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Evaluation of teaching performance in marketing: A longitudinal analysis of university students

Evaluación del desempeño docente en marketing: Un análisis longitudinal de estudiantes universitarios

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ABSTRACT

The main objective of this work is the self-assessment and diagnosis of the performance of the Teaching Innovation Project "i-MKT. How innovation awakens motivation" by the teaching team. To this end, we have examined the confirmation of students' expectations in relation to the activities developed within the framework of the project, based on the perceived usefulness, and indirectly through subjective learning. The analyses are based on the students' perception of three Marketing and Market Research subjects over four years of project implementation. A moderated mediation regression model has been estimated using PROCESS, in which the subjects and the year of edition act as moderating variables. The results demonstrate a growing cohesion between subjects and a key mediating role of subjective learning in the confirmation of expectations.

Keywords. Teaching innovation project, moderated mediation analysis, subjective learning, confirmation of expectations, perceived usefulness, university education, marketing.

RESUMEN

El objetivo principal de este trabajo es la autoevaluación y diagnóstico del desempeño del Proyecto de Innovación Docente "i-MKT. Cómo la innovación despierta la motivación" por parte del equipo docente. Para ello se ha examinado la confirmación de expectativas de los alumnos en relación a las actividades desarrolladas en el marco del proyecto, a partir de la utilidad que perciben, y de forma indirecta a través del aprendizaje subjetivo. Los análisis están basados en la percepción de los estudiantes acerca de tres asignaturas de Comercialización e Investigación de Mercados, a lo largo de cuatro años de implementación del proyecto. Se ha estimado un modelo de regresión de mediación moderada mediante PROCESS, en el que las asignaturas y el año de edición actúan como variables moderadoras. Los resultados ponen de manifiesto una cohesión creciente entre asignaturas y un papel mediador clave del aprendizaje subjetivo en la confirmación de expectativas.

Palabras clave. *Proyecto de innovación docente, análisis de mediación moderada, aprendizaje subjetivo, confirmación de expectativas, utilidad percibida, educación universitaria, marketing.*

INTRODUCTION

Zabata (2009), in his article "Being a university professor today," recalls the quote from Oser and Baeriswyl (2001) that speaks of "didactic choreographies," referring to the various modalities with which a university teacher can approach the teaching and learning process, metaphorically distinguishing between minimalist and complex choreographies. The latter require greater preparation and the creation of a stimulating environment in which students can have control over their own learning process (Zabata, 2009).

According to García-Morales et al. (2021), we are facing a disruptive change in the education system, driven by digital transformation and the accelerated change in the educational framework due to the unprecedented pandemic caused by COVID-19. This emergence of disruptive innovation implies uncertainty but also a horizon of opportunities. Educational disruption involves a break from traditional educational models, an innovation in teaching methods through new materials, mechanisms, and learning spaces. The result is an evolution of universities in terms of adapting

technological resources and training faculty in this area, as well as the transformation of the role of students in how they process and utilize knowledge. This transformation promotes a culture of participation and encourages decision-making and transparent evaluation (García-Morales et al., 2021).

Despite the growing literature on teaching innovation, relatively few studies adopt a longitudinal monitoring perspective to systematically evaluate the performance and internal coherence of innovation projects over time.

With this panorama, numerous studies address new formulas of innovation in classrooms from an experiential and multidisciplinary perspective (Hero and Lindfors, 2019), focused on the design of pilot projects based on innovation and collaboration (Androutsos and Brinia, 2019), addressing specific methodologies such as Gamification (López-Carrillo et al., 2019), Gamification tools like Kahoot (Guardía et al., 2019), and for specific areas such as entrepreneurship (Hartikainen et al., 2023; Akhmetshin et al., 2019; Fernández de Caleya et al., 2022), pedagogy (Androutsos and Brinia, 2019), or engineering (Singelmann et al., 2021). However, it is not common to find studies that examine the performance of implemented projects as monitoring or diagnostic mechanisms for planning.

The main objective of this study is to evaluate the performance and longitudinal evolution of a Teaching Innovation Project (TIP) implemented in three marketing-related subjects over four academic years. Specifically, this research aims to examine the mechanisms through which perceived usefulness influences students' confirmation of expectations, both directly and indirectly through subjective learning, while analysing whether these relationships vary across subjects and project editions.

The empirical analysis is based on a longitudinal dataset composed of 126 individual students and 216 valid observations collected across four consecutive academic years. A moderated mediation model estimated using PROCESS is employed to test the proposed hypotheses.

The findings highlight the key mediating role of subjective learning in the confirmation of expectations and suggest a progressive reduction of differences across subjects over time, indicating increasing cohesion in the implementation of the innovation project.

The remainder of the paper is structured as follows. Section 2 develops the theoretical framework and hypotheses. Section 3 presents the methodology and data. Section 4 reports the empirical results. Finally, Section 5 discusses theoretical and practical implications, limitations, and future research directions.

LITERATURE REVIEW

Theoretical framework

Perceived usefulness is a type of expectation that explains the degree of value students attribute to an activity in achieving their goals (Eccles et al., 1983). Authors such as Cheng (2021) have examined the drivers of perceived usefulness such as the aesthetics of an interface for educational use, and how this affects learner satisfaction and intention to continue use. Authors like Dai et al. (2020) establish a close relationship between perceived usefulness and confirmation, specifically in the context of learning through MOOCs. The proposed model in the present study is based on the idea that after an initial acceptance of the TIP, students form opinions about its benefits (perceived usefulness) and the degree to which their expectations are confirmed, which is called confirmation (Larsen et al., 2009). It is expected that students' perceived usefulness of the TIP has a direct positive effect on their confirmation of the project, as stated in the following hypothesis:

H1: The student's perceived usefulness of the TIP has a direct positive effect on their confirmation of the project.

Subjective learning is the discursive reconstruction of individuals based on their experiences in one or several learning situations, defined by specific spatial and temporal milestones (Chavez et al., 2021; Clará, 2013). By participating in subjective learning experiences, students attribute personal meaning to the situations in which they are involved. This process of attributing meaning is achieved through the creation of narratives in which learners position themselves and others (Wortham, 2004).

Subjective learning implies the ability to use knowledge to solve problems, and it encompasses various aspects such as the performance of subjective control, which involves students' self-assessment regarding their control over the system, and subjective knowledge of action, which involves students' self-assessment of their knowledge about the system's conditions (Stark et al., 1998). Extrinsic motivation is a type of positive attitude towards learning and can manifest as perceived usefulness, whose effect on self-regulation has been widely studied (Liah and Huang, 2013). Based on these considerations, the following hypotheses are proposed:

H2: The student's subjective learning has a direct positive effect on their confirmation of the TIP.

H3: The student's perceived usefulness of the TIP has a direct positive effect on their subjective learning.

It is common to analyze the moderating effect of variables such as gender, duration of studies, or type of teaching (virtual vs. face-to-face), among others (Kampelmann et al., 2018; Shah et al., 2020; Zaric et al., 2021). However, the specific nature of this research requires analyzing the moderating effect of the subject in the relationship between perceived usefulness and subjective learning, as well as between perceived usefulness and confirmation of the TIP. In line with Duong (2022), who used the educational area as a moderating variable (economics/engineering or others) in their theoretical model of entrepreneurial intention formation.

The inclusion of subject as a moderating variable is theoretically justified by the heterogeneity of learning objectives, cognitive demands, and assessment systems associated with different marketing disciplines. Introductory subjects may emphasize conceptual understanding, whereas applied courses such as Market Research involve more technical and analytical components. These structural differences may condition how students transform perceived usefulness into subjective learning and expectation confirmation.

H1a: The effect of perceived usefulness on confirmation of the TIP will vary depending on the subject.

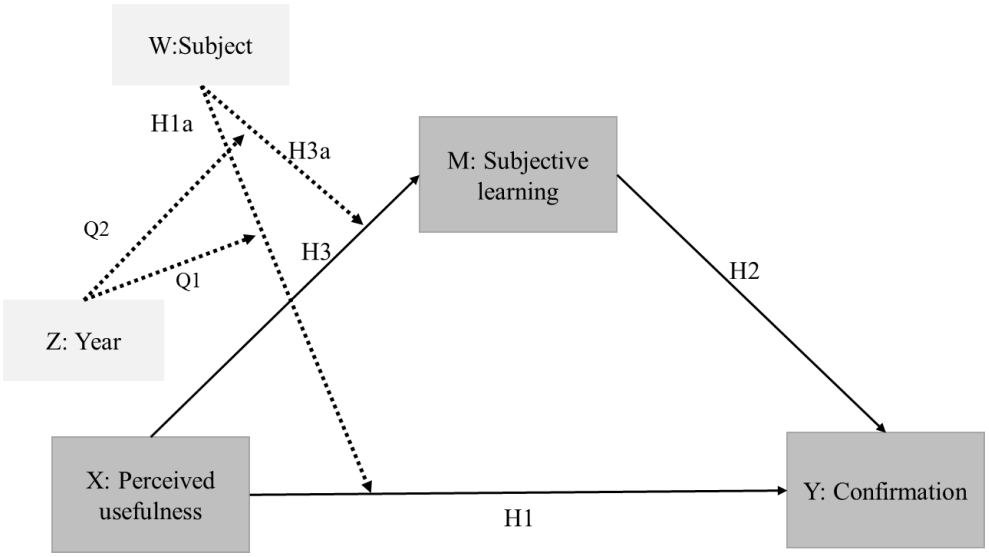
H3a: The effect of perceived usefulness on the student's subjective learning will vary depending on the subject.

Given that the fundamental objective of this research is to analyze the improvement and cohesion of the Teaching Innovation Project as a means of monitoring for potential optimizations and adjustments, it is expected that students' perceived usefulness, subjective learning, and confirmation of the TIP have experienced growth over the four years of implementation. It is also expected that the sequential functioning of these effects has become more cohesive between subjects over time, leading to improved scores each year. Therefore, the following research questions are proposed:

H4: The effect of perceived usefulness on confirmation of expectations varies across subjects and project editions.

H5: The effect of perceived usefulness on subjective learning varies across subjects and project editions.

Figure 1. Theoretical model



METHODOLOGY

The teaching innovation project and its evaluation.

The origin of the project is linked to the idiosyncrasy of the University Campus of Ceuta (University of Granada). This project was initiated in the academic year 2018/2019 and has continued to develop in the subsequent years until the present (see Table 1).

Table 1. The trajectory of the teaching innovation project

Course	Title
18/19	Continuous learning in the Marketing and Market Research classroom through innovation, the use of ICTs, and the promotion of socialization.
19/20	i-MKT Project. How the use of innovation awakens motivation
20/21	i-MKT Project. How the use of innovation awakens motivation (2nd edition)
21/22	i-MKT Project. How the use of innovation awakens motivation (3rd edition)

The activities included in this project are classified into four categories: organization and events, common elements, Marketing Games, and team activities. The teaching team and collaborators of the Teaching Innovation Project (TIP) have developed their own brand to present themselves in different communication channels. They also organize recurring events each academic year, such as Welcome Days and Closing Sessions.

Common elements refer to activities that apply to the entire project, regardless of groups or subjects. The Marketing Games constitute the flagship activity of the project. Team activities are specific to each marketing subject and vary between different groups.

The implementation of any TIP requires evaluation, control, and monitoring. Research methods, typical of academia, are used for this purpose.

At the end of the semester, a questionnaire is administered to collect students' impressions about the project. The data gathered from this questionnaire are analyzed to improve the project and make informed decisions. This questionnaire has facilitated the achievement of objectives such as analyzing students' perception of the proposed activities within the framework of TIP based on a given list of attributes, examining students' perception of usefulness and perceived ease of use of the activities, analyzing students' confirmation of their previous expectations, evaluating

students' self-assessment of their learning, examining their intention to recommend, assessing student satisfaction with TIP, and identifying negative aspects and demands.

Based on this instrument, the research presented in this manuscript has been conducted, with a self-evaluative longitudinal approach by the teaching team.

Questionnaire

The questionnaire administered for the students consists of four sections. The first section collects data related to the marketing subject for which the questionnaire is being completed, the number of times the student has enrolled, and other basic information such as gender and age. The second section presents a series of attributes used to evaluate the project, using scales adapted from various authors such as Bagozzi and Dholakai (2006) and Hornikx, Van Meurs, and Starren (2007). The third section measures the variables: perceived usefulness, confirmation (Larsen et al., 2009), subjective learning (Orús et al., 2016), and Word of Mouth (Zeithaml, Berry, and Parasuraman, 1996). The fourth section contains an open-ended question where students can freely express any thoughts or comments they may have regarding the Teaching Innovation Project and that have not been captured in previous sections: complaints, suggestions, comments, appreciations, etc. The measurement scales used in this research have been adapted from previous studies (see Table 2) and were measured using 7-point Likert scales.

The study involved 126 individual students participating in the Teaching Innovation Project across four academic years. Because the same student could be enrolled in more than one subject during the analysed period, the dataset is structured at the response level and includes 216 valid observations in total (89 from Marketing Introduction, 86 from Commercial Management, and 41 from Market Research). Accordingly, the unit of analysis in the empirical model is the observation (student response) rather than the unique individual.

Data collection procedures were maintained under identical conditions across the four project editions to ensure longitudinal comparability. In addition, the same teaching staff participated throughout the four years, minimizing potential bias associated with changes in instructional teams.

Analysis of the psychometric properties of the scales

Before conducting hypothesis testing, the psychometric properties of the scales were analyzed through confirmatory factor analysis (CFA) using AMOS 23.0.0 software. After the analysis, initially, item UP3 had to be removed due to having an R2 below the recommended threshold of 0.5 (Del Barrio and Luque, 2012; Hair et al., 2014) (0.44). Once the factorial model was re-estimated, the results showed that the overall fit indices were within the recommended limits (SB Chi-Square: 20.19; p-value: 0.26; RMSEA: 0.03; CFI: 0.99). The composite reliability (CR) and average variance extracted (AVE) values exceeded the recommended thresholds of 0.80 and 0.50, respectively. Additionally, the statistical significance of the loadings ensured adequate convergent validity of the constructs (see Table 2). Furthermore, discriminant validity was assessed using the Fornell and Larcker (1981) criterion. Table 3 shows that the correlations between latent constructs are not greater than the square root of the AVE for each construct (values on the diagonal). This indicates that the constructs have good discriminant validity. However, an exception was found in the correlation between the subjective learning and perceived usefulness constructs, which indeed have similar meanings (the former focuses on attributions to reality, and the latter on learning benefits). To address this issue, a factorial model was constructed by combining both constructs. The normalized chi-square for this model was higher than that of the original model (independent constructs). Therefore, it was decided to proceed with the analysis.

Since the constructs exhibited good psychometric properties, it was necessary to create an indicator variable for each of them by taking the mean of the items in the scale in order to conduct hypothesis testing.

Table 2. Psychometric properties of measurement scales and their authors

Construct		Standardised parameters (t-value)	R^2	CR	AVE
I believe that the activities developed in the Teaching Innovation Project...					
Perceived usefulness (Arteaga y Duarte, 2010; Islam, 2013).	... can help me to develop the subject properly.	0,84***	0,71	0,89	0,73
	... allows me to learn the subject more easily.	0,90***	0,81		
	In general I find the TIP useful.	0,81***	0,66		
The TIP activities I have taken have been useful for...					
Subjective learning (Orús et al., 2016).	... improve my knowledge of marketing in general.	0,86***	0,75	0,66	0,50
	... better understand the marketing techniques, strategies and decisions followed by real companies.	0,86***	0,75		
With regard to the activities carried out in the TIP...					
Confirmation (Larsen et al., 2009).	... were better than I expected.	0,87***	0,77	0,88	0,71
	... my experience has been more positive than I thought it would be.	0,89***	0,79		
	... they met my expectations.	0,76***	0,58		

Table 3. Discriminant validity matrix

	Perceived usefulness	Subjective learning	Confirmation
Perceived usefulness	0,85		
Subjective learning	0,84	0,70	
Confirmation	0,73	0,69	0,84

RESULTS

A moderated mediation regression model was estimated using PROCESS, examining the effect of the predictor variable X (perceived usefulness) on the dependent variable Y (expectation confirmation), mediated by M (subjective learning). Additionally, a categorical moderator variable W with three levels (subject: Marketing Introduction, Commercial Management, and Market Research) and an additional categorical moderator variable with four levels (TIP year: I, II, III, and IV) were included.

When the outcome variable is Y (confirmation), the results reveal non-significance of the effect of perceived usefulness (βPerceived usefulness → Confirmation: -0.3897; p-value: 0.20), but significance of subjective learning (βPerceived usefulness → Subjective learning: 0.3725; p-value: 0.00). This confirms H3 but not H1. Additionally, there is a significant interaction effect between perceived usefulness and different subjects (βPerceived usefulness × Subject → Confirmation: 0.4561; p-value: 0.02), supporting the moderation hypothesis H1a (see Table 4). The unconditional higher-order interaction test reveals significant interactions by course and by year (βPerceived usefulness × Course × Year → Subjective learning: p-value: 0.02), providing evidence regarding H4.

Regarding the first research question, the results indicate that the effect between perceived usefulness and confirmation indeed varies across subjects, particularly in the first and fourth year of the TIP (see Table 5). Generally, the subject Market Research exhibits a more pronounced effect, while the course Marketing Introduction shows inelasticity in some editions. Despite the variation

from year to year, the overall trend has not been positive due to the data mentioned regarding Marketing Introduction. These effects are visually depicted in Figure 2.

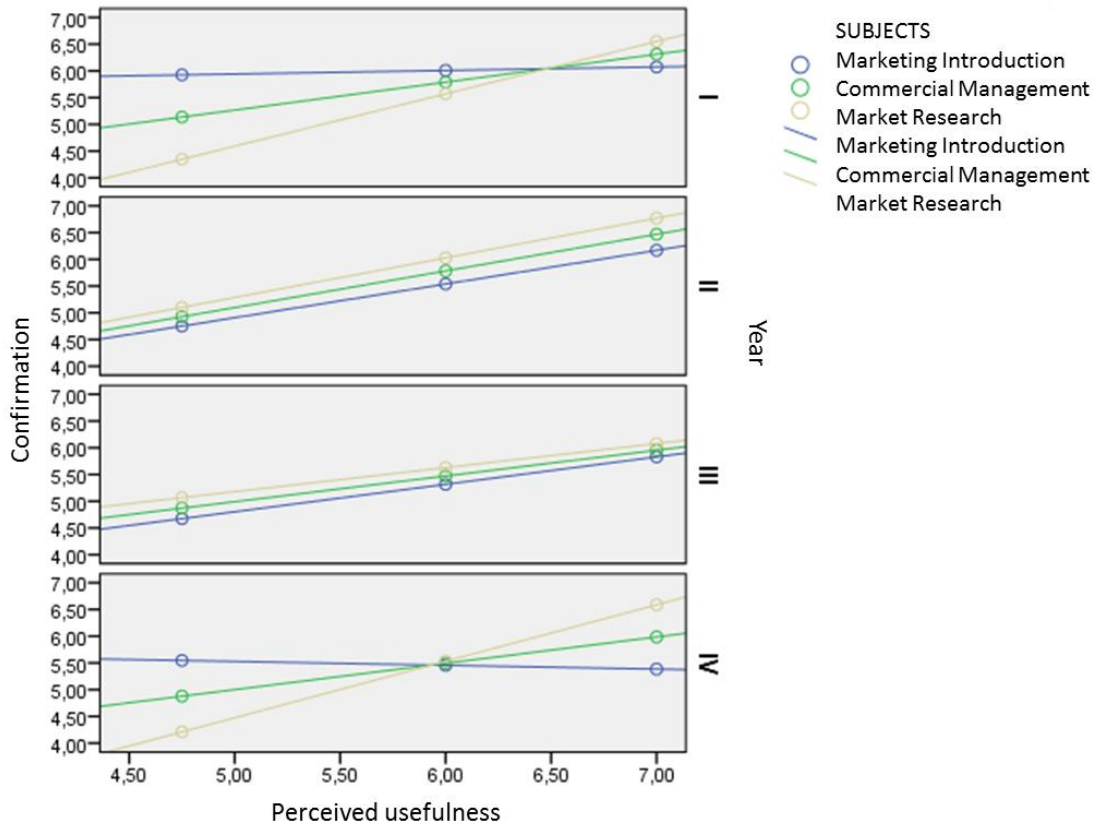
Table 4. Moderated mediation regression analysis. Outcome variable: Confirmation

Effect
Constant
Perceived usefulness (X)
Subjective learning (M)
Subject (W)
X*W

Table 5. Conditional effects: Perceived Usefulness*Subject*Year

Year	Effect	F	p-value
I	0,4561	5,3869	0,02
II	0,0556	0,1182	0,73
III	-0,0318	0,1348	0,71
IV	0,5641	5,1807	0,02

Figure 2. Interaction effects of subjects and TIP edition on the relationship between perceived usefulness and confirmation



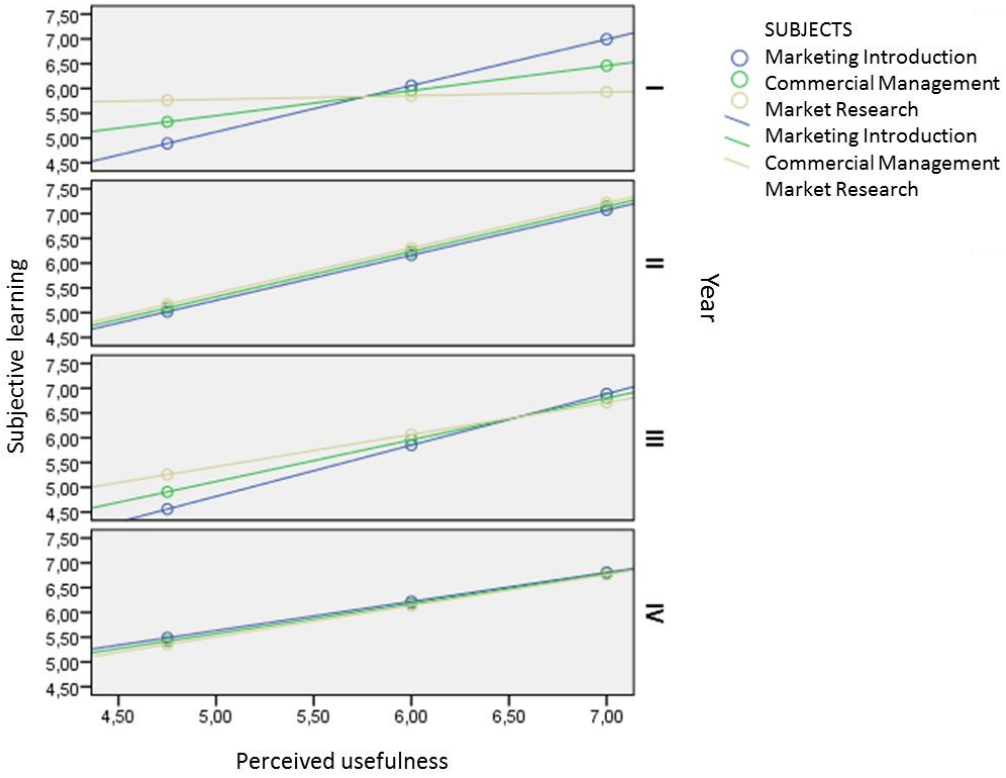
When the outcome variable is Y (subjective learning), the results indicate that it is affected by a direct and positive effect of perceived usefulness (βPerceived Usefulness → Subjective Learning: 1.3645; p-value: 0.00), confirming H2. Additionally, there is a significant interaction effect by subject (βPerceived Usefulness * Subject → Subjective Learning: -0.4302; p-value: 0.01), confirming H3a (see Table 6). However, the tests for higher-order unconditional interactions reveal that there is no

significant interaction effect by subject and year (βPerceived Usefulness * Subject * Year → Subjective Learning: p-value: 0.20), providing evidence regarding H5, and this is reflected in Figure 3. The results indicate that the effect of perceived usefulness on subjective learning has varied among subjects, especially in the first year. Over time, the trend has remained positive and without differences between subjects.

Table 6. Moderated mediation regression analysis. Outcome variable: Subjective learning

Effect	Coef.	SE	t-value	p-value	95% CI
Constant	-2,0256	1,5018	-1,3488	0,17	-4,9869 0,9357
Perceived usefulness (X)	1,3645	0,2480	5,5009	0,00	0,8754 1,8536
Subject (W)	2,4787	1,0033	2,4706	0,01	0,5004 4,4571
X*W	-0,4302	0,1690	-2,5458	0,01	-0,7635 -0,0970

Figure 3. Interaction effects of subjects and TIP edition on the relationship between perceived usefulness and subjective learning



PROCESS allows calculating the direct effects of X on Y for each level of the moderators (W, Z), as well as the conditional indirect effects mediated through M. Table 7 presents the conditional direct effects of perceived usefulness on confirmation. The results show a significant direct effect in all subjects and years, except for the subject Marketing Introduction in its first and fourth year (βPerceived Usefulness→Confirmation: Marketing Introduction*Year I: 0.0664; p-value: 0.65); (βPerceived Usefulness→Confirmation: Marketing Introduction*Year IV: -0.0716; p-value: 0.77). Table 8 presents all the conditional indirect effects, which highlight the key mediating role of subjective learning in the relationship between variables X and Y, except for the first and last year of the subject Market Research (βPerceived Usefulness→Subjective Learning→Confirmation: Market Research *Year I: 0.1269; p-value: n.s.); (βPerceived Usefulness→Subjective Learning→Confirmation: Market Research*Year IV: 0.2334; p-value: n.s.).

Table 7. Conditional direct effects of X on Y

Subject	Year	Effect	SE	p-value	95% CI
Marketing Introduction	I	0,0664	0,1489	0,65	-0,2272 0,3600
	II	0,6301	0,1855	0,00	0,2643 0,9958
	III	0,5132	0,1976	0,01	0,1236 0 ,9028
	IV	-0,0716	0,2485	0,77	-0,5616 0,4184
Commercial Management	I	0,5225	0,1697	0,00	0,1879 0 ,8570
	II	0,6856	0,1326	0,00	0,4243 0 ,9470
	III	0,4814	0,1368	0,00	0,2117 0,7511
	IV	0,4924	0,1410	0,00	0,2144 0,7705
Market Research	I	0,9786	0,3356	0,00	0,3168 01,6404
	II	0,7412	0,2302	0,00	0,2872 01,1952
	III	0,4496	0,1156	0,00	0,2217 0,6775
	IV	1,0565	0,3175	0,00	0,4303 1,6827

Table 8. Conditional indirect effects

Perceived usefulness → Subjective learning → Confirmation				
Subject	Year	Effect	Boot SE	95% CI
Marketing Introduction	I	0,3480	0,0945	0,1722 0,5313
	II	0,3398	0,0964	0,1419 0,5264
	III	0,3853	0,1081	0,1656 0,6011
	IV	0,2184	0,0881	0,0683 0,4079
Commercial Management	I	0,1878	0,0780	0,0485 0,3484
	II	0,3397	0,0883	0,1705 0,5086
	III	0,3193	0,0821	0,1479 0,4747
	IV	0,2259	0,1254	0,0524 0 ,5407
Market Research	I	0,0275	0,1269	-0,2503 0,2556
	II	0,3395	0,0985	0,1695 0 ,5656
	III	0,2413	0,0640	0,1164 0 ,3651
	IV	0,2334	0,2087	-0,0971 0,7292

DISCUSSION

This study contributes to the literature on teaching innovation in higher education by proposing a longitudinal evaluation framework based on a moderated mediation model. The results confirm the central role of subjective learning as a mediating mechanism between perceived usefulness and confirmation of expectations.

From a theoretical perspective, the findings extend expectation confirmation models in educational settings by integrating subjective learning as a key explanatory construct. The results suggest that perceived usefulness alone is insufficient to generate confirmation unless it is internalized through meaningful learning experiences.

The moderating role of subject indicates that structural differences between marketing disciplines may influence how students process innovation initiatives, particularly in early project editions. However, the progressive reduction of differences across years suggests increasing cohesion in the implementation of the Teaching Innovation Project.

From a practical standpoint, teaching teams implementing innovation initiatives should explicitly connect activities with students' future professional contexts in order to foster subjective learning and strengthen confirmation processes.

This study has several limitations. First, the reliance on self-reported measures may introduce perceptual bias. Second, the analysis is limited to a specific institutional context, which may restrict

generalizability. Future research could replicate this evaluation framework in other disciplines or universities and incorporate objective performance indicators to complement subjective measures.

Overall, the longitudinal approach adopted provides a replicable monitoring model for the systematic evaluation of teaching innovation projects in higher education.

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