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Designing a Curriculum Pattern Based on Entrepreneurship in Technical and Vocational High School (A Qualitative Study)

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ABSTRACT

Objective: This study aims to develop a model for the entrepreneurship curriculum in technical and vocational education in Iran using a qualitative content analysis approach.

Methods: A qualitative research design was applied through semi-structured interviews with 14 experts in entrepreneurship and entrepreneurial curriculum, selected via purposive sampling. Data were analyzed using Strauss and Corbin's three-step coding method (open, axial, and selective coding). The validity of the findings was assessed using qualitative validation criteria, including credibility, confirmability, and transferability.

Results: The findings show that the entrepreneurship curriculum is structured around six main components: clear goals emphasizing knowledge, motivation, skills, and entrepreneurial personality development; comprehensive content covering business, management, communication, and entrepreneurship foundations; diverse teaching methods ranging from interactive and technology-based to applied approaches; evaluation strategies assessing knowledge, attitudes, skills, and performance; experiential learning activities such as games, visits, internships, and real-life tasks; and flexible learning environments that combine real and virtual settings with adequate technological support.

Conclusions: The study provides a comprehensive model for entrepreneurship curriculum design in technical and vocational education, which can guide policymakers, educators, and curriculum developers in fostering entrepreneurial competencies among students.

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Introduction

In recent years, numerous studies have been conducted to identify the challenges and barriers to youth employment, as youth unemployment is widely recognized as one of the major issues facing many countries. This challenge is more severe in Asia, particularly in developing countries, where youth unemployment rates have increased significantly in recent years (Jabeen, Faisal & Katsioloudes, 2017). Although unemployment is a multidimensional and complex phenomenon for which various strategies have been proposed, research findings indicate that entrepreneurship education can be considered one of the most effective strategies in this regard (Deveci & Seikkula-Leino, 2018).

Broadly, three key factors contribute to the unemployment of a large number of graduates: cultural barriers, the quality of schools and universities, and the relevance of curricula to labor market demands. Thus, curriculum design is identified as one of the fundamental obstacles to graduate employability. Accordingly, every educational institution must adopt appropriate strategies for developing curricula, particularly in designing, implementing, and evaluating programs that prepare graduates to meet diverse internal and external challenges. To address these concerns, scholars have recommended the integration of entrepreneurship-based curricula into educational institutions (Hidayat et al., 2015).

At the same time, current entrepreneurship education programs have been heavily criticized for their lack of alignment with real business and societal contexts (Solomon & Tarabishi, 2005). Research further suggests that university faculty have repeatedly emphasized the necessity of adapting entrepreneurship programs to the needs of society (Mulder et al., 2009). This misalignment has in some cases led to a clear gap between students' knowledge and their practical skills (Woollacott, 2009). Entrepreneurship curricula, therefore, can play a crucial role in bridging this gap and equipping learners with the competencies needed to succeed in today's knowledge-based economies (Papayannkiz et al., 2008). For this reason, entrepreneurship education has increasingly been seen as a pathway to enhancing relatively low levels of entrepreneurial activity. Gerba (2012) argues that strengthening entrepreneurship has now become a top priority in public policy. If entrepreneurship education is to cultivate individuals capable of creating enterprises and contributing to wealth generation, then one of the central challenges for education systems is to design curricula at various levels that address both academic and entrepreneurial needs (Solomon

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& Tarabishi, 2005). Developing entrepreneurship curricula for adolescents is especially important, as many scholars contend that such programs should begin as early as possible. Not only do these programs foster entrepreneurial skills and habits of mind among youth, but they also generate personal benefits for learners and contribute to global economic growth. Lewis (2002), for example, emphasizes that entrepreneurship education encourages risk-taking, enhances self-employment opportunities, improves graduation outcomes, raises job satisfaction, supports business development (particularly small enterprises), and has become the focus of significant global research (Mehari & Belay, 2017).

The importance of entrepreneurship education at the secondary school level is therefore increasing, particularly in terms of nurturing entrepreneurial intentions, attitudes, and competencies (Laura et al., 2002). While much of the research has traditionally focused on adult entrepreneurship, there is a pressing need to investigate entrepreneurship among students in order to understand the factors influencing their entrepreneurial aspirations (Türker & Selçuk, 2009).

A review of the literature confirms that entrepreneurship plays a vital role in economic growth and job creation, thereby providing a foundation for youth employment. Johnson (2006) views entrepreneurship as a complex, multifaceted phenomenon that significantly contributes to economic development, a view shared by many scholars. Lukes (2010) similarly defines entrepreneurship as the process through which individuals or groups independently create new products, values, methods, or organizations.

A number of empirical studies have further examined components of entrepreneurship curricula. For example, Marzoghi (2018), in a study of university students in Kabul, identified risk-taking, problem-solving, foresight, leadership, achievement motivation, internal locus of control, flexibility, independence, self-reliance, tolerance of ambiguity, perseverance, opportunity recognition, creativity, responsibility, and teamwork as key entrepreneurial competencies. Samuel and Rahman (2018) highlighted innovative teaching methods such as team-based learning, case studies, project-based learning, problem-based learning, and games as effective approaches to entrepreneurship education. Similarly, Morteza Nejad (2017), in a synthesis study, emphasized strategies such as project-based approaches, cooperative and participatory learning, simulations, and business plan development, alongside inductive teaching models. He categorized curriculum evaluation methods into three domains: knowledge, attitudes, and performance.

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Other research has focused on instructional methods. For instance, studies have pointed to lectures, guest speakers, case studies, discussions, role-play, group work, simulations, field visits, and business plan development as core teaching approaches, while evaluation methods have included written and oral exams, observation, checklists, individual and group projects, business problem-solving, portfolios, and simulations (Minek, 2016). Fulgence (2015) found that entrepreneurship curricula in educational institutions often include inviting entrepreneurs to share experiences, organizing institutional visits, and delivering specialized lectures. He also emphasized program objectives such as fostering innovation, raising awareness of business opportunities, and motivating learners to explore their entrepreneurial potential.

In a related study, Hidayat (2015) applied a balanced scorecard approach to entrepreneurship curriculum design, identifying four key competencies: learning and growth, internal business processes, customer perspectives, and financial perspectives. Nagdas (2015) emphasized the importance of practical skills such as accounting, banking, business law, communication, creativity, customer service, human resource management, leadership, marketing, problem-solving, and risk management for entrepreneurship development.

Overall, most studies underscore the central role of entrepreneurship in driving production and economic development. Based on this context, the present study seeks to answer the following research question: What is the model of an entrepreneurship-based curriculum for technical and vocational high schools, as revealed through a qualitative study?

Material and Methods

Given the purpose of this study, which was to develop a model of an entrepreneurship-based curriculum for secondary-level technical and vocational high schools in Iran, a qualitative research design was employed. Data were collected through semi-structured interviews with 14 experts and specialists in the fields of entrepreneurship and entrepreneurship curriculum. Participants represented diverse groups, including officials involved in the KAD project at the Ministry of Education, managers, administrators, and technical and vocational experts, faculty members in curriculum studies, distinguished entrepreneurs, graduate students and faculty in entrepreneurship management, as well as researchers in entrepreneurship education. All participants had extensive familiarity with the concepts of entrepreneurship education and curriculum design.

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Prior to the interviews, participants were provided with a summary of the research plan, a review of the literature, and the study's objectives and research questions via email to facilitate initial preparation. At the beginning of each session, the researcher also gave a brief explanation of the study background before proceeding with the interview questions. The interview protocol was developed after a thorough review of the theoretical literature and was refined with the guidance of distinguished professors and specialists in curriculum and entrepreneurship education.

Sampling was conducted using purposive random sampling, which allowed the researcher to select from a relatively large pool of accessible participants. The process continued until theoretical saturation was reached.

For data analysis, Strauss and Corbin's three-step coding method—open, axial, and selective coding—was applied. The qualitative data analysis followed several stages: (1) reviewing the data, (2) organizing the data, (3) coding the data, (4) categorizing the data, (5) creating subcategories, (6) forming main categories or core themes, and (7) developing the report. In open coding, transcripts were carefully reviewed line by line, and key concepts were identified and labeled. During axial coding, conceptually related codes were grouped under specific categories. Finally, in selective coding, categories were integrated into broader conceptual clusters. The naming of categories was guided by theoretical foundations, prior research, and the semantic relationships among codes.

To ensure rigor, a deductive qualitative content analysis approach was used, applying theoretically derived categories to the data. Content analysis, which is suitable for a variety of data sources including media outputs and interview transcripts, relies heavily on systematic categorization as its core feature.

The trustworthiness of the findings was established using credibility and confirmability techniques. Data triangulation was applied by drawing on: (a) theoretical foundations and principles of entrepreneurship, (b) empirical research conducted in the field, and (c) expert interviews.

Results

The findings derived from the semi-structured interviews, analyzed through multiple stages of coding and supported by prior research, were categorized into the main elements of the

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entrepreneurship curriculum. Tables 1 to 6 present the identified concepts, their related subcategories, and the overarching categories. Table 1 illustrates the components identified for the goal element of the entrepreneurship curriculum.

Table 1. Identified Components of the Goal Element in the Entrepreneurship Curriculum

Open Coding (Identified Concepts)	Axial Coding (Subcategories)	**Selective Coding (Main Category)**
Increasing motivation and desire for success; developing entrepreneurial attitudes; entrepreneurial intention and tendency; strengthening entrepreneurial perspectives; assertiveness (Interviews 3, 4, 6, 7, 10, 13)	Entrepreneurial attitude and intention	**Goals of the Entrepreneurship Curriculum**
Investment risk-taking; economic situation analysis; understanding economy, market, and its rules; evaluating economic conditions and opportunities; learning business management; acquiring entrepreneurial skills; training in business start-up skills; financial and economic planning; familiarity with financial management skills (Interviews 2, 3, 4, 6, 7, 8, 10)	Risk-taking, business skills, financial skills, negotiation and decision-making	
Strategic thinking; opportunity creation; wealth creation; methods of generating and discovering new ideas; creativity; innovative ideas; training in innovation and ideation; educating future-oriented human resources (Interviews 1, 4, 5, 6, 8, 9, 10, 12, 13)	Opportunity recognition and creation, creativity and innovation, foresight	
Power of imagination and critical thinking; idea generation; development of unconventional skills and talents; preparing capable and productive individuals for the labor market and industry (Interviews 3, 5, 9, 11, 14)	Discovery and development of entrepreneurial talents	
Risk-taking and persistence; ambition; determination and perseverance; tolerance of ambiguity and uncertainty; resilience in facing challenges; self-awareness of strengths and weaknesses; courage to express ideas (Interviews 1, 4, 6, 7, 9)	Ambition and independence; perseverance and enthusiasm; self-determination	
Leadership skills; guidance; customer and personnel management; recruitment and dismissal; commercial management (Interviews 2, 6)	Management and leadership	
Customer orientation; supply and demand; business rules and regulations; trade law; insurance and taxation regulations (Interviews 1, 2, 4, 6, 12, 14)	Professional values and business ethics	

The open coding stage revealed a variety of concepts such as increasing motivation and entrepreneurial intention, adopting entrepreneurial attitudes, developing risk-taking abilities, acquiring business and financial management skills, fostering creativity and innovation, cultivating strategic thinking, and nurturing entrepreneurial talents and non-traditional capabilities. These concepts were subsequently grouped during axial coding into subcategories including entrepreneurial attitudes and intentions, business and financial skills, opportunity recognition and innovation, talent development, ambition and independence, leadership and management, and professional values and business ethics. Finally, through selective coding, these subcategories were integrated into the main category of "Goals of the Entrepreneurship Curriculum."

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The data thus highlight that the intended goals of an entrepreneurship curriculum encompass both cognitive and affective dimensions: enhancing entrepreneurial knowledge and competencies, fostering creativity and opportunity recognition, encouraging resilience, ambition, and independence, and instilling leadership skills and professional values necessary for effective participation in the labor market and industry.

In identifying the *goal element* of the entrepreneurship curriculum, the open coding stage revealed a wide range of concepts, including increasing motivation and desire for success, fostering entrepreneurial attitudes and intentions, enhancing entrepreneurial perspectives, assertiveness, investment risk-taking, economic situation analysis, understanding the economy, market dynamics and rules, evaluation of economic conditions and opportunities, learning business management, acquiring entrepreneurial skills, training in the skills required for business start-up, financial and economic planning, familiarity with financial management skills, strategic thinking, opportunity creation, wealth generation, methods for generating and discovering new ideas, creativity and innovation, training in ideation and innovation, developing future-oriented human resources, imagination and critical thinking, idea generation, cultivating unconventional talents, preparing competent and productive individuals for the labor market and industry, persistence and risk tolerance, ambition, perseverance, resilience in uncertainty, self-awareness of strengths and weaknesses, courage in expressing ideas, leadership skills, guidance, customer and personnel management, recruitment and dismissal, commercial management, customer orientation, supply and demand, business regulations, trade law, insurance, and taxation regulations.

Ultimately, the *goal element* was organized into seven overarching categories: (1) entrepreneurial attitude and intention, (2) risk-taking, business, financial, negotiation, and decision-making skills, (3) opportunity recognition and creation, creativity, innovation, and foresight, (4) discovery and development of entrepreneurial abilities, (5) ambition, independence, perseverance, enthusiasm, and self-determination, (6) management and leadership, and (7) professional values, business ethics, and understanding of business relations.

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Table 2. Identified Components of the Content Element in the Entrepreneurship Curriculum

Open Coding (Identified Concepts)	Axial Coding (Subcategories)	Selective Coding (Main Category)
Creativity; training in entrepreneurial skills; rational and logical decision-making skills; opportunity creation and development skills; initiative and innovation (Interviews 3, 5, 6, 12)	Learning entrepreneurial skills and traits	Content of the Entrepreneurship Curriculum
Organization and team building; employee management and future leadership; problem-solving and decision-making; human resources; strategic management (Interviews 3, 6, 9, 11)	Learning about organization and management	
Increasing economic opportunities; identifying and analyzing opportunities; understanding strengths and weaknesses of businesses; learning how to effectively establish and control businesses; taxation; insurance; e-commerce (Interviews 2, 5, 6, 7, 8, 9, 10)	Learning about business	
Key concepts in entrepreneurship; entrepreneurship studies; entrepreneurship theory and economics; introduction to cost-benefit analysis; introduction to networks and service management; acquiring knowledge, concepts, and techniques in entrepreneurship; entrepreneurial thinking skills (Interviews 2, 3, 6, 8, 10, 11, 12, 14)	Theoretical foundations of entrepreneurship	
Business planning; marketing and sales; marketing strategies; improving accounting knowledge and skills; investment management (Interviews 2, 6, 9, 10)	Learning about business management	

In identifying the *content element* of the entrepreneurship curriculum, the open coding stage revealed several key concepts, including creativity, training in entrepreneurial skills, rational and logical decision-making skills, opportunity creation and development, initiative, organization and team building, employee management and future leadership, problem-solving and decision-making, human resources, strategic management, increasing economic opportunities, opportunity identification and analysis, understanding business strengths and weaknesses, learning how to effectively establish and manage businesses, taxation, insurance, e-commerce, essential concepts in entrepreneurship, entrepreneurship studies, entrepreneurship theory and economics, introduction to cost–benefit analysis, introduction to networks and service management, acquiring knowledge, concepts, and techniques in entrepreneurship, entrepreneurial thinking skills, business planning, marketing and sales, improving accounting knowledge and skills, and investment management. Ultimately, the *content element* was organized into five categories: (1) learning entrepreneurial skills and traits, (2) learning about organization and management, (3) learning about business, (4) theoretical foundations of entrepreneurship, and (5) learning about business management.

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Table 3. Identified Components of the Teaching Methods Element in the Entrepreneurship Curriculum

Open Coding (Identified Concepts)	Axial Coding (Subcategories)	Selective Coding (Main Category)
Specialized and scientific workshops with experts and entrepreneurs; listening to the experiences of creative and successful entrepreneurs (Interviews 2, 6, 9, 13)	Direct presentation methods	Teaching–Learning Strategies in Entrepreneurship
Videos and films; online education; business and management simulations; computer-based simulations; creating discussion spaces in virtual networks (Interviews 5, 6, 8, 9, 12)	Technology-based methods	
Portfolios; reading and study; introducing educational resources such as CDs and books; providing opportunities for lifelong learning (Interviews 6, 7, 9, 11)	Self-directed methods	
Group work and collaborative learning; field trips; innovation and creativity workshops; addressing real-world problems; new and active teaching methods; scenarios; interaction with individuals from diverse business fields; role models; free classroom discussions (Interviews 3, 5, 6, 9, 12, 13)	Interactive methods	
Projects and exploratory methods; applied and practical strategies; opportunities for creativity and idea generation; learning entrepreneurial challenges through hands-on project engagement; project-based and field-trip methods; simulation-based teaching; teaching business plan development (Interviews 3, 4, 6, 7, 8, 11, 14)	Applied and operational methods	

In identifying the *teaching methods element* of the entrepreneurship curriculum, the open coding stage revealed a variety of approaches, including specialized workshops with experts and entrepreneurs, learning from the experiences of successful entrepreneurs, videos and films, online education, business and management simulations, computer-based simulations, and virtual discussion forums. Additional methods included portfolios, reading, use of educational resources such as CDs and books, opportunities for lifelong learning, group work and collaborative learning, field trips, innovation and creativity groups, real-world problem solving, active teaching methods, scenarios, role models, classroom discussions, project-based and exploratory methods, practical and applied strategies, opportunities for creativity and idea generation, learning entrepreneurial challenges through project engagement, simulation-based teaching, and the development of business plans. Ultimately, the *teaching methods element* was organized into five categories: (1) direct presentation methods, (2) technology-based methods, (3) self-directed methods, (4) interactive methods, and (5) applied and operational methods.

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Table 4. Identified Components of the Evaluation Element in the Entrepreneurship Curriculum

Open Coding (Identified Concepts)	Axial Coding (Subcategories)	Selective Coding (Main Category)
Academic standards of students (including exam grades and GPA); use of tests and learner evaluations; examinations; measurement of academic progress; public awareness of entrepreneurship (Interviews 4, 8, 9, 10, 11, 12, 14)	Evaluation of the cognitive domain	Evaluation in the Entrepreneurship Curriculum
Use of satisfaction indices; assessment of entrepreneurial attitudes and intentions; changes in students' attitudes, perceptions, and interest toward entrepreneurship; changes in entrepreneurial values; Q&A sessions (Interviews 2, 3, 4, 5, 7, 8)	Evaluation of the attitudinal domain (traditional methods)	
Presentation of creative business plans; assignments and practical activities (e.g., writing an entrepreneurship plan, determining assignments and applied tasks, job plan design) (Interviews 1, 2, 4, 5, 9, 11)	Evaluation of the behavioral and skill domains (innovative methods)	
Participation and involvement in new businesses; evaluation of students' actual performance; starting a business; self-employment; launching a start-up; simulated business creation (Interviews 4, 5, 6, 8, 10, 12)	Evaluation of actual performance (innovative methods)	

In identifying the *evaluation element* of the entrepreneurship curriculum, the open coding stage revealed concepts such as: academic standards (exam grades and GPA), use of tests and learner evaluations, examinations, measurement of academic progress, and public awareness of entrepreneurship. Other identified concepts included satisfaction indices, assessments of entrepreneurial attitudes and intentions, changes in student attitudes, perceptions, interests, and values toward entrepreneurship, Q&A sessions, presentation of creative business plans, assignments and practical tasks (such as writing entrepreneurship plans and job plans), participation and involvement in new businesses, evaluation of actual student performance, initiating a business, self-employment, launching start-ups, and simulated business creation. Ultimately, the *evaluation element* was organized into four categories: (1) evaluation of the cognitive domain, (2) evaluation of the attitudinal domain (traditional methods), (3) evaluation of the behavioral and skill domains (innovative methods), and (4) evaluation of actual performance (innovative methods).

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Table 5. Identified Components of the Teaching–Learning Environment Element in the Entrepreneurship Curriculum

Open Coding (Identified Concepts)	Axial Coding (Subcategories)	Selective Coding (Main Category)
Online learning environments; virtual and video-conference sessions; web-based learning environments; recorded films; simulated situations (Interviews 5, 7, 9, 11, 12, 13, 14)	Entrepreneurship in virtual environments	Teaching–Learning Environment in the Entrepreneurship Curriculum
Learner-centered and student-centered environments; favorable psychological conditions; environments that stimulate motivation and creativity; flexible learning environments (Interviews 1, 3, 6, 7)	Suitable and desirable environment (software dimension)	
Favorable physical conditions; entrepreneurship classrooms arranged in circular seating; classroom color scheme and physical design (Interview 6)	Suitable and desirable environment (hardware dimension)	

In identifying the *teaching–learning environment element* of the entrepreneurship curriculum, the open coding stage revealed concepts such as online learning environments, virtual and video-conference sessions, web-based learning, recorded films, simulated situations, learner-centered and student-centered environments, favorable psychological conditions, environments that foster motivation and creativity, flexible learning spaces, and favorable physical conditions (e.g., circular seating arrangements, classroom color scheme, and design). Ultimately, the *teaching–learning environment element* was organized into three categories: (1) entrepreneurship in virtual environments, (2) suitable and desirable environment (software dimension), and (3) suitable and desirable environment (hardware dimension).

Table 6. Identified Components of the Teaching–Learning Activities Element in the Entrepreneurship Curriculum

Open Coding (Identified Concepts)	Axial Coding (Subcategories)	Selective Coding (Main Category)
Providing play spaces for students; entrepreneurship through playful and entertaining activities; games and competitions; interactive games; business simulation games (Interviews 4, 6, 7, 9, 10)	Play activities	Teaching–Learning Activities
Practical field trips; organizing scientific excursions related to successful entrepreneurs (Interviews 4, 5)	Excursion and extracurricular activities	
Business consulting in small enterprises; business planning; development of new businesses; students starting their own businesses (Interviews 1, 2, 3, 6, 7, 8)	Real operational activities	
Visits to companies; visits to businesses; visits to institutions and companies; visits to leading business parks; scientific visits; visits to business clusters; visits to real-world work environments (Interviews 1, 2, 3, 6, 7, 8, 9, 13)	Field visits	

In identifying the *teaching–learning activities element* of the entrepreneurship curriculum, the open coding stage revealed concepts such as: providing play spaces for students, entrepreneurship through playful and entertaining activities, games and competitions, interactive games, business

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simulation games, practical field trips, organizing scientific excursions related to successful entrepreneurs, business consulting in small enterprises, business planning, development of new businesses, students starting their own businesses, visits to companies, visits to businesses and institutions, visits to leading business parks, scientific visits, visits to business clusters, and visits to real-world work environments. Ultimately, the *teaching–learning activities element* was organized into four categories: (1) play activities, (2) excursion and extracurricular activities, (3) real operational activities, and (4) field visits.

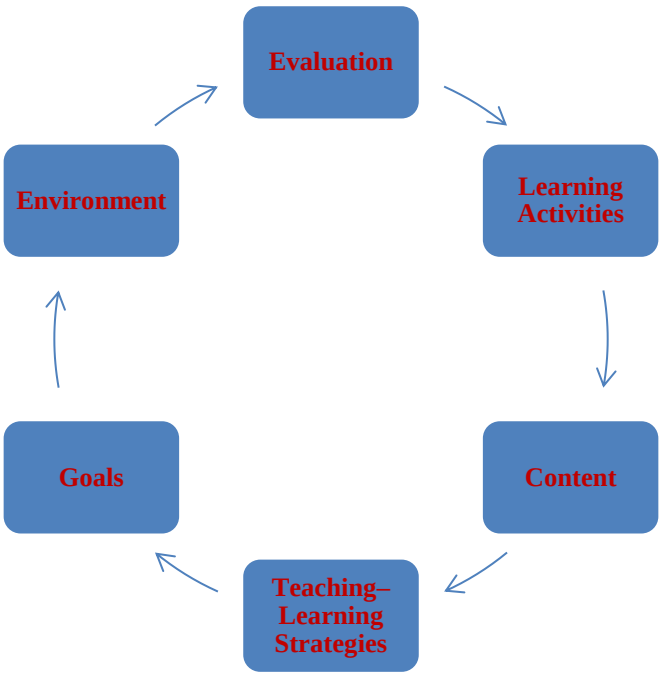


Figure 1. The final model

In the final model, the elements of the entrepreneurship curriculum were organized as follows:

Goals: Entrepreneurial attitude and intention, risk-taking, business skills, financial skills, negotiation and decision-making, opportunity recognition and creation, creativity and innovation, foresight, discovery and development of entrepreneurial abilities, ambition and independence; perseverance and enthusiasm; self-determination, management and leadership, desirable values, professionalism, and understanding business relationships.

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Content: Learning entrepreneurial skills and characteristics, learning about organization and management, learning about business, theoretical foundations of entrepreneurship, and learning about business management.

Teaching–Learning Strategies: Direct instruction methods, technology-based methods, self-directed learning, interactive methods, and practical and applied methods.

Learning Activities: Play-based activities, excursions and extracurricular activities, real operational activities, and field visits.

Learning Environment: Entrepreneurship in virtual environments, suitable and optimal software-based environment, and suitable and optimal hardware-based environment.

Evaluation: Assessment of knowledge (cognitive domain), evaluation of attitudes (traditional methods), evaluation of behavioral and skill domains (innovative methods), and evaluation of actual performance (innovative methods).

Discussion

The present study aimed to develop a model for an entrepreneurship curriculum in technical and vocational high schools in Iran. Based on the research findings and through the integration and synthesis of themes derived from semi-structured interviews with potential participants, foundational themes were extracted and organized within the framework of six core curriculum elements, which were considered as first-level organizing themes. These elements include goals, content, teaching–learning strategies, learning activities, learning environment, and evaluation.

An analysis of all first-level organizing themes (curriculum elements) revealed that each organizing theme encompasses several foundational themes that must be considered in the development of a selective entrepreneurship curriculum. The structure of each entrepreneurship curriculum element reflects the necessary requirements and provisions to transform it into an entrepreneurship-based curriculum component. The focus of each curriculum element based on entrepreneurship education indicates the desired outcomes that each element is expected to achieve for learners, according to the perspectives of entrepreneurship experts.

Specifically, the goals to be considered in designing an entrepreneurship curriculum include increasing motivation, entrepreneurial intention, and attitude; enhancing entrepreneurial skills; initiating and developing businesses; identifying and developing entrepreneurial talents; fostering

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entrepreneurial personality; developing management and leadership skills; and cultivating key entrepreneurial values.

Regarding content, the most critical topics in the entrepreneurship curriculum were identified as learning about business, management and organization, business administration, entrepreneurial skills and personal characteristics, and the theoretical foundations of entrepreneurship.

The findings also indicated that the most effective teaching methods for entrepreneurship include technology-based methods (videos, films, online learning, and business simulations), interactive methods (discussions, group work, formation of idea labs and innovation teams, and face-to-face Q&A), self-directed methods (individual study and reading, and introduction of educational resources such as CDs), and practical and applied methods (project-based and exploratory methods, providing opportunities for creativity and new ideas, innovation exercises, student engagement in ongoing projects, opportunities for students to define projects, simulation-based instruction, and teaching through business plan development).

Expert interviews further revealed that entrepreneurship can be taught in both real and virtual environments. The entrepreneurial learning environment may include online training, virtual and video-conference sessions, discussion spaces in virtual networks, web-based learning, and simulated scenarios. The environment should be favorable both in terms of software and hardware. Specifically, it should be a healthy, learner-centered, and motivating environment that fosters creativity, with flexible conditions. From a hardware perspective, the physical space, color schemes, and classroom layout should be appropriate, standard, and conducive to learning.

The study also identified major teaching–learning activities in the entrepreneurship curriculum from experts' perspectives, which include play-based activities (providing play spaces for students, entrepreneurship through games, interactive and business-based games), excursions and extracurricular activities (scientific trips related to successful entrepreneurs), real operational activities (student participation in businesses, consulting for small enterprises, starting and developing new businesses), and field visits (visits to companies, enterprises, leading business parks, and real-world work environments). The literature indicates that entrepreneurship activities are a major yet often overlooked component of entrepreneurship curricula, and the findings of this study align with previous research (Fulgence, 2015; Mojallal et al., 2011; Keshtegar et al., 2016).

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Finally, the study found that the most important evaluation methods in an entrepreneurship curriculum, according to experts, include: assessment of the knowledge domain (formal exams, both multiple-choice and descriptive, primarily to evaluate students' entrepreneurial knowledge, and measuring academic progress), assessment of the attitudinal domain (using satisfaction indices, evaluating entrepreneurial attitude and intention, and measuring changes in entrepreneurial values), assessment of actual performance (student participation and engagement in new businesses, starting ventures, self-employment, and launching startups), and assessment of behavioral and skill domains (presenting creative business plans, conducting practical activities, and preparing entrepreneurship plans). These findings are consistent with prior studies (Fulgence, 2015; AbdulKarim, 2016; Mortazanejad et al., 2017).

Entrepreneurship curricula have been introduced in many educational systems worldwide and are expected to become increasingly central in educational institutions in the coming years. Entrepreneurship education is considered both a solution to professional failure and unemployment and as a tool for fostering an entrepreneurial culture. To enhance the capabilities of graduates from technical and vocational schools, the development of entrepreneurship curricula is essential, and these institutions are expected to design effective curricula for entrepreneurship education. Furthermore, for any curriculum to be effective and efficient, internal alignment among its elements is necessary. Such alignment requires careful consideration of each curriculum element before implementation to ensure the curriculum's effectiveness. Entrepreneurship curricula are no exception, and decisions regarding each element must be tailored according to the type of instruction provided.

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Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by the ethics committee of Islamic Azad University. The patients/participants provided their written informed consent to participate in this study.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection, and analysis. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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