

# Market Validation as a Pedagogical Strategy for Developing Entrepreneurial Competences in Higher Education

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**Abstract:** Entrepreneurship education in higher education is increasingly expected to demonstrate not only student engagement but also credible evidence of competence development through pedagogical approaches that connect theory, action and reflection. However, empirical research remains limited regarding how specific experiential practices – particularly market validation – contribute to competence development and how such learning can be meaningfully assessed. This paper examines the educational value of a market validation activity implemented within a course unit in Entrepreneurship and Digital Innovation at a Portuguese higher education institution. The course is structured as an integrated learning pathway through which students progress from opportunity identification and idea presentation to prototype development, market validation and business model design. The study aims to analyse how market validation contributes to the development of entrepreneurial competences and to explore its potential as an authentic assessment mechanism. A mixed-methods case study design was adopted, combining quantitative, qualitative and performance-based evidence. The study was conducted within an Entrepreneurship and Digital Innovation course involving 72 undergraduate students. Data sources included a questionnaire completed by 37 students, two focus groups involving 14 students, and the analysis of market validation reports, prototypes and business model proposals as performance-based evidence of entrepreneurial competence development. The findings show that market validation supports entrepreneurial attitudes, knowledge and skills, particularly responsibility, collaboration, feedback use and evidence-based decision-making. Direct interaction with potential users, exposure to uncertainty and reflection on customer feedback emerged as key learning mechanisms. The study shows that market validation can function both as an experiential learning strategy and as an authentic assessment tool, providing observable evidence of entrepreneurial competence development.

**Keywords:** Entrepreneurship Education; Entrepreneurial Competences; Market Validation

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## 1. Introduction

Entrepreneurship is widely recognised as a key driver of economic growth, innovation and social transformation. In knowledge-based economies, higher education institutions are increasingly expected to play a central role in fostering entrepreneurial mindsets and equipping students with the competences required to navigate uncertain and dynamic environments (Nabi et al., 2017; Sutter et al., 2019). As a result, entrepreneurship education has evolved significantly over recent decades, shifting from a focus on business plans and theoretical knowledge towards more experiential, student-centred and practice-oriented approaches (Fayolle & Gailly, 2015; Bell & Bell, 2020).

This evolution reflects a growing consensus that entrepreneurial competences – such as opportunity recognition, problem-solving, creativity and decision-making – are more effectively developed through active engagement in real-world challenges rather than through passive learning methods (Cui et al., 2021; Wu et al., 2022). In this context, experiential learning approaches, inspired by Kolb's (1984) experiential learning theory, have gained prominence in entrepreneurship education, emphasising the importance of concrete experience, reflection and iterative learning processes (Kolb, 1984; Pittaway & Edwards, 2012; Bell & Bell, 2020). These approaches not only enhance knowledge acquisition but also promote behavioural and attitudinal change, which are essential for developing an entrepreneurial mindset.

Despite these advances, the literature still highlights significant limitations in understanding the impact of specific pedagogical practices on the development of entrepreneurial competences and how this impact can be robustly assessed (Nabi et al., 2017; Bernadó & Bratzke, 2024). In particular, the operationalisation and assessment of entrepreneurial competences remain challenging, despite recent contributions based on frameworks such as EntreComp and more sophisticated measurement instruments (Lin et al., 2024; Almeida et al., 2026). In this context, there is a clear need for studies that examine concrete pedagogical practices and their effects on learning outcomes.

One such practice is market validation, understood as the process of testing ideas with real users and incorporating their feedback into an iterative development process. Although this practice is widely used in entrepreneurship, particularly in approaches such as Lean Startup, its systematic integration as a pedagogical strategy in higher education remains underexplored (Lackéus, 2020). Furthermore, its potential as both an experiential learning mechanism and an authentic assessment tool still lacks consistent empirical evidence.

Previous research analysed the impact of an international entrepreneurship education programme on students' competences, attitudes and skills, highlighting the importance of experiential, collaborative and multicultural learning environments (Costa et al., 2024). These findings are consistent with earlier studies demonstrating that entrepreneurship education plays a key role in developing entrepreneurial competences and intentions (Costa & Mares, 2016; Mares et al., 2017), as well as competences relevant to complex and dynamic contexts (Liu et al., 2025).

Building on these contributions, the present study extends this line of research by focusing specifically on the pedagogical role of market validation within a course unit in entrepreneurship and digital innovation. The course is structured as an integrated experiential learning pathway, in which students progress through different stages of the entrepreneurial process, including opportunity identification, idea development, prototyping, market validation and business model design. This approach aligns with the increasing need for higher education institutions to become more entrepreneurial and innovation-oriented (Belitski, 2024).

Within this framework, market validation plays a central role, as it requires students to interact directly with potential users, gather and interpret feedback and iteratively refine their value propositions. This process not only reflects real entrepreneurial practice but also provides a rich context for developing entrepreneurial competences and implementing authentic, performance-based assessment practices (Pittaway & Edwards, 2012).

Accordingly, the aim of this study is to examine how a market validation activity, implemented within a broader experiential learning pathway, contributes to the development of entrepreneurial competences in higher education. More specifically, the study seeks to understand the educational value of market validation as an experiential learning strategy and to explore how competence development can be assessed through the triangulation of students' perceptions, qualitative reflections and performance-based outputs, such as market validation reports, prototypes and business model proposals. To address these objectives, the study adopts a mixed-methods case study design that combines quantitative, qualitative and performance-based evidence to provide a comprehensive understanding of entrepreneurial learning outcomes (Timans et al., 2019).

To achieve this aim, the study addresses the following research questions:

**RQ1:** How do students perceive the contribution of a market validation activity to the development of entrepreneurial attitudes, knowledge and skills?

**RQ2:** Which entrepreneurial competences are most strongly developed through participation in a market validation activity?

**RQ3:** How do students describe the learning processes generated through direct interaction with potential users and the feedback obtained during market validation?

**RQ4:** What evidence of entrepreneurial competence development can be identified through students' performance-based outputs produced during the market validation process?

These research questions guided the design of the study and informed the collection and analysis of quantitative, qualitative and performance-based evidence. By addressing these questions, the study seeks to advance understanding of how market validation can support entrepreneurial competence development and authentic assessment within higher education contexts.

By focusing on a specific experiential practice and its role within a structured pedagogical design, this paper contributes to the entrepreneurship education literature in three main ways. First, it provides empirical evidence regarding the educational value of market validation as a mechanism for entrepreneurial competence development. Second, it contributes to the growing discussion on authentic assessment by demonstrating how performance-based outputs can provide observable evidence of competence demonstration beyond self-reported perceptions. Third, it advances understanding of the learning processes associated with market validation by integrating quantitative, qualitative and performance-based evidence within a triangulated

research design. Taken together, these contributions offer insights that may support the design and assessment of entrepreneurship education programmes in higher education.

## **2. Literature Review**

### **2.1 Entrepreneurship Education and Competence Development**

Entrepreneurship education has increasingly moved from approaches focused on entrepreneurial intention and venture creation towards broader perspectives centred on competence development. Recent literature emphasises that entrepreneurial competences include opportunity identification, creativity, initiative, collaboration, problem-solving and the ability to transform ideas into value (Costa & Mares, 2016; Mares et al., 2017; Nabi et al., 2016; Cui et al., 2021; Bernadó & Bratzke, 2024).

In this context, active learning methodologies assume particular importance. Challenge-based learning, project-based learning, simulations, interaction with real users and prototype development allow students to engage more closely with entrepreneurial practice, fostering more meaningful learning. Recent literature highlights that entrepreneurship education benefits from experiential, theoretically grounded and student-centred pedagogical approaches (Kakouris et al., 2023). Additionally, studies on educational technologies in entrepreneurship indicate that digital tools, simulations and interactive environments can support the development of entrepreneurial competences, particularly in terms of initiative, motivation, financial literacy and decision-making capacity (Hammoda, 2024).

Thus, entrepreneurship education should be conceived as an integrated pedagogical process that connects intention, competence and action. This perspective is particularly relevant in higher education, where students are expected not only to understand entrepreneurial concepts but also to apply them in real or simulated situations. Recent studies also highlight the need for longitudinal and robust methodologies to assess the impact of entrepreneurship education on competences and intentions over time (Almeida et al., 2026).

### **2.2 Experiential Learning and Market Validation**

Experiential learning is central to entrepreneurship education because it prioritises action, experimentation and reflection. Inspired by Kolb's model, this approach argues that knowledge is constructed through cycles of experience, reflection, conceptualisation and experimentation. In entrepreneurship education, such approaches allow students to engage with real problems, interact with stakeholders and develop competences such as initiative, creativity and adaptability (Lackéus, 2020; Bell & Bell, 2020).

Despite its practical relevance, the literature indicates that market validation remains underexplored as a structured pedagogical strategy in higher education. Most studies focus on broader experiential learning approaches without examining in depth the specific role of practices such as market testing in knowledge construction and competence development (Lackéus, 2020). This gap is particularly significant given the growing importance of pedagogical approaches oriented towards value creation and real-world problem-solving.

Therefore, integrating market validation into the teaching and learning process may constitute an effective mechanism for fostering entrepreneurial competences, as it requires students not only to generate ideas but also to confront them with reality. This process supports the development of competences such as critical analysis, stakeholder communication, feedback interpretation and adaptability, which are especially relevant in contexts of uncertainty and innovation.

### **2.3 Authentic Assessment in Entrepreneurship Education**

Experiential entrepreneurship education also requires assessment methods capable of capturing complex competences. Traditional tests are often insufficient, while authentic assessment evaluates tasks that reflect real-world entrepreneurial practice, such as prototypes, pitches, business models and market validation reports (Gulikers et al., 2004; Pittaway & Edwards, 2012).

Furthermore, authentic assessment is frequently associated with continuous and iterative feedback processes, which play a crucial role in learning development. Throughout the entrepreneurial process, students are exposed to multiple sources of feedback – from lecturers, peers and users – which contributes to the progressive improvement of their proposals and to the development of reflective and critical competences.

However, the implementation of authentic assessment practices presents significant challenges, particularly in terms of defining clear criteria, ensuring consistency in evaluation and aligning learning objectives with performance evidence. Recent literature highlights the need to develop more structured and systematic approaches to assessing entrepreneurial competences, integrating multiple sources of evidence and enhancing methodological rigour (Bernadó & Bratzke, 2024; Lin et al., 2024).

In this sense, the integration of experiential learning and authentic assessment is particularly relevant in entrepreneurship education, as it enables not only the promotion of competence development but also a more effective evaluation of learning outcomes. The use of practices such as market validation, as a central component of the pedagogical process, provides a unique opportunity to connect these two dimensions, representing a valuable contribution to both research and practice in this field.

Despite the growing interest in experiential entrepreneurship education, limited research has examined market validation as a specific pedagogical strategy and even fewer studies have explored its potential as a mechanism for authentic assessment. This study seeks to address these gaps by examining how market validation contributes to entrepreneurial competence development and how such competences can be evidenced through performance-based outputs.

### **3. Methodology**

#### **3.1 Research Design**

This study adopted a mixed-methods case study design aimed at examining the contribution of a market validation activity to entrepreneurial competence development. The research combined three complementary sources of evidence: (1) students' self-reported perceptions collected through a questionnaire, (2) qualitative reflections gathered through focus groups, and (3) performance-based artefacts produced throughout the entrepreneurial process. The triangulation of these data sources enabled a more comprehensive assessment of learning outcomes than reliance on a single method.

The study was conducted within the Entrepreneurship and Digital Innovation course offered at a Portuguese higher education institution. The course follows an experiential learning approach in which students progress through opportunity identification, idea development, prototyping, market validation and business model design.

#### **3.2 Pedagogical Context**

The study focused on a market validation activity entitled "Startup Pop-up Day", during which student teams left the classroom environment and interacted directly with potential users in order to test assumptions regarding the identified problem, proposed solution and value proposition.

Students conducted interviews and informal conversations with potential customers, collected feedback and subsequently used the information gathered to refine their prototypes and business models. The activity was designed to expose students to authentic entrepreneurial situations, requiring them to engage with uncertainty, interpret evidence and make informed decisions.

#### **3.3 Participants and Data Collection**

The study was conducted within the Entrepreneurship and Digital Innovation course during the 2025/2026 academic year, in which 72 undergraduate students were enrolled. Participation in the research was voluntary and anonymous.

Quantitative data were collected through an online questionnaire administered after the completion of the Startup Pop-up Day market validation activity. A total of 37 students responded to the questionnaire, which assessed four dimensions: entrepreneurial attitudes, entrepreneurial knowledge, entrepreneurial skills and evaluation of the pedagogical experience. Responses were measured using a five-point Likert scale.

To complement the quantitative findings, qualitative data were collected through two focus groups involving 14 students. The discussions explored students' experiences during the market validation process, critical learning moments and perceptions regarding the role of customer feedback in the development and refinement of their business ideas.

In addition, market validation reports, prototypes and business model proposals produced by the student teams were analysed as performance-based artefacts. These outputs provided complementary evidence of entrepreneurial competence development and supported the triangulation of findings across different data sources.

### 3.4 Data Analysis

Questionnaire data were analysed using descriptive statistics, including means and standard deviations, while the internal consistency of the questionnaire dimensions was assessed through Cronbach's alpha coefficients.

Focus group data were transcribed and analysed using thematic analysis (Braun & Clarke, 2006, 2021). The analysis generated four main themes: customer interaction and exposure to real users, learning beyond the comfort zone, feedback-driven refinement of solutions, and entrepreneurial competence development.

Student artefacts were examined through qualitative content analysis to identify evidence of opportunity recognition, stakeholder engagement, feedback interpretation and evidence-based decision-making.

Findings from the three data sources were subsequently triangulated to strengthen the credibility and robustness of the results.

### 3.5 Ethical Considerations

Participation was voluntary and all responses were collected anonymously. Students were informed about the objectives of the study and the use of the data for research purposes. No personally identifiable information was collected.

## 4. Results

### 4.1 Quantitative Findings

A total of 37 students completed the questionnaire following participation in the Startup Pop-up Day market validation activity. Internal consistency analysis revealed high reliability across all questionnaire dimensions, with Cronbach's alpha values ranging from 0.895 to 0.912.

Table 1 presents the overall results for the four dimensions assessed.

**Table 1: Summary of quantitative results**

| Dimension                 | Mean | SD   |
|---------------------------|------|------|
| Entrepreneurial Attitudes | 4.37 | 0.79 |
| Entrepreneurial Knowledge | 4.30 | 0.73 |
| Entrepreneurial Skills    | 4.16 | 0.83 |
| Pedagogical Experience    | 4.31 | 0.73 |

#### 4.1.1 Entrepreneurial Attitudes

Students reported highly positive perceptions regarding the entrepreneurial attitudes developed and applied during the activity. The overall mean for this dimension was 4.37 (SD = 0.79), indicating a strong level of agreement.

The highest-rated items were respect for the opinions of colleagues and participants (M = 4.59; SD = 0.63), responsibility in completing the tasks of the activity (M = 4.57; SD = 0.59), constructive collaboration with the team (M = 4.57; SD = 0.68), and active involvement in project development (M = 4.54; SD = 0.60).

These results suggest that the market validation activity was particularly effective in promoting responsibility, collaboration, active participation and respect for others. The lowest-rated item in this dimension was feeling comfortable in dealing with uncertainty (M = 3.81; SD = 0.98), suggesting that uncertainty remained a relevant challenge for some students, despite the generally positive results.

#### 4.1.2 *Entrepreneurial Knowledge*

The entrepreneurial knowledge dimension also revealed positive results, with an overall mean of 4.30 (SD = 0.73). Students perceived the activity as contributing to their understanding of several key aspects of the entrepreneurial process.

The highest-rated item was understanding the importance of user feedback (M = 4.49; SD = 0.68). Students also reported a better understanding of the different stages of the entrepreneurial process (M = 4.35; SD = 0.71), the importance of evidence in decision-making (M = 4.35; SD = 0.67), and the relevance of the value proposition (M = 4.32; SD = 0.77).

These results indicate that the activity helped students connect entrepreneurial concepts with practical action, particularly by reinforcing the role of feedback, evidence and market validation in the development of business ideas.

#### 4.1.3 *Entrepreneurial Skills*

The entrepreneurial skills dimension obtained an overall mean of 4.16 (SD = 0.83). Although this was the lowest of the four dimensions, the results remain clearly positive.

The highest-rated items were the ability to deal adequately with divergent opinions (M = 4.30; SD = 0.65), the ability to find solutions to difficulties that emerged during the activity (M = 4.24; SD = 0.71), the ability to critically analyse the feedback received (M = 4.24; SD = 0.75), problem-solving skills (M = 4.22; SD = 0.74), and decision-making based on collected information (M = 4.22; SD = 0.70).

The lowest-rated items were oral communication skills (M = 3.97; SD = 1.03) and the ability to clearly explain the value proposition of the business idea (M = 3.92; SD = 0.82). These findings suggest that, although the activity contributed positively to skill development, communication and value proposition articulation may require additional pedagogical support in future implementations.

#### 4.1.4 *Evaluation of the Pedagogical Experience*

The evaluation of the pedagogical experience was also highly positive, with an overall mean of 4.31 (SD = 0.73). Students considered the activity challenging (M = 4.41; SD = 0.68), valued the interaction with potential customers as important for learning (M = 4.38; SD = 0.71), and recognised that the feedback collected helped improve the solution developed (M = 4.38; SD = 0.67).

The item “the activity allowed me to learn through practice” also received a high score (M = 4.35; SD = 0.67), reinforcing the experiential nature of the pedagogical approach. The lowest-rated item in this dimension was motivation (M = 4.08; SD = 0.78), although the score remains positive.

Overall, these findings suggest that the market validation activity was perceived as an authentic and valuable learning experience, capable of connecting classroom-based learning with real entrepreneurial practice.

### 4.2 **Focus Group Findings**

The thematic analysis of the two focus groups generated four main themes related to entrepreneurial learning through market validation.

#### 4.2.1 *Customer Interaction and Exposure to Real Users*

Students highlighted direct interaction with potential users as one of the most valuable aspects of the activity. Customer engagement enabled participants to better understand user needs and challenge assumptions regarding the relevance of their proposed solutions.

“Until that moment, our idea only made sense within our group. Talking to potential users allowed us to understand whether the problem was actually relevant for other people.”

#### 4.2.2 *Learning Beyond the Comfort Zone*

Participants described the activity as challenging due to the need to approach unfamiliar individuals and operate in uncertain situations. Despite initial discomfort, students reported increased confidence and adaptability throughout the process.

“At the beginning, I was afraid of approaching people and asking questions, but after the first few conversations I became much more confident.”

#### *4.2.3 Feedback-Driven Refinement of Solutions*

Students reported that the feedback collected during the market validation activity frequently challenged their initial assumptions and encouraged them to reconsider aspects of their proposed solutions.

One participant noted:

“We realised that some features we considered important were not valued by potential users, while other aspects that we had overlooked turned out to be much more relevant.”

Participants frequently described feedback as a mechanism for validating assumptions and improving the value proposition. This finding reinforces the role of market validation as an evidence-based process rather than an exercise focused solely on confirming pre-existing ideas.

#### *4.2.4 Development of Entrepreneurial Competences*

Students perceived the activity as contributing to the development of several entrepreneurial competences, particularly communication, creativity and teamwork.

Regarding communication skills, one participant commented:

“The activity helped me learn how to explain an idea clearly and adapt my message depending on who I was talking to.”

Students also highlighted the importance of teamwork throughout the activity.

As another participant explained:

“We had to work together, divide responsibilities and discuss how to interpret the feedback. The activity strengthened our ability to collaborate as a team.”

Finally, creativity emerged as an important outcome, particularly when students were required to adapt and refine their ideas based on customer feedback.

Overall, the qualitative findings support and enrich the quantitative results, suggesting that the market validation activity contributed not only to the acquisition of entrepreneurial knowledge but also to the development of entrepreneurial behaviours and competences through authentic interaction with potential users.

### **4.3 Evidence from Market Validation Reports**

To complement the data collected through the student questionnaire and focus group, a qualitative content analysis was conducted on the market validation reports produced by the student teams during the Startup Pop-up Day activity. Within the logic of a case study design, these reports were treated as performance-based artefacts that provide evidence of competence demonstration in authentic learning contexts.

The analysis sought to identify recurring patterns in how students approached market validation, interacted with potential users, interpreted feedback and transformed evidence into decisions. Following an inductive coding process, four main categories emerged from the data: (1) opportunity recognition, (2) stakeholder interaction, (3) feedback interpretation and learning, and (4) iteration and evidence-based decision-making.

#### *4.3.1 Opportunity Recognition*

The first category concerns students' ability to identify, articulate and validate relevant problems experienced by potential users. Across the reports, students demonstrated a strong focus on recognising practical challenges affecting everyday life, particularly in university contexts. The validated problems frequently related to convenience, access to information, time management, service accessibility, trust and wellbeing.

The findings suggest that students were able to move beyond idea generation and engage in systematic problem exploration. Rather than assuming the existence of a market need, most teams sought evidence from potential users to confirm whether the identified problem was perceived as relevant. This process reflects the

development of opportunity recognition competences, which are considered central within contemporary entrepreneurship competence frameworks (Bernadó & Bratzke, 2024).

The analysis also revealed differences in the depth of problem validation. While some teams focused primarily on confirming the existence of a problem, others explored its causes, consequences and contextual factors, demonstrating a more sophisticated understanding of user needs and market dynamics.

#### *4.3.2 Stakeholder Interaction*

A second category emerging from the analysis relates to students' interaction with stakeholders during the validation process. All teams engaged directly with potential users through conversations, demonstrations, surveys, interviews or prototype presentations. This interaction required students to communicate their value propositions, answer questions, manage objections and adapt their discourse to different audiences.

The reports indicate that market validation created opportunities for authentic engagement with external stakeholders, exposing students to perspectives that challenged their initial assumptions. Students were required to leave the classroom environment and confront real users, which increased the realism of the learning experience and contributed to the development of communication, networking and relationship-building competences.

The diversity of interaction strategies observed across the reports suggests that students developed practical skills associated with entrepreneurial communication and stakeholder engagement, both of which are essential components of entrepreneurial competence.

#### *4.3.3 Feedback Interpretation and Learning*

The third category concerns students' capacity to interpret feedback and extract meaningful learning from the validation process. The reports show that most teams collected both quantitative and qualitative data, including survey responses, user comments, objections and suggestions.

However, differences emerged in the sophistication of data interpretation. Some teams primarily reported descriptive results, focusing on percentages and levels of interest. Others demonstrated greater analytical depth by identifying patterns, interpreting user concerns and exploring the implications of the feedback received.

Particularly relevant was the identification of recurring themes across projects, such as concerns regarding trust, usability, pricing, convenience and operational feasibility. These findings suggest that students were able to recognise critical adoption factors and understand how user perceptions influence the viability of entrepreneurial solutions.

Overall, the reports provide evidence that market validation functioned not only as a mechanism for gathering information but also as a learning process through which students developed critical thinking and evidence interpretation skills.

#### *4.3.4 Iteration and Evidence-Based Decision-Making*

The fourth category refers to the extent to which students used validation evidence to refine their ideas and make informed decisions. This category emerged as one of the strongest indicators of entrepreneurial learning.

Many reports described modifications resulting directly from user feedback, including adjustments to pricing models, the introduction of new features, interface redesign, simplification of user journeys and changes in communication strategies. These adaptations indicate that students were not merely collecting feedback but actively using it to improve their value propositions.

The findings suggest that market validation encouraged iterative thinking and fostered an evidence-based approach to decision-making. Rather than defending their original ideas, students were frequently required to reconsider assumptions and adapt their solutions according to market signals.

From an educational perspective, this process reflects the principles of experiential learning and Lean Startup methodologies, in which learning occurs through cycles of experimentation, feedback and refinement. The ability to translate market evidence into actionable decisions represents one of the clearest demonstrations of entrepreneurial competence identified in the analysis.

## **5. Discussion**

This study examined how market validation contributes to entrepreneurial competence development in higher education. By combining students' perceptions, qualitative reflections and performance-based outputs, the findings support its value as both a learning strategy and an assessment mechanism.

### **5.1 Market Validation as Experiential Learning**

The findings reinforce the importance of experiential learning approaches in entrepreneurship education. By engaging directly with potential users, students moved beyond theoretical discussions and were required to test assumptions, collect evidence and reflect on real-world feedback. This process is consistent with experiential learning theory (Kolb, 1984), which emphasises learning through concrete experience, reflection and experimentation.

The qualitative findings suggest that customer interaction played a particularly important role in the learning process. Students frequently reported that engagement with potential users challenged their assumptions and encouraged them to reconsider aspects of their proposed solutions. These findings support previous studies highlighting the value of stakeholder interaction and value-creation activities within entrepreneurship education (Lackéus, 2020; Bell & Bell, 2020).

Furthermore, exposure to uncertainty emerged as an important learning mechanism. Approaching unfamiliar individuals, receiving critical feedback and adapting ideas to market realities required students to operate outside their comfort zones. Such experiences are recognised as essential elements of entrepreneurial learning because they promote adaptability, initiative and resilience (Kakouris et al., 2023).

### **5.2 Development of Entrepreneurial Competences**

The results indicate that market validation contributes to the development of several entrepreneurial competences. Students reported gains in responsibility, collaboration, feedback utilisation and evidence-based decision-making, while the qualitative findings highlighted improvements in communication, teamwork and problem-solving.

These competences align closely with contemporary entrepreneurial competence frameworks, which emphasise not only knowledge acquisition but also the development of attitudes and behaviours that support entrepreneurial action (Bernadó & Bratzke, 2024). The findings therefore suggest that market validation activities can provide meaningful opportunities for students to develop entrepreneurial competences through authentic engagement with real-world challenges.

Particularly noteworthy is the emphasis placed on customer feedback as a basis for decision-making. Rather than defending their initial ideas, students were encouraged to interpret evidence, question assumptions and refine their solutions. This process reflects contemporary entrepreneurial approaches centred on experimentation, customer discovery and iterative learning (Blank, 2013; Lackéus, 2020).

### **5.3 Market Validation as Authentic Assessment**

A further contribution of this study concerns the role of market validation as an authentic assessment strategy. While entrepreneurship education research frequently relies on self-reported measures, this study incorporated performance-based evidence derived from market validation reports, prototypes and business model proposals.

The analysis of these artefacts provided observable evidence of opportunity recognition, stakeholder engagement, feedback interpretation and evidence-based decision-making. These findings support authentic assessment approaches that advocate the use of real-world tasks and performance-based outputs to evaluate competence development (Gulikers et al., 2004; Pittaway & Edwards, 2012).

Taken together, the findings suggest that market validation can operate simultaneously as a learning activity and as an assessment mechanism. By requiring students to engage with real users, collect evidence and refine solutions, the activity created opportunities for entrepreneurial competence development while generating meaningful evidence of learning outcomes.

## 6. Conclusions

This study examined the contribution of a market validation activity to entrepreneurial competence development in higher education. Using a mixed-methods case study design, it combined questionnaire data, focus group discussions and performance-based outputs. The findings show that market validation supports entrepreneurial attitudes, knowledge and skills by promoting responsibility, collaboration, feedback use, evidence-based decision-making and interaction with real users.

The study contributes to entrepreneurship education by showing that market validation can function both as an experiential learning activity and as an authentic assessment mechanism. Market validation reports, prototypes and business model proposals provided observable evidence of opportunity recognition, stakeholder engagement, feedback interpretation and iterative decision-making.

From a practical perspective, the results suggest that customer validation activities can be integrated into entrepreneurship curricula to connect classroom learning with real entrepreneurial practice. However, as this is a single case study based on one course unit and short-term evidence, future research should examine similar approaches across different institutions and assess their longer-term effects on entrepreneurial competence development.

## Ethics Declaration

This research did not require formal ethical clearance as it did not involve any vulnerable populations or sensitive topics. All participants provided informed consent prior to their participation in the study.

## AI Declaration

Artificial Intelligence tools were used for language editing and proofreading only. The intellectual content, analysis, and conclusions remain entirely the product of the authors' original work, and AI was not used to generate substantive ideas or interpret empirical findings.

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