

Needs Analysis for a Role-Playing Entrepreneurship Learning Module in Higher Education in Shandong, China

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Abstract

Entrepreneurship learning in higher education should focus on developing students' practical entrepreneurial skills and enhancing their ability to think critically and apply what they have learned. In light of the different needs that students have to learn and the various intentions they have concerning entrepreneurship, it is crucial to determine and close specific competency gaps before designing and implementing an educational intervention. The purpose of this study was to identify higher education students' needs across six domains to inform the development of the Role-Playing Based Entrepreneurship Learning Module (RPB-ELM) include (i) entrepreneurial concepts and mindset; (ii) business opportunity identification and market research; (iii) business model development and planning; (iv) financial literacy and resource management; (v) marketing, branding and customer acquisition; and (iv) leadership, teamwork and problem-solving. This study applying Phase 1-Need Analysis in Design and Development Research (DDR) approach consists of a quantitative needs analysis. A five-point Likert-scale questionnaire was completed by 50 higher education students from Shandong, China. The data was analyzed by using descriptive statistics, i.e. mean, standard deviation, percentage and ranking. Overall, the students showed a moderately high level of need ($M = 3.439$, $SD = 0.761$). Financial Literacy and Resource Management ranked highest ($M = 3.596$, $SD = 0.866$), followed by Leadership, Teamwork and Problem-Solving ($M = 3.484$, $SD = 0.915$) and Business Model Development and Planning ($M = 3.428$, $SD = 0.854$). Opportunity Identification and Market Research ranked lowest but remained moderately high ($M = 3.336$, $SD = 0.871$). Findings fit within a body of previous research advocating for an experiential, simulation-based and needs-responsive approach to entrepreneurship education. Students need practical exercises that allow them to practice financial decisions, leadership, problem solving, business planning and above all, real and authentic entrepreneurship. The identified needs of entrepreneurs in training provide empirical support for the RPB-ELM.

Keywords: Entrepreneurship Education, Needs Analysis, Role-Playing, Entrepreneurial Competency, Critical Thinking, Higher Education, Shandong, China

Introduction

Higher education institutions across the globe have acknowledged the importance of fostering students' entrepreneurial competencies in readiness to tackle changing economic landscapes and their resultant employment scenarios. In China, as Chen et al. (2022) highlighted, effective entrepreneurship education is delivered through a Learning Environment that fosters the development of students' entrepreneurial competencies and facilitates knowledge transfer. (Dong & Chang, 2024).

In addition to differences in learning needs, course characteristics, and learner differences affect the effectiveness of entrepreneurship education. In order to move from a mainly theoretical teaching of entrepreneurship to more experiential and student-oriented approaches, experiential learning has become an important pedagogical direction in the field of entrepreneurship education (Motta & Galina, 2023). Among various forms of experiential learning, role-playing has been used frequently in many disciplines including entrepreneurship education because it enables students to participate in simulated situations and to gain transferable skills by experiencing them (Aura et al., 2023). A structured Role-Playing Based Entrepreneurship Learning Module (RPB-ELM) can be developed to enhance students' entrepreneurial competencies, critical thinking and learning achievement.

The purpose of this study is to identify the needs of higher education students in six key areas include (i) Entrepreneurial Concepts and Mindset, (ii) Business Opportunity Identification and Market Research, (iii) Business Model Development and Planning, (iv) Financial Literacy and Resource Management, (v) Marketing, Branding and Customer Acquisition, and (vi) Leadership, Teamwork and Problem-Solving, to inform the development of the Role Play Entrepreneurship Module (RPEM) for enhancing students' entrepreneurial competencies.

Literature Review

This section reviews literature supporting the development of the Role-Playing Based Entrepreneurship Learning Module (RPB-ELM). These six learning domains in module include (i) Entrepreneurial Concepts and Mindset, (ii) Business Opportunity Identification and Market Research, (iii) Business Model Development and Planning, (iv) Financial Literacy and Resource Management, (v) Marketing, Branding and Customer Acquisition, and (vi) Leadership, Teamwork and Problem-Solving. The theoretical and empirical bases for the needs of students of university entrepreneurship are presented and transformed into experiential role-playing activities that endow them with entrepreneurial competencies and foster critical thinking and learning achievements.

Entrepreneurship education needs to incorporate approaches that promote acquisition of practical entrepreneurial skills, critical thinking and ability to make decisions in real-life situations. Entrepreneurship as a broad set of competencies that can be developed through education and experience (Bacigalupo et al., 2016). Learning domains for developing of entrepreneurial competencies for university students including opportunity recognition, entrepreneurial concepts and mindset, business model development, financial literacy, marketing and leadership and problem-solving (Man et al., 2002). Entrepreneurship education in China higher education should focus on strengthening entrepreneurial competencies of university students. Entrepreneurship education in China should focus on strengthening entrepreneurial competencies of higher education students and supporting

learning environment (Chen et al., 2022). Given that students differ in their learning needs, teaching of entrepreneurship needs to be approached in a responsive manner as opposed to traditional methods (Liu et al., 2022). Experiential learning, which has its roots in the work of Kolb (1984), enables integration of conceptual and practical skills and is, thus, highly relevant for teaching of entrepreneurship. Such a learning approach supports translation of given learning outcomes into experiential role-playing activities that strengthen given entrepreneurial competencies, enhance critical thinking and increase learning achievement (Lackéus, 2020; Motta & Galina, 2023). Business simulations in particular support increased levels of student engagement and higher-order thinking (Hsu & Wu, 2023). Role-playing activities can thus be integrated into a learning module that enhances given entrepreneurial skills, promotes critical thinking, supports role-based decision-making and fosters reflective learning (Kao et al., 2025; Fioravanti et al., 2022; Aura et al., 2023; Yue et al., 2026).

Another important component of the entrepreneurial competencies for higher education students is the entrepreneurial mindset. The entrepreneurial mindset encompasses the students' entrepreneurial intention, attitudes, perceived capability, motivation and willingness to engage in entrepreneurial activities. In relation to the Theory of Planned Behavior (TPB), entrepreneurial intention is influenced by the students' attitudes, subjective norms and perceived behavioral control (Ajzen, 1991). Studies have shown that entrepreneurship education has a positive impact on the entrepreneurial intentions of undergraduate students (Astiana et al., 2022). For higher education students in China, various factors including education, personal and environmental factors influence their entrepreneurial intentions (Bu et al., 2023; Fan et al., 2024). In addition, entrepreneurship education also plays an important role in fostering the students' self-efficacy in order to prepare them to take on entrepreneurial ventures (Gao & Lu, 2024). As mentioned above, there is lack of studies on the entrepreneurial intentions of university students in Shandong Province, China. A recent study on university students in Shandong Province investigated their perceptions of entrepreneurship and their entrepreneurial intentions (Dong & Chang, 2024).

Opportunity identification is a core component of entrepreneurial competencies. Entrepreneurs identify potential opportunities and assess their potential to create value. The opportunity identification ability is one of the key components of entrepreneurship competence according to Bacigalupo et al. (2016). In China higher education settings, opportunity recognition of entrepreneurial ventures by students has been an emerging and important research topic (Wang & Xue, 2024). Studies have started to explore the connection between opportunity recognition and the process of transitioning from education about entrepreneurship to actual entrepreneurial behavior (Murad et al., 2024). Importantly, in market research, for instance, entrepreneurs gather information about customers and market, make sense of them, reconsider their prior assumptions, and modify their ideas in light of new information and evidence.

In line with Man et al. (2002), the financial literacy in the entrepreneurial competencies of students is related to the financial management of a startup. Entrepreneurship education should move beyond an understanding of financial terms and assist students in making decisions regarding the use of financial resources for startups (Kang & Park, 2024). Indeed, a recent systematic review discussed financial literacy of students in entrepreneurship (Romadhon & Mulyadi, 2025). A further dimension of entrepreneurial competence is to

understand customers of potential users and users, to communicate value to them, to develop a marketing and sales strategy and to change this in response to market evidence. For this reason, entrepreneurial learning must connect the marketing knowledge with the corresponding decisions of the entrepreneur. In the meantime, the teaching of digital marketing has become very relevant in the field of entrepreneurship (Sripituksakul, 2022). Opportunity recognition and evidence-based reasoning are also important for marketing decisions. The first aspect has already been emphasized in connection with the transition from entrepreneurship education towards entrepreneurial behavior (Murad et al., 2024). The latter can also be developed by means of an intervention (Du and List, 2024). The marketing competency can be developed by analyzing customer feedback of potential users, by evaluating market evidence and by changing and justifying brand strategies.

Role-playing can strengthen students' critical thinking skills and leadership competencies. Students experience various situations in which they have to interact with their peers, including solving problems in a team and coming to a decision collectively. According to Dias-Oliveira et al. (2024), in order to foster critical thinking, teamwork, and communication skills in business education, students should engage in project-based learning. Entrepreneurship learning through role-playing games can foster communication and negotiation skills (Fioravanti et al., 2022). Furthermore, experiences obtained from role-play can enable students to develop 21st-century skills, such as leadership, critical thinking, and problem solving (Aura et al., 2023). For instance, Kao et al. (2025) have utilized multi-perspective role-playing in order to foster critical-thinking behavior. In addition, Yue et al. (2026) have investigated a number of variables including entrepreneurship competition participation, team roles, and undergraduate leadership.

Entrepreneurship education should focus on developing six key learning domains, namely (i) Entrepreneurial Concepts and Mindset, (ii) Business Opportunity Identification and Market Research, (iii) Business Model Development and Planning, (iv) Financial Literacy and Resource Management, (v) Marketing, Branding and Customer Acquisition, and (vi) Leadership, Teamwork and Problem-Solving. For effectively developing these key learning domains, experiential learning, business simulations and role-playing are considered to be effective. The above-mentioned learning approaches enable students to translate theoretical knowledge into practical skills in authentic situations (Hsu & Wu, 2023; Kolb, 1984; Lackéus, 2020; Motta & Galina, 2023). As noted by Liu et al. (2022), learning needs of students differ and thus, entrepreneurship education should be designed to be responsive to the needs of students in teaching and learning processes to enhance teaching effectiveness. Existing studies, such as Dong and Chang (2024), identified that entrepreneurial intention is an issue among university students in Shandong Province.

Therefore, the proposed RPB-ELM extends develop on existing research on Technological Pedagogical Content Knowledge (TPCK) and Student Engagement. This study integrates four technology-related dimensions of the curriculum within a single framework and examines their joint relationships with university students' entrepreneurial intention, skills, critical thinking and learning achievement. Within the specific context of higher education in Shandong Province, China, this study proposes a needs-based experiential learning model (RPB-ELM) that utilizes technology-supported role-playing scenarios within the curriculum. As such, this integrated study contributes to the pool of technology-enhanced learning research

within specific contexts, while examining relationships between curriculum, student engagement and learning outcomes.

Methodology

This study used quantitative survey. Quantitative approach enables the student's perceived learning needs to be measured and summarized in numerical form by means of descriptive statistics (Creswell & Creswell, 2023). The participants consisted of 50 higher education students from Shandong, China. The 5-point Likert-type scale was used to collect data from the participants in the survey, ranging from 1 'Strongly Disagree' to 5 'Strongly Agree'. In total, six domains were covered in the survey, namely (i) Entrepreneurial Concepts and Mindset, (ii) Business Opportunity Identification and Market Research, (iii) Business Model Development and Planning, (iv) Financial Literacy and Resource Management, (v) Marketing, Branding and Customer Acquisition, and (vi) Leadership, Teamwork and Problem-Solving. The collected data were analyzed using descriptive statistics, such as mean, standard deviation, frequency and percentage, and ranking.

This needs analysis represents the first phase of Design and Development Research (DDR), as defined by Richey and Klein (2007). The aim of this study is to not only identify and describe an educational problem but also to use evidence from needs assessment to guide the design, development, and evaluation of the Role Play Entrepreneurship Module (RPEM) designed for higher education students. Thus, the findings of this needs analysis will be used to spell out the module's content, scenarios for role play, and learning activities as well as to prioritize relevant entrepreneurship competencies. This study thus employs a quantitative approach to research as defined by Creswell and Creswell (2023) to collect and analyze data to meet the needs of this study, while employing the framework of DDR by Richey and Klein (2007) to develop the RPEM for higher education students.

Finding and Discussion

This section presents and discusses the findings from the needs analysis involving 50 higher education students in Shandong, China. The analysis examined six domains of the Role-Playing Based Entrepreneurship Learning Module (RPB-ELM): (i) Entrepreneurial Concepts and Mindset, (ii) Business Opportunity Identification and Market Research, (iii) Business Model Development and Planning, (iv) Financial Literacy and Resource Management, (v) Marketing, Branding and Customer Acquisition, and (vi) Leadership, Teamwork and Problem-Solving. Descriptive statistics, including mean, standard deviation, percentage of agreement, and ranking, were used to determine the level and priority of students' learning needs.

Table 1

Needs Analysis Results: Understanding Entrepreneurial Concepts and Mindset

No.	Item	Mean	SD	Agree (%)	Interpretation
1	Exposure to entrepreneurial personalities and outcomes	3.46	1.199	54	Moderately High
2	Role-play to develop entrepreneurial identity	3.36	1.258	48	Moderately High
3	Reflection on personal values and entrepreneurial aspirations	3.24	1.188	38	Moderate
4	Evaluating reasoning behind entrepreneurial decisions	3.46	1.034	50	Moderately High
5	Role-play motivation toward entrepreneurship	3.52	1.129	46	Moderately High
	Overall	3.408	0.913	—	Moderately High

Table 1 presents the overall mean for the Understanding Entrepreneurial Concepts and Mindset of the students was moderately high with a mean of 3.408 (SD = 0.913). The highest mean was found for the first activity of Role-play motivation toward entrepreneurship (3.52), followed by two other activities that exposed students to entrepreneurial personalities and helped them to Evaluating reasoning behind entrepreneurial decisions (3.46). The lowest mean for the activities was found for Reflection on personal values and entrepreneurial aspirations with a mean of (3.24), thus moderate.

These findings complement existing empirical studies on factors that determine entrepreneurial intentions (Ajzen, 1991) and the effects of entrepreneurship education on fostering students' entrepreneurial intentions and self-efficacy (Astiana, et al., 2022; Gao and Lu, 2024). Empirical evidence relating to Chinese university students' entrepreneurial intentions (Bu, et al., 2023; Fan, et al., 2024) as well as those studying in Shandong Province (Dong and Chang, 2024) further substantiate the necessity to integrate entrepreneurial role-play, identity, reflection and decision making into the RPB-ELM to foster students' entrepreneurial mindset and motivational orientations.

Table 2

Needs Analysis Results: Business Opportunity Identification and Market Research

No.	Item	Mean	SD	Agree (%)	Interpretation
1	Identifying business opportunities in real contexts	3.32	1.171	46	Moderate
2	Analysing customer needs and market demands	3.24	1.061	38	Moderate
3	Market analyst role-play for evidence-based decisions	3.44	1.161	54	Moderately High
4	Adapting business ideas based on new market data	3.40	1.209	52	Moderately High
5	Testing innovative opportunities through role-play	3.28	1.179	46	Moderate
	Overall	3.336	0.871	—	Moderately High

Table 2 presents the overall mean score for Business Opportunity Identification and Market Research needed by students was moderately high ($M = 3.336$, $SD = 0.871$). The highest mean score among all the items was for Market analyst role-play for evidence-based decisions ($M = 3.44$), followed by Adapting business ideas based on new market data ($M = 3.40$). The lowest mean score was for Analysing customer needs and market demands ($M = 3.24$). This implies that the opportunity recognition and market analysis skills, and also the evidence-based decision-making skills of students need to be strengthened through the RPB-ELM.

These results are supported by Bacigalupo et al. (2016) highlighted that opportunity recognition is an important entrepreneurial competence. The studies conducted on Chinese university students with regard to opportunity recognition ability have shown positive results (Wang & Xue, 2024). Moreover, Murad et al. (2024) examined the relationship between opportunity recognition and entrepreneurial behavior. Furthermore, the development of evidence-based reasoning has been supported by (Du & List, 2024). Hence, market-analyst role-play, customer and market-data analysis, opportunity testing, and evidence-based revision of business ideas should be included in the RPB-ELM.

Table 3

Needs Analysis Results: Business Model Development and Planning

No.	Item	Mean	SD	Agree (%)	Interpretation
1	Strengthening business-model design ability	3.34	1.196	52	Moderate
2	Confidence in presenting startup pitches	3.36	1.069	44	Moderately High
3	Strategic business problem-solving through role-play	3.58	1.052	58	Moderately High
4	Peer collaboration in refining business models	3.28	1.051	46	Moderate
5	Role-play feedback to improve entrepreneurial plans	3.58	1.089	54	Moderately High
	Overall	3.428	0.854	—	Moderately High

Table 3 presents the overall the average score for Business Model Development and Planning is in the upper-middle of the scale and thus moderate to high ($M = 3.428$; $SD = 0.854$). The highest scores were given to the Strategic business problem-solving through role-play ($M = 3.58$) and Role-play feedback to improve entrepreneurial plans ($M = 3.58$). The lowest score was given to the Peer collaboration in refining business models ($M = 3.28$). Thus, there is a need for more experiential activities when it comes to business planning, problem-solving, pitching and feedback in class.

Previous research has established that experiential learning has great value for the entrepreneurship education, which strengthens students' higher-order thinking skills through engaging them in simulated business situations (Lackéus, 2020; Motta & Galina, 2023). The use of business simulations for the purpose of teaching and learning further enhances students' critical thinking skills and fosters creative problem-solving (Hsu & Wu, 2023). Therefore, the RPB-ELM framework should comprise business-model development, startup pitching, strategic role-play, peer collaboration and feedback.

Table 4

Needs Analysis Results: Financial Literacy and Resource Management

No.	Item	Mean	SD	Agree (%)	Interpretation
1	Financial literacy, budgeting and investment training	3.60	1.309	62	Moderately High
2	Startup Chief Financial Officer (CFO) role-play for financial decision-making	3.70	1.147	56	Moderately High
3	Logical justification of financial strategies	3.54	1.232	60	Moderately High
4	Ethical financial decision-making	3.58	1.126	60	Moderately High
5	Financial simulations for budgeting and risk assessment	3.56	1.163	56	Moderately High
	Overall	3.596	0.866	—	Moderately High

Table 4 presents the need for Financial Literacy and Resource Management scored moderately high ($M = 3.596$, $SD = 0.866$) on average across the five items. The highest mean score on average for all items was for startup Startup Chief Financial Officer (CFO) role-play for financial decision-making ($M = 3.70$) followed Financial literacy, budgeting and investment training ($M = 3.60$). All five items therefore scored moderately high on average with a need for practical financial learning, above all for budgeting, for investments, for assessing risks and for making ethical financial decisions.

Previous research has highlighted that financial and resource-management capabilities are key entrepreneurial competencies (Bacigalupo et al., 2016; Man et al., 2002). Financial literacy and financial-management behavior is also said to be closely related to startup opportunity recognition (Kang and Park, 2024). Moreover, financial literacy is important for student entrepreneurship (Romadhon and Mulyadi, 2025). Thus, the RPB-ELM must stress startup CFO role-play, budgeting and investment simulation, risk assessment, resource allocation and ethical financial decision-making in order to foster students' practical financial competencies.

Table 5

Needs Analysis Results: Marketing, Branding and Customer Acquisition

No.	Item	Mean	SD	Agree (%)	Interpretation
1	Developing brand strategies	3.32	1.199	50	Moderate
2	Analysing and responding to customer feedback	3.54	1.110	52	Moderately High
3	Adapting marketing strategies based on evidence	3.50	1.249	56	Moderately High
4	Aligning marketing strategies with consumer needs	3.42	1.231	52	Moderately High
5	Simulated customer-acquisition tasks	3.12	1.304	42	Moderate
	Overall	3.380	0.980	—	Moderately High

Table 5 presents the average level of need for Marketing, Branding and Customer Acquisition skills. Overall, the average is at the upper end of the medium level of need ($M = 3.380$, $SD = 0.980$). Of greatest need are the skills related to Analysing and responding to customer feedback ($M = 3.54$) followed by Adapting marketing strategies based on evidence ($M = 3.50$). The lowest average was for the skill of conducting Simulated customer-acquisition tasks ($M = 3.12$). Thus, there is greatest need for customer analysis, evidence-based marketing and market adaptation skills.

These results support the RPB-ELM by enabling further development of business plan brand development activities, customer-role simulations, customer feedback analysis, and evidence-based marketing activities in order to enhance students' practical marketing skills as outlined for entrepreneurship learning and education (Bacigalupo et al., 2016). Moreover, these results are in line with other empirical studies on digital marketing for entrepreneurship education (Sripitaksakul, 2022), opportunity recognition (Murad et al., 2024), and evidence-based reasoning (Du & List, 2024).

Table 6

Needs Analysis Results: Leadership, Teamwork and Problem-Solving

No.	Item	Mean	SD	Agree (%)	Interpretation
1	Developing leadership skills in challenging situations	3.34	1.174	50	Moderate
2	Leadership-crisis role-play for decision-making	3.62	1.260	54	Moderately High
3	Strengthening teamwork through collaboration	3.38	1.255	52	Moderately High
4	Logical reasoning in group problem-solving	3.52	1.129	56	Moderately High
5	Consensus-building and conflict resolution through role-play	3.56	1.163	58	Moderately High
	Overall	3.484	0.915	—	Moderately High

Table 6 presents the mean for Leadership, Teamwork and Problem-Solving required by the students is of moderate high level ($M = 3.484$, $SD = 0.915$). The highest mean was found for the Leadership-crisis role-play for decision-making ($M = 3.62$) followed by the means for the Consensus-building and conflict resolution through role-play ($M = 3.56$) and for Logical reasoning in group problem-solving ($M = 3.52$).

Furthermore, research supports that experiential learning activities can improve critical thinking, teamwork, and communication (Dias-Oliveira et al., 2024). Moreover, role-playing activities can improve participants' communication, negotiation, and 21st-century skills (Aura et al., 2023; Fioravanti et al., 2022). Multi-perspective role-playing also enhances critical thinking skills (Kao et al., 2025). In addition, entrepreneurial team roles and leadership development are related to each other (Yue et al., 2026). Thus, the RPB-ELM should include leadership-crisis scenarios, team-based problem-solving, negotiation, conflict resolution, and activities for reaching consensus.

Table 7

Summary and Conclusion of Needs Analysis Across the Six RPB-ELM Domains

Rank	Part	Needs Domain	N	Mean	SD
1	Part 4	Financial Literacy & Resource Management	50	3.596	0.866
2	Part 6	Leadership, Teamwork & Problem-Solving	50	3.484	0.915
3	Part 3	Business Model Development & Planning	50	3.428	0.854
4	Part 1	Entrepreneurial Concepts & Mindset	50	3.408	0.913
5	Part 5	Marketing, Branding & Customer Acquisition	50	3.380	0.980
6	Part 2	Opportunity Identification & Market Research	50	3.336	0.871
	Overall	Six RPB-ELM Needs Domains	50	3.439	0.761

Table 7 presents an overall moderately high need across the six RPB-ELM domains ($M = 3.439$, $SD = 0.761$). Financial Literacy and Resource Management ranked first ($M = 3.596$), followed by Leadership, Teamwork and Problem-Solving ($M = 3.484$) and Business Model Development and Planning ($M = 3.428$). Although Opportunity Identification and Market Research ranked lowest ($M = 3.336$), the results indicate learning needs across all six domains.

There is sufficient evidence in the literature to support the integration of entrepreneurial competencies and experiential learning in entrepreneurship education by means of simulation, critical thinking and practical decision-making (Hsu & Wu, 2023; Lackéus, 2020; Motta & Galina, 2023). While Liu et al. (2022) note that entrepreneurship education should address differences in learning needs of students, a study conducted in the Shandong province of China investigated students' entrepreneurial intentions (Dong and Chang, 2024). Consequently, the RPB-ELM needs to be developed as a needs-based experiential learning module, placing particular emphasis on financial decision-making, leadership, problem-solving, business planning and students' authentic role-playing.

Key areas of need identified in the needs analysis were financial decision-making, budgeting, risk assessment, leadership, problem-solving, entrepreneurial identity, marketing and opportunity identification. These are all key areas that students require more practical and experiential learning opportunities to apply their entrepreneurial knowledge in realistic scenarios and situations. Therefore, the CFO simulations, leadership-crisis scenarios, startup pitching, market-analysis, customer-feedback scenarios, teamwork and decision reflection are integrated into the RPB-ELM. These practices will aid in strengthening students' entrepreneurial competencies and foster their critical thinking skills through the experiential approach of the RPB-ELM.

Conclusion

The needs assessment of 50 higher education students in Shandong, China reflected a medium level of need in all of the RPB-ELM domains. Students required the greatest amount of support in the Financial Literacy and Resource Management domains, followed by the Leadership, Teamwork and Problem-Solving domains. The results of this needs assessment supported the development of the RPB-ELM through the use of experiential learning activities such as role-play, simulation, decision-making, teamwork and learning through reflection.

Based on the findings of the study, the content of the RPB-ELM module should focus on financial decision-making, leadership, problem-solving, business planning, market analysis, and entrepreneurial mindset. These topics will be delivered through authentic entrepreneurial roles and scenarios within the module that enable students to apply the knowledge gained and to develop relevant entrepreneurial competencies, critical thinking and learning achievement.

The study includes only 50 students from higher education institutions in Shandong Province. The data used in the study were based on students' perceptions of their needs as reported in questionnaires. Hence, the findings of the study do not necessarily reflect students' real entrepreneurial performance. The findings from the study represented the needs-analysis phase of the RPB-ELM, therefore, its effectiveness has not yet been established.

Future studies are expected to be conducted with larger sample sizes from various universities across different regions of China. More robust methods such as interviews, observations, and performance-based measures will be incorporated to assess the RPB-ELM's effectiveness in increasing students' entrepreneurial intentions and skills, promoting critical thinking, and enhancing learning achievements. Expert validation, pilot testing, and usability testing followed by experimental studies are also expected.

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