuan, 2019). We, therefore, propose to observe individual inputs as a moderator of the relationship between team and creative outcomes. This approach is more accurate in determining how individual inputs contribute to the team processes.

In order to choose the individual input-based moderator, we followed the theories of O'Connor, Nemeth, and Akutsu (2013) that revealed the important role of Fixed-Creative and Growth-Creative Mindsets of individuals in motivating or demotivating the performance of creative actions. When

individuals recognize creativity as a fixed trait, they have problems such as rationalizations about why they should engage in activities demanding creative thinking. On the other hand, individuals with a growth mindset, who think that creativity is determined by effort rather than by some innate quality, tend to see themselves as more creative, increasing the probability of individual commitment to creative tasks and, finally, creative solutions (Karwowski, 2014). Our study enhances previous theoretical assumptions by linking them to the entrepreneurship domain and observing whether the creative mindset of an individual (fixed versus growth) moderates the relationship between the TEO and creativity outcome of a team. Based on the previous assumptions, we argue that a growth mindset will enhance the TEO-Novelty and TEO-Quality relationship while a fixed mindset might weaken the relationship.

We posit the following hypotheses:

H_5. Growth-Creative Mindset strengthens the relationship between TEO and novelty of a business idea
H_6. Growth-Creative Mindset strengthens the relationship between TEO and quality of a business idea
H_7. Fixed-Creative Mindset weakens the relationship between TEO and novelty of a business idea
H_8. Fixed-Creative Mindset weakens the relationship between TEO and quality of a business idea

Ultimately, the defined hypotheses and the proposed directions of the effects are summarized in Figure 1, which presents the research framework.

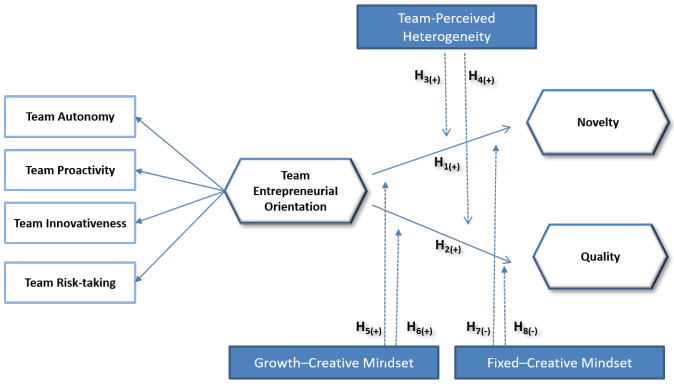


Figure 1. The conceptual Model and Hypotheses

METHOD

Sample and experiment procedure

The participants of the study belong to the entrepreneurship ecosystem of Mondragon Team Academy (MTA), which forms part of Mondragon University in the Basque Country, Spain. The sample is taken from all three co-working labs in the Basque Country: Irun, Oñati, and Bilbao. The total population size consists of 120 entrepreneurs (57 women and 63 men). The study applied probability sampling, meaning that every member of the population had a chance of being selected. To have the entrepreneurial teams properly represented in the sample it was necessary to have at least a 50% response rate per team (e.g., 2 responses from a 4-member team or 1 response from a 2-member team) and the average total number of team members per team could not be less than 2 members. It resulted in 78 entrepreneurs out of 120 entrepreneurs in total. The team entrepreneurs (38 women, 40 men) worked in entrepreneurial teams (13 in Oñati, 13 in Bilbao and 10 in Irun) made up of minimum 2 members, which gives 36 teams out of 50 in total. The details of the sample are shown in Table 1.

Table 1. Sample characteristics

	Sample	Population	%
n. Entrepreneurs	78	120	65
n. Female	38	57	67
n. Male	40	63	63
Age (20-25)	76	118	64
Age (> 25)	1	1	100
Age (<20)	1	1	100.0
n. Teams	36	50	72
n. Team Bilbao	13	16	81
n. Team Oñati	13	17	76.5
n. Team Irun	10	17	59
Avg. Year/Exp.	3.4	3.5	------
Avg. Member/Team	2.16	2.4	------

Note: n: number; n. Team Bilbao: number of teams in Bilbao Lab; n. Team Oñati: number of teams in Oñati Lab; n. Team Irun: number of teams in Irun Lab; Avg. Year/Exp: Average year of work experience as an entrepreneurial team; Avg. Member/Team: Average number of members per team.

The sample of team entrepreneurs participated in the experiment within the methodology of MTA. It was necessary to ensure the observation

of entrepreneurial creativity of teams in its natural environment rather than in a forced scientific exercise. Each team had a 3 months' period (within November 2019 and January 2020) to explore business opportunities and present its final business idea in a brief pitch at the end of the process. The teams were organizing the rhythm of work independently and based on request they had support from experts within the MTA ecosystem. There were four primary criteria taken into consideration:

Criteria 1: MTA promotes collective rather than individual entrepreneurship in co-working labs within the Basque Country, providing an accurate context of team entrepreneurship for the study.
Criteria 2: The MTA sample allows us to observe teams of entrepreneurs with real experience (equal or greater than 3 years) of working together in the proactive search/development of business opportunities. At this stage, teams are considered to have the attributes of a team (not a group) as they have more awareness regarding team members, their strengths and weaknesses (Kurtzberg & Amabile, 2001). The study experiment would not reach its objective if we observed a group of entrepreneurs generated only for the purpose of the study.
Criteria 3: The culture of MTA is based on a constant generation of business ideas as part of the educational model— the participants performed a design thinking exercise that allowed us to observe them in a natural process of business idea generation. The timeframe of the study experiment was chosen to coincide with the MTA exercise.
Criteria 4: The selected teams did not generate business ideas within a specific company. They had no organizational influence (cultural, structural, strategic influence) that allowed us to observe the "pure" process of entrepreneurial creativity of teams.

Data collection

We took two steps to collect data. First, all 120 entrepreneurs were invited to fill out a survey at the end of the experiment (after presentation of their final business idea). Participation was voluntary, and their responses were strictly confidential. They independently rated the scales of *Team Entrepreneurial Orientation* (14-item scale); *Individual Creative Mindset* (Fixed and Growth) (10-item scale); and *Perceived Team Heterogeneity* (4-item scale). The participants were evaluating all items from 1 (strongly disagree) to 5 (strongly agree). We received 78 responses that were useful for the study.

Second, we used a panel of expert judges to rate *Creativity*: Novelty and Quality of the team outcome—business ideas of 36 entrepreneurial teams—

meaning 36 business ideas (each team presented one final business idea). The selected panel of experts was appropriate to evaluate business ideas of entrepreneurial teams. The business ideas were context specific, which, according to the creativity literature, need to be evaluated by experts who are familiar with the specific domain (Amabile, 1997, 2013). The expert judges were very familiar with the business idea and the domain. They collaborated with the teams based upon their request. They had the expertise and knowledge appropriate for evaluation. In this vein, the experts who worked most frequently with the participating entrepreneurial team assessed the final business idea. It means that each expert judge was assigned a specific business idea to evaluate in order to omit the risk that the judge evaluates ideas that he/she has not enough knowledge about. On average the same expert judge evaluated approx. two business ideas.

Measures

The measures applied in this study are quantitative and are adapted from previously validated scales. Full scales are presented in the Appendix.

Team Entrepreneurial Orientation

The TEO construct is measured through a slightly modified 14-item scale partially proposed by Hughes et al. (2007) and fully adapted by Fellnhofer et al. (2017). The scale is originally based on Lumpkin and Dess (1996) and Covin and Slevin, (1989). The TEO measures, such as proactivity, risk-taking, and innovativeness, have been applied from (Hughes, Hughes, & Morgan, 2007) and adapted by Fellnhofer et al. (2017) to work-group contexts. The autonomy measure has been applied from Lumpkin and Dess (1996), and adapted by Fellnhofer et al. (2017) to work-group contexts. All measures applied the 5-point Likert scale. The work views TEO as a second-order composite, all the sub-dimensions make up the TEO artefact emphasizing the common effect of the EO dimensions. The measurement method applies the individuals' perception approach towards their team (e.g., *"My team excels at identifying opportunities"*). This approach to measurement omits the aggregate models of individual EO (IEO) to calculate team EO (TEO). Previous measurements by Fellnhofer et al. (2017) have shown that the individuals' perceptions are reflected in the team EO.

Creativity

The creative outcomes or creative ideas are measured using a scale mentioned by Dean, Hender, Rodgers, and Santanen (2006) and later suggested by Ylitalo (2017). The scale measures creativity using two dimensions: Novelty and Quality. Novelty includes originality and paradigm relatedness (the degree to which the idea is, for example, rare or surprising and whether it preserves or modifies the current paradigm). Quality includes workability (the degree to which the idea is easily implemented), relevance (the degree to which the idea solves a problem), and specificity (the completeness and clarity of the idea).

Individual Creative Mindset

The construct is measured on a 10-item scale proposed and validated by Karwowski (2014). It analyzes the participant's perception of the nature of creativity (Growth-Creative Mindset e.g. "*Everyone can create something great at some point if he or she is given appropriate conditions"* or Fixed-Creative Mindset e.g. "*Some people are creative, others are not—and no practice can change it*") on a 5-point Likert scale.

Team-Perceived Heterogeneity

The construct is measured on a 4-item scale adapted from Campion, Medsker and Higgs (1993) and used by Fellnhofer et al. (2017). The measurement method applies the perception approach of individuals towards their team (e.g., *"The members of my team vary widely in their areas of expertise"*). Previous measurements by Fellnhofer et al. (2017) have shown that individuals' perceptions are reflected in the Team-Perceived Heterogeneity

Data analysis method

We tested our hypotheses using partial least square (PLS), a structural equation modeling (SEM) technique that uses a principal components-based estimation approach (Chin, 1998). Firstly, PLS was used because our model used high-order composites. Both theoretical arguments (Rigdon, Sarstedt, & Ringle, 2017) and empirical evidence (Sarstedt, Hair, Ringle, Thiele, & Gudergan, 2016) support the use of PLS in models based on composite variables. Team EO (TEO) and Quality were modeled as a composite in mode A at the dimension and second-order construct level. By contrast, Novelty was a simple composite modeled in mode A.

Secondly, PLS-SEM techniques are applied because component scores are used in a subsequent analysis for modeling a multidimensional construct

using a two-stage approach (Chin, 2010; Wright, Campbell, Thatcher, & Roberts, 2012). As a result, PLS allows us to fulfill the explanatory purposes of the research, facilitating understanding of the causal relationships between variables. The statistical analysis software used was SmartPLS 3.2.7 (Ringle, Wende, & Becker, 2015).

RESULTS

We assessed the PLS model in three stages: (1) the measurement model, (2) the structural model, and (3) the moderation analysis.

Measurement model

We performed a confirmatory composite analysis of the saturated model using an overall model fit test (Henseler, Hubona, & Ray, 2016), allowing us to assess the external validity of the composites (Henseler, 2017). The two measures of discrepancy between the empirical and the model-implied correlation matrix are less than or equal to their corresponding HI95, while dG is lower than the HI99 value for the saturated models (see Table 2); hence, the discrepancy is not significant and we can safely assume the indicators form the composites, in accordance with the measurement model proposed (Henseler, 2017).

Table 2. Test of the model fit

Saturated model			
	Value	**HI95**	**HI99**
SRMR	0.076	0.087	0.102
dULS	0.263	0.337	0.467
dG	0.127	0.102	0.130

Note: SRMR: standardized root means square residual; dULS: the unweighted least squares discrepancy; dG: the geodesic discrepancy; HI95: bootstrap-based 95th percentile; HI99: bootstrap-based 99th percentile. Bootstrapping based on 10,000 subsamples.

The measurement model evaluation brought out acceptable results. All dimensions and indicators met the requirement of reliability, given that their outer loadings were greater than 0.707 (Table 3). Some of the outer loadings were moderately below this critical value. However, they were maintained to support the content validity. Besides, two items were removed from the T-autonomy construct due to their low outer loadings for the purpose to achieve convergent validity and other two from T-innovativeness in order to improve the discriminant validity between composites.

Table 3. Measurement model results

Composites/Dimension/Indicator	Loadings	CR	AVE
Team EO (High order Composite Mode A)		**0.823**	**0.540**
Team Autonomy (Composite mode A)	**0.718**	**0.780**	**0.546**
T-autonomy_1	0.812		
T-autonomy_4	0.793		
T-autonomy_5	0.591		
Team Innovativeness	**0.637**	**1.000**	**1.000**
Team Innovativeness-1	1.000		
Team Proactivity	**0.784**	**0.779**	**0.544**
Team-Proactivity1	0.598		
Team-Proactivity2	0.817		
Team-Proactivity3	0.779		
Team Risk-taking	**0.790**	**0.810**	**0.588**
Team-Risk-taking1	0.786		
Team-Risk-taking2	0.758		
Team-Risk-taking3	0.756		
Quality (High Order Composite Mode A)		**0.849**	**0.656**
Relevance	**0.828**	**0.912**	**0.838**
Relevance_1	0.904		
Relevance_2	0.927		
Workability	**0.676**	**0.767**	**0.641**
Workability1	0.544		
Workability2	0.992		
Specificity	**0.908**	**0.866**	**0.684**
Specificity1	0.831		
Specificity2	0.718		
Specificity3	0.921		
Novelty- Composite Mode A		**0.915**	**0.843**
Novelty 1	0.928		
Novelty 2	0.908		

Note: CR: Composite Reliability; AVE: Average Variance Extracted.

All second-order reflective (superordinate) composites (TEO and Quality) and the first-order composite (Novelty) had outer loading values above 0.7 and thus fulfilled the required construct reliability. To assess convergent validity, we examined the average variance extracted (AVE) (Hair et al., 2011). AVE should be greater than 0.5, which means that 50% or more of the variance of

the indicators should be accounted for. Consistent with this suggestion, AVE measures for all constructs are above 0.540 (Table 3). Table 4 shows that all variables had discriminant validity, according to the HTMT criterion (Henseler, Ringle, & Sarstedt, 2015), thereby giving evidence that TEO, Quality, Novelty are distinctive composites.

Table 4. Measurement model discriminant validity

	TEO	Quality	Novelty
TEO	*0.735*	**0.625**	**0.120**
Quality	0.484	*0.810*	**0.331**
Novelty	0.009	0.220	*0.918*

Note: TEO: Team Entrepreneurial Orientation; The HTMT appears above the diagonal in bold. The correlations appear below the diagonal. On the diagonal itself, the AVE squared appear in italics.

Structural model

We turn next to data generated by the structural model with which we can test our hypotheses. We evaluated the model by examining the algebraic sign, magnitude, and significance of the structural path coefficients and the R^2 values. Figure 2 and Table 5 show the path coefficients and the amounts of variance explained (R^2) in the endogenous variables. The R^2 values show that the explanatory power of the model is weak to moderate (Chin, 2010), explaining 0% of the variance in Novelty and 23.5% of the variance in Quality.

To evaluate the significance of the direct effects in the path model, a bootstrapping process (10,000 samples) was performed, providing p-values and confidence intervals (Roldán & Sánchez-Franco, 2012). As Table 5 shows, the results support Hypothesis 2, positing a direct, positive relationship between TEO and Quality, (β=0.484, t=5.568) and the associated f^2= 0.307 is close to the value standard of 0.350 for substantial effect (Chin, 2010). The relationship between TEO and Novelty is not supported (Hypothesis 1 (β=0.009, t=0.055). To evaluate the model, the blindfolding was adapted using the cross-validated redundancy index (Q^2) for the endogenous variables. This measure was suggested by Chin (2010) for examining the predictive relevance of structural models. Q^2 values greater than zero imply that the model has predictive relevance. The results support that the structural model has a satisfactory predictive relevance only for the endogenous composite – Quality (Q^2=0.133).

Next, to test moderation hypotheses, this work tests the interaction effect of T.P. Heterogeneity, Growth-Creative Mindset and Fixed-Creative Mindset in the path between TEO and Novelty, and TEO and Quality, using an orthogonalizing approach (Fassott, Henseler, & Coelho, 2016). As in regression

analysis, the predictor TEO and the moderator variables are multiplied to obtain the interaction term. In the relationship between TEO-Novelty and TEO-Quality, when the moderator effect Team-Perceived Heterogeneity is considered, the analysis results show no evidence related to this effect (see Table 5).

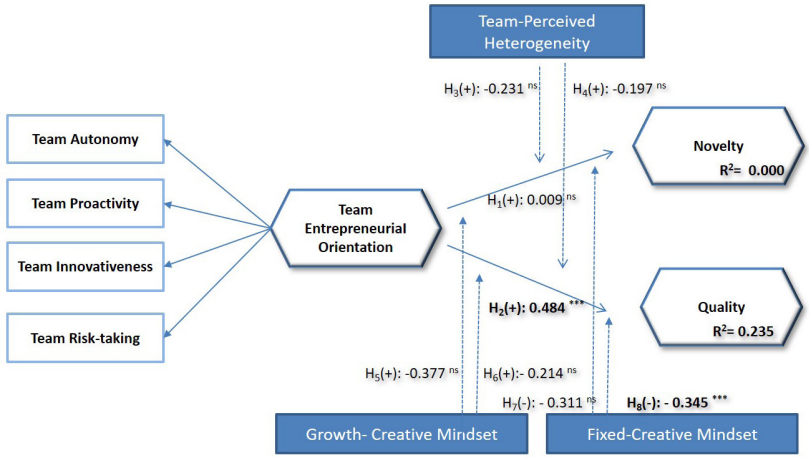
Table 5. Effects on the endogenous variables

	Path Coef.	P -value	CI	Support	f^2
H_1(+):TEO → Novelty	0.009	0.478	[-0.231; 0.254]	No	0.000
H_3(+): TEO x T.P. Heterogeneity → Novelty	-0.231	0.266	[-0.467; 0.489]	No	0.069
H_5(+): TEO x Growth-Creative M. → Novelty	-0.377	0.182	[-0.556; 0.554]	No	0.133
H_7(-): TEO x Fixed-Creative M. → Novelty	-0.311	0.233	[-0.540; 0.529]	No	0.095
H_2 (+): TEO→ Quality	0.484***	0.000	[0.367; 0.648]	Yes	0.307
H_4(+): TEO x T.P. Heterogeneity→ Quality	-0.197	0.232	[-0.450; 0.428]	No	0.059
H_6(+): TEO x Growth-Creative M.→Quality	-0.214	0.261	[-0.445; 0.443]	No	0.044
H_8(-): TEO x Fixed-Creative M.→ Quality	-0.345***	0.000	[-0.536; -0.293]	Yes	0.165

Note: Path Coef.: Path Coefficient; CI: Percentile confidence interval.; TEO: Team Entrepreneurial Orientation; T.P. Heterogeneity: Team-Perceived Heterogeneity; Growth-Creative M.: Growth-Creative Mindset; Fixed-Creative M.: Fixed-Creative Mindset; Bootstrapping based on n=10,000 subsamples. Hypothesized effects are assessed by applying a one-tailed test for a t Student distribution (CI 95%). *** significance at p< 0.001; ($R^2_{Quality}$=0.235; $Q^2_{Quality}$=0.133) ($R^2_{Novelty}$ 0=.000; $Q^2_{Novelty}$=-0.001).

For these reasons, H_3 (β =- 0.231 p=0.266) and H_4 (β =-0.197 p=0.232) related to moderation effect of T.P. Heterogeneity on TEO- Novelty and TEO-Quality link have been rejected. Similarly, Growth-Creative Mindset does not increase the effect of TEO on Novelty and Quality of business ideas, failing to support either H_5 (β =-0.377 p=0.182) or H_6 (β =-0.214 p=0.261). Therefore, Growth-Creative Mindset does not moderate either the TEO-Novelty or the TEO-Quality link.

In Table 5, the results support H_8 (β =-0.345 p=0.000) presenting that Fixed-Creative Mindset negatively moderates the link between TEO and Quality. Along these lines, the interaction term also shows a moderate f^2 value that is above the threshold of 0.150, meaning that it can be considered as a moderate moderation (Chin et al., 2003). Therefore, the moderating effect predicts the weakening of the TEO-Quality path in a Fixed-Creative Mindset context.



*** significant at p-value <0.001 (one tailed); ns: non-significant

Figure 2. Standardized path coefficients and significance of inner model

The findings from the results of the path analysis are discussed in the following section.

DISCUSSION

The findings of the study enhance our understanding of the theory that EO plays a critical role in exploring market opportunities leading to potential new entries on the market (Donbesuur et al., 2020; Lumpkin & Dess, 1996; Pérez-Luño et al., 2011; Wang et al., 2020; Zhai et al., 2018). Our study, however, contributes to common assumptions by applying the team-level analysis (Covin et al., 2020; Wales et al., 2020) of the EO construct (TEO) and by dividing the measure of market opportunities into the dimensions of Novelty and Quality. Consequently, our study has discovered a positive relationship between TEO and Quality, meaning that entrepreneurially oriented teams are capable of exploring workable (i.e., implementable), relevant (i.e., applicable and effective in solving problems), complete and explicit business ideas. Interestingly, our study expected a positive result between TEO and Novelty (Hypothesis 1), but the findings of the study have shown no relationship between TEO and Novelty, meaning that EO at a team level does not affect the team's ability to generate novel market opportunities. It might be the effect of the process of adoption and/or modification of already existing business ideas by entrepreneurial teams rather than novel generation (Pérez-

Luño et al., 2011). This indicates that TEO in Basque entrepreneurial teams does not so easily lead to new entries on the market. They might more often achieve the entry of an adopted idea than a novel idea that breaks existing market paradigms. It might have an important practical implication from the perspective of MTA in better understanding of entrepreneurial teams and in seeking educational or team-management strategies to improve teams' ability to generate new market value and novel market offers.

The contribution of such results to the literature is that the Entrepreneurial Orientation of a team generates market entries but not necessarily *new* market entries, as primarily assumed by Lumpkin and Dess (1996) and Covin and Slevin (1989). EO at entrepreneurial teams' level seems to provide less straightforward and universalistic results than previously assumed within the context of EO at a corporate level (e.g., (Pérez-Luño et al., 2011; Rauch et al., 2009; Wang et al., 2020)). It also justifies the calls of Kollmann et al. (2017) and Lumpkin and Pidduck (2021) to introduce EO within the context of a team and prior to start-up launch context. Our results strengthen the opinion of the authors that the construct can have its effect on what happens prior to and during firm formation.

In related terms, individual inputs might change the conditions under which entrepreneurial teams can generate the necessary completion of novel market opportunities that are also workable or relevant (Corte & Gaudio, 2017). Following the theory of Baer et al. (2008) and Yuan (2019), individuals help in the generation of creative ideas and the team has the necessary capabilities to recognize and utilize them. Our study, therefore, applied the moderating effect of an individual creative mindset to test empirically whether individual inputs strengthen or weaken the relationship between TEO-Novelty and TEO-Quality links.

Remarkably and contrary to our expectations (Hypothesis 5), the results indicate that Growth-Creative Mindset has no effect on the TEO-Novelty and TEO-Quality relationships. This means that Growth-Creative Mindset does not interfere (either by strengthening or by weakening) the relationship. It suggests that entrepreneurially oriented teams of MTA that include individuals with a Growth-Creative Mindset will not necessarily generate more novel and/or quality business ideas. The findings are not consistent with common theories that creative individuals are the main source of the creative outcomes of a team (Baer et al., 2008; Yuan, 2019). The data might indicate that the ability of individuals with a Growth-Creative Mindset to engage in creative tasks and generate creative solutions (O'Connor et al., 2013) is not correctly expressed at a team level or requires certain additional factors to be recognized in a team. At an individual level, Growth-Creative Mindset has proven useful in reaching creative achievements (Karwowski, 2014). This further suggests that

there must be particular team-level factors that affect the individual capacity previously studied, an area that merits further analysis.

By contrast, the data shows that fixed mindset among individuals (Fixed-Creative Mindset) has an antagonistic interaction on the TEO-Quality relationship and no interaction effect on TEO-Novelty, meaning that Fixed-Creative Mindset weakens the positive TEO-Quality relationship when the moderator increases. This suggests that individuals with fixed mindsets might be a blockage in team processes for quality of business ideas (see Figure 3). It supports the explanation posited by Karwowski (2014) and O'Connor et al. (2013) that individuals with fixed mindsets encounter problems in engaging in activities requiring creative thinking. It might be assumed, therefore, that entrepreneurial teams should possibly minimize the number of individuals with a fixed mindset among their members in order to prevent difficulties. It elaborates on contingency theory (Linton, 2016) showing that EO at a team level does not universally benefit in high performance of a team. The fixed mindset of individuals can be a possible obstacle to manifest the entrepreneurial behaviors of team members resulting in worse team performance.

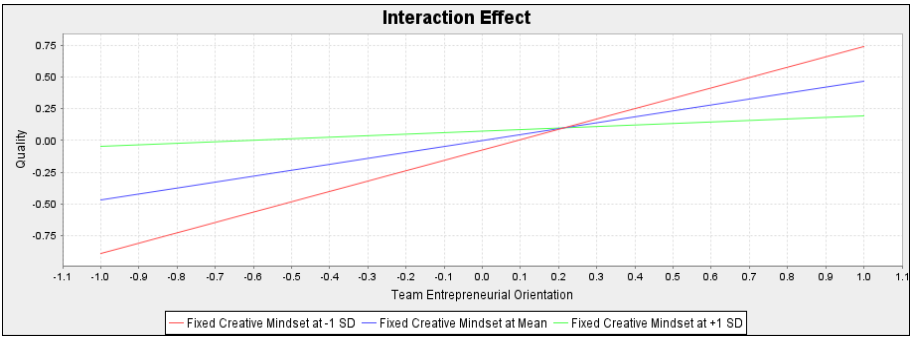


Figure 3. Fixed-Creative Mindset interaction effect on TEO and Quality

The findings have provided no evidence that Team-Perceived Heterogeneity (T.P. Heterogeneity) moderates the relationship between TEO and Novelty or Quality. There is no evidence that Team-Perceived Heterogeneity interferes (either by strengthening or weakening) the tendency of an entrepreneurially oriented team to generate creative outcomes. Previous studies concluded that group heterogeneity makes it possible to accumulate comprehensive information, helping to generate greater creativity (To et al., 2021) and exploring and exploiting entrepreneurial opportunities (Heavey et al., 2009). This effect might perhaps be seen in more diverse groups/teams. The sample of entrepreneurs was from a similar age group and from similar backgrounds. This might result in insufficient diversity of information,

resulting in a lack of significant interaction. Further studies might test Team-Perceived Heterogeneity in more diverse teams or in a form of antecedent of TEO, as suggested by Fellnhofer et al. (2017).

Our study supports the validity of TEO measurement based on the perception of team members (Fellnhofer et al., 2017), which might lead to more suitable practical implications for team/creativity management if applied. Such an approach removes the risk of predicting that the sum of entrepreneurially oriented individuals guarantees that a team will have a high level of Entrepreneurial Orientation. An individual's perception of TEO reflects more accurately the EO of a team, as well as how an individuals' entrepreneurial behavior is expressed and manifested in a team. It could help in developing appropriate team formation and management practices.

CONCLUSION

Our study adds to the literature and practice by providing evidence to the still unanswered question of how entrepreneurial teams form creative business ideas for further business development. EO at a team level (TEO) plays a critical role in exploring product-market entries, given that TEO facilitates Quality outcomes only. Entrepreneurial teams do not easily achieve Novel outcomes that allow them to enter new markets. Individuals with Fixed-Creative Mindsets might weaken the team processes towards quality business idea.

Naturally, our analysis is subject to several well-recognized limitations, which ultimately inform possible avenues for further research that might advance the literature. One consideration is our cross-sectional study and lack of observations of the implementation of the business ideas generated. Further research could perform a longitudinal study and, additionally, detect the effect of creative outcomes on TEO innovation and further TEO new venture performance. The results may also be viewed as lacking generality, since the study applied a sample of entrepreneurial teams from Basque MTA labs. Forthcoming studies could extend the sample to new entrepreneurial teams, nationally or internationally wise, but maintaining similar criteria of the experiment procedure. This could help detect whether the findings indicate an overall pattern or, primarily, apply only to the entrepreneurial teams analyzed within the Basque MTA settings.

Further studies might contribute to a greater understanding of creativity as an explicit outcome of a EO construct. Scholars need to detect factors and circumstances that influence (positively or negatively) a team's tendency to generate novel product/market entries to complement the

unveiled entrepreneurial team's already strong ability to generate quality opportunities. New predictors, moderators and mediators could be measured to observe whether team and individual inputs are released under new (team) conditions, resulting in more novel outcomes. Future research could model TEO in separate dimensions (Wales et al., 2020) to measure in greater detail the relationship between each one and a creative outcome.

Scholars should continue to go beyond the corporate context of the construct to observe and better understand the outcomes between EO and entrepreneurial teams without strong organizational influence. Following our study results, and the recent suggestions of Lumpkin and Pidduck (2021), researchers should pursue to include EO more frequently within the topics related to nascent entrepreneurship. It is necessary to profound our understanding on behavioral effect of Entrepreneurial Orientation on early entrepreneurship process and activities including the discovery, exploitation and creation of market opportunities prior to firm birth. Such new contexts of studies might explain the path of entrepreneurially oriented teams towards the launch of new entries. What is more, scholars should constantly adapt the EO construct to the real changes in entrepreneurship practice. Hence, promoting analyses within the entrepreneurial teams could benefit the scientific and practical implications.

Appendix: Measurement Items

A. **Team Entrepreneurial Orientation**

	Team Entrepreneurial Orientation (adapted from Fellnhofer et al., 2017)
Team Proactivity 1	My team initiates actions to which other respond.
Team Proactivity 2	My team excels at identifying opportunities.
Team Proactivity 3	My team always tries to take the initiative in every situation (e.g., against competitors, in projects and when working with others).
Team Risk Taking 1	People in our team are encouraged to take calculated risks with new ideas.
Team Risk Taking 2	Our team emphasizes both exploration and experimentation for opportunities and takes bold, wide-ranging actions to achieve the objectives.
Team Risk Taking 3	When confronted with decisions involving uncertainty, my team typically adopts a bold posture.
Team Innovativeness 1	Our team places a strong emphasis on innovative and creative ideas in its methods of operation.

	Team Entrepreneurial Orientation (adapted from Fellnhofer et al., 2017)
Team Innovativeness 2	Our team is often the first coming up with new ideas related to new products, services, in-company processes, methods or other innovative improvements related to our business.
Team Innovativeness 3	In the last years, our team actively introduced improvements and innovations that have been usually quite dramatic.
Team Autonomy 1	In our team, working independently is considered to enhance creative thinking.
Team Autonomy 2	While working autonomously, we as a team ensure adequate coordination to minimize inefficiencies and duplication of efforts.
Team Autonomy 3	In our team we have a proper balance between patience and tolerance for autonomy of individuals and the forbearance to reduce or eliminate initiatives that are not succeeding.
Team Autonomy 4	We as a team implement necessary structural changes to stimulate new ideas.
Team Autonomy 5	We as a team foster the necessary culture, rewards, and processes to support product and service champions.

B. **Team-Perceived Heterogeneity**

	Team-Perceived Heterogeneity (adapted from Campion et al., 1993 and Fellnhofer et al., 2017)
Team-Perceived Heterogeneity 1	The members of my team vary widely in their areas of expertise.
Team-Perceived Heterogeneity 2	The members of my team have variety of different backgrounds.
Team-Perceived Heterogeneity 3	The members of my team have skills and abilities that complement each other.
Team-Perceived Heterogeneity 4	The members of team are diverse in terms of their professional experience.

C. **Individual Creative Mindset (Growth & Fixed)**

	Individual Creative Mindset (adapted from Karwowski, 2014)
Growth-Creative Mindset 1	Everyone can create something great at some point if he or she is given appropriate conditions.
Fixed-Creative Mindset 1	You either are creative or you are not—even trying very hard you cannot change much.

	Individual Creative Mindset (adapted from Karwowski, 2014)
Growth-Creative Mindset 2	Anyone can develop his or her creative abilities up to a certain level.
Fixed-Creative Mindset 2	You have to be born a creator—without innate talent you can only be a scribbler.
Growth-Creative Mindset 3	Practice makes perfect—perseverance and trying hard are the best ways to develop and expand one's capabilities.
Fixed-Creative Mindset 3	Creativity can be developed, but one either is or is not a truly creative person.
Growth-Creative Mindset 4	Rome was not built in a day—each creativity requires effort and work, and these two are more important than talent.
Fixed-Creative Mindset 4	Some people are creative, others are not—and no practice can change it.
Growth-Creative Mindset 5	It does not matter what creativity level one reveals—you can always increase it.
Fixed-Creative Mindset 5	A truly creative talent is innate and constant throughout one's entire life.

D. **Creative outcome (Novelty & Quality of business ideas)**

	Novelty and Quality (adapted from Dean et al., 2006 and Ylitalo, 2017)
Novelty	Originality The degree to which the idea is not only rare but is also ingenious, imaginative, or surprising Paradigm relatedness The degree to which an idea preserves or modifies a paradigm
Quality: Workability	Acceptability The degree to which the idea is socially, legally, or politically acceptable Implementability The degree to which the idea can be easily implemented
Quality: Relevance	Applicability The degree to which the idea clearly applies to the stated problem Effectiveness The degree to which the idea will solve the problem
Quality: Specificity	Completeness The number of independent subcomponents into which the idea can be decomposed, and the breadth of coverage with regard to who, what, where, when, why, and how Implicational explicitness The degree to which there is a clear relationship between the recommended action and the expected outcome Clarity The degree to which the idea is clearly communicated

References

Amabile, T. M. (1997). Entrepreneurial creativity through motivational synergy. *The Journal of Creative Behavior*, *31*(1), 18–26. https://doi.org/doi10.1177/014920630102700609

Amabile, T. M. (2013). Componencial theory of creativity. In E. H. Kessler (Ed.), *Encyclopedia of management theory* (pp. 134–139). London: SAGE Publications, Ltd. https://doi.org/10.4135/9781452276090

Baer, M., Oldham, G. R., Jacobsohn, G. C., & Hollingshead, A. B. (2008). The personality composition of teams and creativity: The moderating role of team creative confidence. *The Journal of Creative Behavior*, *42*(4), 255–282. https://doi.org/10.1002/j.2162-6057.2008.tb01299.x

Barczak, G., Lassk, F., & Mulki, J. (2010). Antecedents of team creativity: An examination of team emotional intelligence, team trust and collaborative culture. *Creativity and Innovation Management*, *19*(4), 332–345. https://doi.org/10.1111/j.1467-8691.2010.00574.x

Campion, M. A., Medsker, G. J., & Higgs, A. C. (1993). Relations between work group characteristics and effectiveness: Implications for designing effective work groups. *Personnel Psychology*, *46*(4), 823–847. https://doi.org/10.1111/j.1744-6570.1993.tb01571.x

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295–336). Lawrence Erlbaum Associates.

Chin, W. W. (2010). How to write up and report PLS Analyses. In *Handbook of Partial Least Squares* (pp. 655–690). Berlin, Heidelberg: Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-540-32827-8_29

Corte, V. Della, & Gaudio, G. Del. (2017). Entrepreneurial creativity : Sources, processes and implications. *International Journal of Business and Management*, *12*(6), 33–48. https://doi.org/10.5539/ijbm.v12n6p33

Covin, J. G., Rigtering, J. P. C., Hughes, M., Kraus, S., Cheng, C.-F., & Bouncken, R. B. (2020). Individual and team entrepreneurial orientation: Scale development and configurations for success. *Journal of Business Research*, *112*(February), 1–12. https://doi.org/10.1016/j.jbusres.2020.02.023

Covin, J. G., & Slevin, D. P. (1989). Strategic management of small firms in hostile and benign environments. *Strategic Management Journal*, *10*(1), 75–87. https://doi.org/10.1002/smj.4250100107

Dean, D., Hender, J., Rodgers, T., & Santanen, E. (2006). Identifying quality, novel, and creative ideas: Constructs and scales for idea evaluation. *Journal of the Association for Information Systems*, *7*(10), 646–699. https://doi.org/10.17705/1jais.00106

Donbesuur, F., Boso, N., & Hultman, M. (2020). The effect of entrepreneurial orientation on new venture performance: Contingency roles of entrepreneurial actions. *Journal of Business Research*, *118*, 150–161. https://doi.org/10.1016/j.jbusres.2020.06.042

Fassott, G., Henseler, J., & Coelho, P. S. (2016). Testing moderating effects in PLS path models with composite variables. *Industrial Management & Data Systems*, *116*(9), 1887–1900. https://doi.org/10.1108/IMDS-06-2016-0248

Fellnhofer, K., Puumalainen, K., & Sjögrén, H. (2017). Entrepreneurial orientation in work groups – effects of individuals and group characteristics. *International Entrepreneurship and Management Journal*, *13*(2), 427–463. https://doi.org/10.1007/s11365-016-0408-5

Ferrier, W. J., & Lyon, D. W. (2004). Competitive repertoire simplicity and firm performance: The moderating role of top management team heterogeneity. *Managerial and Decision Economics*, *25*(6–7). https://doi.org/https://www.jstor.org/stable/25151319

Gruber, M., Kim, S. M., & Brinckmann, J. (2015). What is an attractive business opportunity? An empirical study of opportunity evaluation decisions by technologists, managers, and entrepreneurs. *Strategic Entrepreneurship Journal*, *9*(3), 205–225. https://doi.org/10.1002/sej.1196

Gundry, L. K., Ofstein, L. F., & Monllor, J. (2016). Entrepreneurial team creativity: Driving innovation from ideation to implementation. *Journal of Enterprising Culture*, *24*(01), 55–77. https://doi.org/10.1142/s0218495816500035

Heavey, C., Simsek, Z., Roche, F., & Kelly, A. (2009). Decision comprehensiveness and corporate entrepreneurship: The moderating role of managerial uncertainty preferences and environmental dynamism. *Journal of Management Studies*, *46*(8), 1289–1314. https://doi.org/10.1111/j.1467-6486.2009.00858.x

Henseler, J. (2017). Bridging design and behavioral research with variance-based structural equation modeling. *Journal of Advertising*, *46*(1), 178–192. https://doi.org/10.1080/00913367.2017.1281780

Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research: Updated guidelines. *Industrial Management & Data Systems*, *116*(1), 2–20. https://doi.org/10.1108/IMDS-09-2015-0382

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Hoegl, M., & Gemuenden, H. G. (2001). Teamwork quality and the success of innovative projects: A theoretical concept and empirical evidence. *Organization Science*, *12*(4), 435–449. https://doi.org/10.1287/orsc.12.4.435.10635

Hughes, M., Hughes, P., & Morgan, R. E. (2007). Exploitative learning and entrepreneurial orientation alignment in emerging young firms: Implications for market and response performance. *British Journal of Management*, *18*(4), 359–375.

Hughes, M., Chang, Y. Y., Hodgkinson, I., Hughes, P., & Chang, C. Y. (2021). The multi-level effects of corporate entrepreneurial orientation on business unit radical innovation and financial performance. *Long Range Planning*, *54*(1), 101989. https://doi.org/10.1016/j.lrp.2020.101989

Jin, L., Madison, K., Kraiczy, N. D., Kellermanns, F. W., Crook, T. R., & Xi, J. (2017). Entrepreneurial team composition characteristics and new venture performance: A meta-analysis. *Entrepreneurship: Theory and Practice*, *41*(5), 743–771. https://doi.org/10.1111/etap.12232

Karwowski, M. (2014). Creative mindsets: Measurement, correlates, consequences. *Psychology of Aesthetics, Creativity, and the Arts*, *8*(1), 62–70. https://doi.org/10.1037/a0034898

Kier, A. S., & McMullen, J. S. (2020). Entrepreneurial imaginativeness and new venture ideation in newly forming teams. *Journal of Business Venturing*, *35*(6), 106048. https://doi.org/10.1016/j.jbusvent.2020.106048

Knippenberg, D. Van, Ginkel, W. P. Van, & Homan, A. C. (2013). Organizational behavior and human decision processes diversity mindsets and the performance of diverse teams. *Organizational Behavior and Human Decision Processes*, *121*(2), 183–193. https://doi.org/10.1016/j.obhdp.2013.03.003

Kollmann, T., Stöckmann, C., Meves, Y., & Kensbock, J. M. (2017). When members of entrepreneurial teams differ: Linking diversity in individual-level entrepreneurial orientation to team performance. *Small Business Economics*, *48*(4), 843–859. https://doi.org/10.1007/s11187-016-9818-6

Kurtzberg, T. R., & Amabile, T. M. (2001). From Guiford to creativity synergy: Opening the black box of team-level creativity. *Creativity Research Journal*, *13*(3&4), 285–294. https://doi.org/10.1207/S15326934CRJ1334

Linton, G. (2016). Entrepreneurial orientation: Reflections from a contingency perspective (Örebro University, örebro University School of Business). Örebro University, örebro University School of Business, Örebro. Retrieved from www.oru.se/publikationer-avhandlingar

Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *The Academy of Management Review*, *21*(1), 135. https://doi.org/10.2307/258632

Lumpkin, G. T., & Pidduck, R. J. (2021). Global Entrepreneurial Orientation (GEO): An updated, multidimensional view of EO. In A. C. Corbett, P. M. Kreiser, L. D. Marino, & W. J. Wales (Eds.), *Entrepreneurial Orientation: Epistemological, Theoretical, and Empirical Perspectives.* (Vol. 22, pp. 17–68). Bingley: Emerald Publishing Limited. https://doi.org/10.1108/S1074-754020210000022002

O'Connor, A. J., Nemeth, C. J., & Akutsu, S. (2013). Consequences of beliefs about the malleability of creativity. *Creativity Research Journal*, *25*, 155–162. https://doi.org/doi:10.1080/10400419.2013.783739

Palmer, C., Niemand, T., Stöckmann, C., Kraus, S., & Kailer, N. (2019). The interplay of entrepreneurial orientation and psychological traits in

explaining firm performance. *Journal of Business Research*, *94*(November 2017), 183–194. https://doi.org/10.1016/j.jbusres.2017.10.005

Pérez-Luño, A., Wiklund, J., & Cabrera, R. V. (2011). The dual nature of innovative activity: How entrepreneurial orientation influences innovation generation and adoption. *Journal of Business Venturing*, *26*(5), 555–571. https://doi.org/10.1016/j.jbusvent.2010.03.001

Perry-Smith, J. E., & Mannucci, P. V. (2017). From creativity to innovation: The social network drivers of the four phases of the idea journey. *Academy of Management Review*, *42*(1), 53–79. https://doi.org/10.5465/amr.2014.0462

Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship Theory and Practice*, *33*(3), 761–787. https://doi.org/10.1111/j.1540-6520.2009.00308.x

Rigdon, E. E., Sarstedt, M., & Ringle, C. M. (2017). On Comparing Results from CB-SEM and PLS-SEM: Five Perspectives and Five Recommendations. *Marketing ZFP*, *39*(3), 4–16. https://doi.org/10.15358/0344-1369-2017-3-4

Ringle, C. M., Wende, S., & Becker, J.-M. (2015). *SmartPls 3*. Bönningstedt.

Roldán, J. L., & Sánchez-Franco, M. J. (2012). Variance-based structural equation modeling. In M. Mora, O. Gelman, A. Steenkamp, & M. Raisinghani (Eds.), *Research Methodologies, Innovations and Philosophies in Software Systems Engineering and Information Systems* (pp. 193–221). IGI Global. https://doi.org/10.4018/978-1-4666-0179-6.ch010

Sarstedt, M., Hair, J. F., Ringle, C. M., Thiele, K. O., & Gudergan, S. P. (2016). Estimation issues with PLS and CBSEM: Where the bias lies! *Journal of Business Research*, *69*(10), 3998–4010. https://doi.org/10.1016/j.jbusres.2016.06.007

Schumpeter, J. A. (1934). *The Theory of Economic Development*. Cambridge: Harvard University Press.

Shahid, M., Chaudhry, S., Bilal, M., Amber, H., Aslam, S., Malik, S., & Shahzad, K. (2022). The link between team identification, entrepreneurial orientation, and innovative work behavior and its dimensions in the context of Pakistan. *SAGE Open*, *12*(1). https://doi.org/10.1177/21582440221079893

Sternberg, R. J. (1999). *Handbook of Creativity* (R. J. Sternberg, Ed.). Cambridge, UK: Cambridge University Press.

To, L. M., Fisher, C. D., Ashkanasy, N. M., & Zhou, J. (2021). Feeling differently, creating together: Affect heterogeneity and creativity in project teams. *Journal of Organizational Behavior*, *42*(9), 1228–1243. https://doi.org/https://doi.org/10.1002/job.2535

Wales, W. J., Gupta, V. K., & Mousa, F. T. (2013). Empirical research on entrepreneurial orientation: An assessment and suggestions for future research. *International Small Business Journal*, *31*(4), 357–383. https://doi.org/10.1177/0266242611418261

Wales, W. J., Kraus, S., Filser, M., Stöckmann, C., & Covin, J. G. (2020). The status quo of research on entrepreneurial orientation: Conversational landmarks and theoretical scaffolding. *Journal of Business Research*, *128*, 564–577. https://doi.org/10.1016/j.jbusres.2020.10.046

Wang, X., Dass, M., Arnett, D. B., & Yu, X. (2020). Understanding firms' relative strategic emphases: An entrepreneurial orientation explanation. *Industrial Marketing Management*, *84*, 151–164. https://doi.org/10.1016/j.indmarman.2019.06.009

Wright, R. T., Campbell, D. E., Thatcher, J. B., & Roberts, N. (2012). Operationalizing multidimensional constructs in structural equation modeling: Recommendations for IS research. *Communications of the Association for Information Systems*, *30*(23), 367–412. https://doi.org/10.17705/1CAIS.03023

Yi, H., Amenuvor, F. E., & Boateng, H. (2021). The impact of entrepreneurial orientation on new product creativity, competitive advantage and new product performance in SMEs : The moderating role of corporate life cycle. *Sustainability*, *13*(6), 3586.

Ylitalo, P. (2017). *Value Creation Metrics in Systematic Idea Generation* (Acta Univiversitatis Ouluensis, C, 611). Acta Univiversitatis Ouluensis, C, 611. Retrieved from http://jultika.oulu.fi/files/isbn9789526215334.pdf

Yuan, Y. (2019). The emergence of team creativity. In P. B. Paulus & B. A. Nijstad (Eds.), *The Oxford Handbook of Group Creativity and Innovation* (pp. 133–154). Oxford: Oxford University Press. https://doi.org/10.1093/oxfordhb/9780190648077.013.9

Zhai, Y., Sun, W., Tsai, S., Wang, Z., Zhao, Y., & Chen, Q. (2018). An empirical study on entrepreneurial orientation, absorptive capacity, and SMEs' innovation performance: A sustainable perspective. *Sustainability*, *10*(2), 314. https://doi.org/10.3390/su10020314

Zhou, J., Wang, X. M., Song, L. J., & Wu, J. (2017). Is it new? Personal and contextual influences on perceptions of novelty and creativity. *Journal of Applied Psychology*, *102*(2), 180–202. https://doi.org/10.1037/apl0000166

Abstrakt

CEL: *Głównym celem badania jest wykrycie czy orientacja przedsiębiorcza na poziomie zespołu (ang. TEO: Team Entrepreneurial Orientation) ma wpływ na generowanie kreatywnych (nowatorksich i jakościowych) pomysłów biznesowych. Orientacja przedsiębiorcza (ang. EO: Entreprenurial Orientation), rzadko była mierzona na poziomie zespołu i rzadko w odniesieniu do rzeczywistych i twórczych wyników zespołów przedsiębiorczych. Dlatego też, zaproponowany model badawczy poszukuje nowych wzorców, które mogą sprzyjać kreatywności zespołów przedsiębiorczych. Badanie dodaje moderujący efekt postrzeganej heterogeniczności zespołu i indywidualnego kreatywnego myślenia (wzrostowe i stałe kreatywne myślenie; ang. Growth/Fixed-Creative Mindset) jako zmienne warunkowe, aby lepiej zrozumieć,*

*w jakich okolicznościach zespoły przedsiębiorcze generują kreatywne pomysły biznesowe.**METODYKA:** Próba badawcza obejmuje zespoły przedsiębiorców z Mondragon Team Academy w Kraju Basków w Hiszpanii. Dane ankietowe zostały zebrane po tym jak zespoły przedsiębiorców ukończyły proces generowania pomysłów biznesowych. Zastosowany eksperyment nie został stworzony na potrzeby badania, ale wpisuje się w naturalne procesy wyselekcjonowanej próby zespołów. Nowatorstwo i jakość pomysłów biznesowych zostały ocenione przez ekspertów w tej dziedzinie. Zależności danych analizowano za pomocą modelowania cząstkowych równań strukturalnych najmniejszych kwadratów - PLS-SEM.**WYNIKI:** Orientacja przedsiębiorcza zespołów może prowadzić do wejścia na rynek produktów, ale niekoniecznie nowatorskich. Orientacja przedsiębiorcza zespołów bardziej wpływa na ich tendencję do generowania/modyfikowania wysokiej jakości już istniejących pomysłów biznesowych niż do generowania nowatorskich możliwości rynkowych. Efekty moderacji prezentują różne wyniki interakcji z badanymi zależnościami. W szczególności osoby o stałym (ang. fixed) kreatywnym myśleniu w zespole mają antagonistyczną interakcję w relacji TEO-Jakość. Postrzegana heterogeniczność zespołu i wzrostowe (ang. growth) kreatywne myślenie jednostek nie ma wpływu ani na powiązanie TEO-Jakość, ani TEO-Nowatorstwo. **IMPLIKACJE:** Badanie wykazuje znaczenie konceptualizacji natury kreatywności w EO jako kluczowego poprzednika innowacji rynkowych. Nasze badanie wzbogaca literaturę i praktykę, dostarczając dowodów na to, że EO na poziomie zespołu (TEO) odgrywa kluczową rolę w eksploracji wysoko jakościowych pomysłów biznesowych. Jednakże, orientacja przedsiębiorcza zespołów nie przyczynia się do nowatorskich rezultatów. Ponadto, należy redukować liczbę osób o stałym (ang. fixed) kreatywnym sposobie myślenia w zespole, gdyż blokują one eksplorację jakościowych pomysłów biznesowych. Nasze badanie potwierdza zasadność orientacji przedsiębiorczej na poziomie zespołu, co może pomóc w opracowaniu odpowiednich praktyk tworzenia lub zarządzania zespołem i ich kreatywnością. **ORYGINALNOŚĆ I WARTOŚĆ:** W badaniu zastosowano rzadko spotykaną w literaturze analizę EO na poziomie zespołu i na poziomie młodych firm (start-up). Badanie przyczynia się do pominiętej w literaturze konceptualizacji EO w teorii „twórczej destrukcji" Schumpetera (1934). Zastosowany w badaniu powrót do teoretycznych podstaw EO doprowadził do wyraźniejszego ukazania efektów behawioralnych zespołów przedsiębiorczych w kierunku tworzenia pomysłów biznesowych. Badanie inicjuje, identyfikuje i wzywa do nowych i dalszych linii badawczych, które przyczynią się do lepszego i przede wszystkim warunkowego zrozumienia, w jaki sposób zespoły przedsiębiorcze generują kreatywne pomysły biznesowe, w szczególności nowatorskie pomysły biznesowe, które są niezbędne do „twórczej destrukcji", teoretycznej podstawy konstruktu EO i ogólnego rozwoju gospodarczego.*

***Slowa kluczowe:** przedsiębiorczość, kreatywność, zespół, orientacja przedsiębiorcza, twórcze rezultaty*

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Conflicts of interest

The authors declare no conflict of interest.

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