

Article

# Entrepreneurial Competence Development Program: Implementing Efficiency through Knowledge Sharing

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**Abstract:** The goal of this study was to investigate the impact of introducing methods used in other countries on student success. The results suggested that the introduction of specific practices to improve entrepreneurial competence would be more effective forgoing such special training methods. This was validated by the results of a test survey conducted by an expert panel. According to the panel, the quality of knowledge among students in the groups in which new methods were introduced was as follows: 7.5 points on average out of 10 for the first group; 7.9 points on average out of 10 for the second group; 7.8 points on average out of 10 for the third group; and 6.4 points on average out of 10 for the fourth group. These data suggest that new practices improve students' knowledge and skills. The students themselves also assessed the improvement in their quality of knowledge. More specifically, the students in the second group gave a very high average score of 4.4 out of a possible 5 for the effectiveness of the European methods. The same parameter was rated 3.4 out of 5 points by the fourth group.

**Keywords:** economic activities; entrepreneurial competence; entrepreneurship; information exchange; knowledge transfer methods



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## 1. Introduction

Fostering and encouraging entrepreneurship among young individuals has emerged as a pivotal trend in contemporary society. Competence can be defined as a comprehensive amalgamation of knowledge, skills, abilities, and experience that empowers individuals to proficiently execute specific job functions or tasks (Long and Magerko 2020). As the most promising segment of society, students play a pivotal role in propelling entrepreneurship forward by enhancing the competencies essential for designing and establishing their ventures (Škrinjarić 2022). Setting up businesses is an effective method for improving the standard of living and economic development. Competent professionals can supply quality products and promote healthy competition and economic growth by paying taxes (Agwu and Nmadu 2023). Most students see themselves as future entrepreneurs, but, at the same time, need to improve their competence by gaining hands-on experience (Guerrero and Urbano 2019). Many students do not obtain enough skills and knowledge during their studies.

As it stands, the development of entrepreneurship is an important issue, since it secures the high quality of economic growth and development of society (Agwu and Nmadu 2023; Usmanova and Trifonov 2018). Such tasks place high demands on entrepreneurs' performances. The positive impact of improved competence and entrepreneurial skills among students is difficult to overestimate (Hake 1998). Professionals who are well-trained and, at the same time, work well in their fields will be able to influence society's standard of living and build a sustainable economy. This requires entrepreneurs with several qualities that

positively affect their skills and work habits. These include skills to achieve goals, communication skills, and the ability to compete effectively. Acquiring these skills is imperative for fostering business development, implementing effective promotional strategies, and fostering healthy competition, ultimately enhancing the quality of products and ensuring fair pricing (Chernicov and Svetalkina 2015; Glukhikh 2016). According to the definition provided by Dijkstra et al. (2019), entrepreneurial activity refers to the proactive actions undertaken by individuals to generate value through the creation or expansion of economic ventures, accomplished by identifying and exploiting new products, processes, or markets (OECD 2023).

Students make up the most progressive part of society. They can be referred to as the engines of progress, because each of them has considerable growth opportunities in a variety of areas, including entrepreneurship (Glukhikh 2015; Oftedal et al. 2018). At a university, it is important to give students enough career choices. Students need to have the knowledge required to start businesses after graduation in order to avoid employment in various businesses to gain expertise, which can lead to ideas and the desire to start businesses being put on hold and, possibly, being completely abandoned later. Consequently, society would miss out on potential entrepreneurs who could contribute positively to its advancement. These individuals, hindered by fear, limited knowledge, and a reluctance to establish their businesses, remain confined to employment, thus forfeiting the opportunities available to them (Sun et al. 2017).

There can be two reasons for such a scenario. The first is the lack of habits, knowledge, and skills that would allow students to become entrepreneurs. They are not ready to take responsibility for the risks attributed to the development of their businesses (Glukhikh 2015). Second, young people do not have enough skills and knowledge to start their businesses. Educational institutions do not provide sufficient knowledge for students to build businesses after graduation (Guerrero and Urbano 2019).

Analysis of the entrepreneurial competence, knowledge, and skills that students have suggests that the existing public education system is not able to meet the current demand in the economy and in society (Škrinjaric 2022). It is essential to develop entrepreneurial skills among instructors, which will be projected onto students afterward. The significant factor here is not only the accumulation of theoretical knowledge, but also the development of hands-on experience (Guerrero and Urbano 2019).

Internships play a huge role in enhancing entrepreneurial competence among students. For many individuals, this presents not only an opportunity to acquire practical experience, but also a platform to showcase their abilities, opening doors to future career prospects and lucrative positions in esteemed organizations upon graduation.

The studies conducted by Man (2019) indicate that university support centers play a significant role in developing students' entrepreneurial competency through the lens of five main characteristics: active experimentation, authenticity, social interaction, sense of ownership, and resolution support. Furthermore, Ho et al. (2021) emphasized the importance of fostering entrepreneurial abilities, but from the perspective of educators' activities. Their article explored and actualized the concept of "teacher entrepreneurial behavior" as one of the crucial factors in effective school management, administrative support, and the provision of a rational educational process.

On the other hand, it should be noted that currently, there is relatively little attention given to researching aspects of entrepreneurial competency, such as the development of emotional intelligence, intercultural competence, and the ability to adapt to changes in the modern global business environment. In addition, competencies necessary for success in the market have expanded in recent years to include skills in the realm of digital technologies and innovations, which are rapidly evolving and demand constant updating of knowledge and skills (Ustyuzhina et al. 2019). Furthermore, there is substantial variation in the instructional approaches employed to educate aspiring entrepreneurs across different regions of the world. It is worth noting that a significant proportion of these approaches do not adequately align with the current expectations of students and businesses.

### 1.1. Problem Statement

The following should contribute to the development of entrepreneurial competence and knowledge and, therefore, society's standard of living:

- The need to improve students' entrepreneurial competence to secure effective development of society;
- The search for new methods of knowledge sharing for the best use of available information;
- Development and implementation of new ways to transfer knowledge within educational institutions (among students, as well as between students and faculty), between universities, and between universities and businesses.

This paper identifies the most effective knowledge transfer arrangements among students to improve entrepreneurial competence based on approaches used in other countries.

Research objectives:

- To examine the approaches utilized in universities in the United States, Europe, and South Korea and identify the specific features of knowledge exchange mechanisms, particularly between universities and entrepreneurs;
- To experiment in order to determine the effectiveness of such practices;
- To determine which practices are most suitable for Russian universities.

### 1.2. Literature Review

Current trends require developing the entrepreneurial competence of the younger generation. This is especially true for economics students. Research into ways of sharing knowledge and enhancing competence, creating new arrangements, and implementing them has been conducted in many countries.

Existing case studies focusing on Russian universities suggest that the development of entrepreneurial competency among students is rather weak. This competency tends to develop only among graduates with majors relating to entrepreneurship. Research suggests that these are mostly business and management majors.

Terentieva suggests building a high level of entrepreneurial competency among vocational school students by setting the students' goals according to the need to generate profits from implemented technological, social, and other projects (Pariseau and Kezim 2007; Pavelyeva 2008). This goal should be achieved through the integration of several new subjects. Similar studies were conducted by Revin and Tsybulevskaya (Pariseau and Kezim 2007). The model suggested by the authors is based on improving entrepreneurial competency through additional training within existing academic programs. Students need to develop managerial skills as part of building their competency (Lee and Wong 2007; ProfStandart 2021).

The development of entrepreneurial competency among students was studied by Rubin, Lednev, and Mozhukhin. They suggested an approach to build entrepreneurial competency among students majoring in economics, management, commerce, tourism, and similar fields. The primary goal is to allow students access to additional career opportunities (Guerrero and Urbano 2019).

To specify more effective approaches to the development of competence and knowledge sharing, it is essential to identify the key contemporary theories of competency modeling (Škrinjarić 2022).

There are four such models:

- Approach dominating in the U.S.: This approach identifies entrepreneurs' specific behaviors and personality traits. Such an approach emphasizes focusing teaching methods on the students' skills and their effective utilization. The American Management Association distinguishes resource-, information-, interpersonal-, technological-, and system-based competencies (Zhang et al. 2014);
- Approach dominating in the U.K.: This approach identifies the employee's ability to meet the required standards for the job. This theory is known for searching for ways to integrate the knowledge, values, understanding, and skills that should be

developed by the future entrepreneur. Followers of the English approach focus on high performance, while methods are secondary (Sun et al. 2017);

- Approach dominating in France: This is more comprehensive than the approaches that are common in the U.K. and the U.S. It emphasizes knowledge and functional and behavioral competencies, and its description is based on expertise, skills, and behaviors (Agwu and Nmadu 2023);
- Approach dominating in Germany: This curriculum-centered approach emphasizes personality and social competence as the basis of the training method. Professional competencies play a key role here. The primary focus is on the ability and willingness to perform tasks, solve problems, and evaluate results. Competencies include such traits as reliability, confidence, independence, and responsibility (Škrinjarić 2022; Yang 2018).

The approach to developing these competencies varies somewhat among the mentioned approaches. Among the most evident characteristics, the following should be highlighted:

- Focus: The British theory stands out as the most standardized, while in other countries, emphasis is placed on behavioral competencies;
- Classification of competencies: The theory of the United States defines key groups of competencies (resource, informational, interpersonal, technological, and systemic) based on the sources of acquisition, while other theories propose a situational distribution;
- Orientation: The United States emphasizes effective skill utilization, the United Kingdom focuses on productivity, France emphasizes the knowledge and functional qualities of the student, and Germany emphasizes the social component (Crespi et al. 2022; Martínez-Martínez and Ventura 2020; Ragauskaitė and Zaleckienė 2018).

Nevertheless, there are several shared characteristics inherent to the aforementioned models. Among them, a focus on the development of practical skills and abilities can be highlighted: both the U.S. and European models aim to develop skills that can be applied in practice, such as risk management, marketing, finance, leadership, and others. Furthermore, both models acknowledge the significance of innovation and creativity in entrepreneurship and actively strive to promote their cultivation among students. Moreover, it is worth noting that education in the United States is more oriented toward perceiving business as a monetary model rather than a contextual one, resulting in an instructional approach that is more akin to a guide for achieving a high income and societal success (Ezemma et al. 2020; Friedland and Jain 2022).

The market demands several entrepreneurial competencies, among which the most relevant ones include:

1. Information search;
2. Mobility and speed;
3. Decision making and accountability;
4. Risk responsibility;
5. Creative thinking;
6. Problem identification and potential solution pathways;
7. Electronic document management skills;
8. Effective communication skills;
9. Digital competence (Fayolle 2013).

### 1.3. Entrepreneurship Education in Universities

The pathways to entrepreneurship developed in the United States consist of 11 practices that turned out to be effective when implemented in the learning process. According to U.S. researchers, universities play a major role in training students as business innovators and entrepreneurs (Kim and Park 2018). This training is facilitated through ongoing support during the training process and subsequent employment of students by affiliated entities. Every effort is made to promote the exchange of knowledge, technology,

inventions, methods, and approaches, fostering a collaborative environment (Breznitz and Etkowitz 2016). Intellectual property (developed prototypes, drawings, software, and much more) is exchanged (Korneeva 2004).

European methods, on the other hand, focus mostly on sharing knowledge, not only among students but also between universities and businesses. The primary focus is on the young minds' impact on the development of society and innovations. European universities are perceived as powerful influencers in society's development (GEM 2021).

The development of entrepreneurial competency, realized through additional entrepreneurial courses and training, positively impacts students' entrepreneurial intentions (Lv et al. 2021). In this regard, an important element in implementing these activities is their synchronization with the educational process and the needs of the students, as such training is effective only when there is interest from the university and the students themselves.

Student-centered learning is the basic principle in European countries. This principle emphasizes proactive learning, critical and analytical thinking, understanding what has been learned, and interactions among students, as well as between students and the instructor. Developing a meaningful product as part of a learning activity is common for this approach. Such practices have turned out to be very effective in improving entrepreneurial skills among students.

Of particular interest are the methods of entrepreneurship education used in South Korea. Available studies have revealed that student motivation plays a major role in the transfer of knowledge and improvements in competence. Such studies focus on the ways in which students adjust their learning processes depending on their motivation and think through opportunities to improve competence and share knowledge (Crawley et al. 2020).

Researchers from South Korea also describe some of the factors that influence entrepreneurial activity. The five basic elements are as follows:

1. Setting up a research team;
2. Development of research facilities that will have business opportunities;
3. Identifying effective arrangements for turning research deliverables into intellectual property;
4. Developing the academic community members' skills to set up and successfully run new businesses;
5. Cooperation between the university and various industries and opening new research centers (Fernández-Pérez et al. 2019).

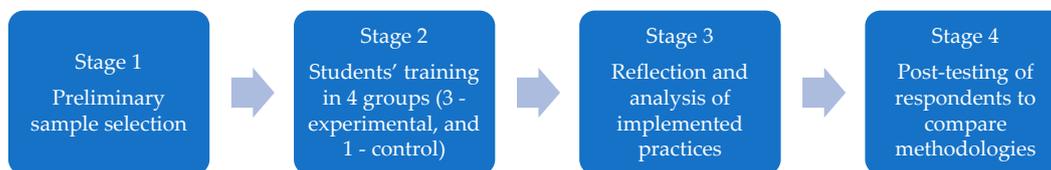
The above studies consider a variety of methods and approaches to improve student competence. Present-day developments open up various career opportunities for students, which is fundamental to society's evolution. Each country has its differences depending on its cultural patterns and approaches to the education and upbringing of the younger generation. This implies the need to delve into the expertise, approaches, and methodologies existing in various countries and to develop a methodology that is best suited for the Russian Federation.

## 2. Methods and Sources

Our research relied on case studies focusing on various knowledge transfer arrangements among economics students to enhance their entrepreneurial competence. The selected research method enables the application of theory to practical situations, contributing to a better understanding of the material and the development of critical thinking. Furthermore, the use of case studies allows students to enhance their skills in analysis, decision making, and teamwork, which are crucial for a successful career in the economic field and are integral components of entrepreneurial competencies. The study was conducted among the third- and fourth-year students (aged 19–21 years) of the Bashkir State University majoring in economics, economics and international business (with advanced study of the Chinese language), and economics and international business (with advanced study of English). Such a sample was utilized due to graduate students' high probability

and prospects of setting up their own businesses and the resulting importance of improving their entrepreneurial competence.

The entire study was divided into four phases, and was conducted from November 2020 to June 2021 (Figure 1).



**Figure 1.** Research stages.

The first phase involved two surveys, one of them based on the Likert scale, designed to identify students' opinions on their knowledge of running a business and their willingness to start a business after graduation. This test was intended to identify students' opinions on the knowledge and skills necessary to run businesses and their desire and willingness to start building businesses after graduation (see Figure 1). The initial survey relied on Likert's method, which consisted of selecting one option on a scale of agreement or disagreement with statements, from "absolutely disagree" to "totally agree". This method reveals the sum of the scores for each statement. The survey included the following statements:

- Entrepreneurs must complete a special academic program;
- Entrepreneurship requires additional courses and training;
- Universities can provide enough knowledge to build a business;
- Entrepreneurs must possess special traits and the like.
- There were ten questions altogether.

The second test was conducted through interviews to identify students' motivations. In the second phase of the study, students were divided into four groups. Approaches that are commonplace in the United States, Europe, and South Korea were incorporated into the training program of the first three groups. The fourth (control) group relied only on teaching methods that are already in use in the Russian Federation. The third phase involved reflection on and implementation analysis of new practices, assessed by comparison with the level achieved by students before the study. For this purpose, surveys among students, as well as tests of their knowledge, were used. The fourth and final phase involved the comparative implementation analysis of the approaches used in Russian and foreign universities. Databoard was used to summarize the data and test/survey findings. This software made it possible to arrange all the data as tables and graphs.

All students signed a consent form to participate in the experiment and study. The respondents had the option to withdraw from the experiment or choose not to participate in the final survey and testing, allowing them to resume their regular academic program. The participants' personal information that was collected during the experiment was concealed and is not to be published. The study adhered to the ethical principles endorsed by the Ethics Committee of Bashkir State University (Protocol no. 1011, dated 12 October 2020).

The questionnaire was validated using Cronbach's alpha coefficient. The interpretation of Cronbach's alpha values was as follows: >0.9, excellent; >0.8, good; 0.7, acceptable; 0.6, questionable; and >0.5, poor. The overall Cronbach's alpha value for the questionnaire was 0.92, based on six measurements. Therefore, the questionnaire was considered to be reliable and able to be used for survey purposes.

### 3. Results and Discussion

#### 3.1. First Phase

According to the first survey, the majority of students answered that entrepreneurship did not require special education. This was stated by more than 50% of respondents.

Another 22% said that they had doubts, but 26% stated that they were confident that special education was essential. Yet, when asked about the need for special training and courses, 56% gave a positive answer, and 20% said they were sure that it was not necessary. A total of 24% of respondents indicated uncertainty in their responses. The statement that the university was capable of imparting adequate knowledge and skills was disagreed with by 57 percent of students. A total of 64% of students expressed support for this statement, while 8% disagreed and 28% indicated uncertainty. Among the student respondents, 51% disagreed with the notion that entrepreneurship necessitates a distinct societal position, whereas 38% expressed the belief that such a distinct position is indeed required. Additionally, 13% of the students did not provide a definitive response to this question.

The survey suggests that 62% of students were not ready to start businesses after graduation, while 19% answered that it was possible, with another 19% being undecided. In addition, a majority of students (56%) expressed the need for practical, hands-on experience to establish businesses. Conversely, 19% of students stated that such experience was not required, while 25% remained undecided on the matter. According to the findings, a significant proportion of students (30%) expressed confidence in possessing adequate skills to initiate entrepreneurial ventures. Conversely, a majority (47%) acknowledged their insufficient skill set for commencing businesses, while 23% of the students remained uncertain in their assessment. Upon evaluation, it was revealed that 53% of students expressed their lack of willingness to embark on entrepreneurial endeavors upon graduation. In contrast, 34% of students indicated their readiness to commence business ventures, while 13% remained undecided on the matter. Opinions on entrepreneurial skills were divided almost equally: 39% answered that they could start businesses, with 41% considering themselves not ready and 20% remaining undecided (See Table 1).

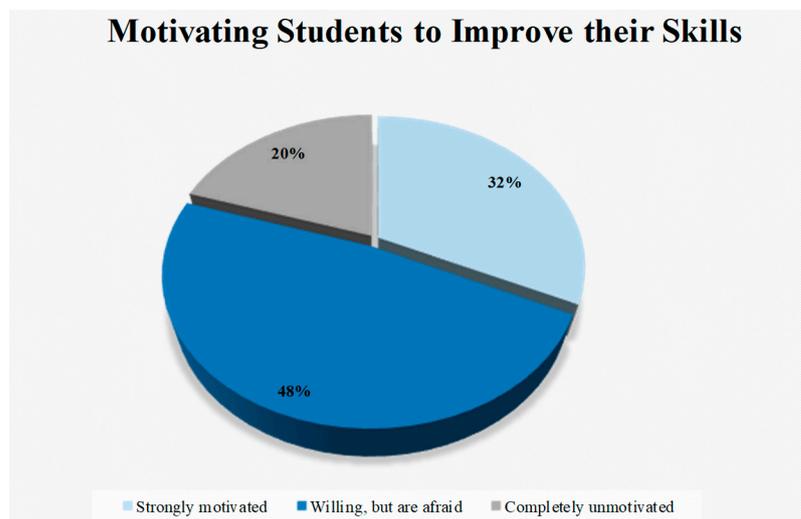
**Table 1.** Findings of the survey “Students’ Knowledge and Skills Required to Run a Business”.

Questions	Absolutely Disagree	Disagree	Somewhere between	Agree	Totally Agree
Entrepreneurs must complete a special academic program	15%	37%	22%	14%	12%
Entrepreneurship requires additional courses and training	7%	13%	24%	36%	20%
Universities are able to provide enough knowledge to build a business	23%	24%	22%	18%	13%
Entrepreneurship requires special traits	2%	6%	28%	31%	33%
Entrepreneurship requires a special position in society	24%	25%	13%	26%	12%
It is impossible to start a business after graduation	9%	10%	19%	42%	20%
Setting up a business requires hands-on experience	8%	11%	25%	46%	10%
You want to be an entrepreneur, but you don’t think you have enough skills	12%	18%	23%	28%	19%
You are ready to start a business after graduation	24%	29%	13%	18%	16%
You consider yourself capable of becoming an entrepreneur	18%	23%	20%	19%	20%

The presented data suggest that most students do not believe it necessary to receive special education, but see the need to have the skills necessary to run their businesses. Students believe they can obtain such skills and relevant expertise during employment. Very few students are ready to become entrepreneurs after graduation.

The second survey focused on students' motivations to improve their entrepreneurial skills. The findings were as follows: 32% of students were strongly motivated to improve their entrepreneurial skills.

- 48% of students were willing, but afraid to become entrepreneurs;
- 20% were completely unmotivated (see Figure 2).



**Figure 2.** Motivating students to improve their skills.

### 3.2. Second Phase

The first phase of the research (which consisted of surveys on the motivation and competence among students before the experiment and the introduction of new practices) revealed that many students had doubts or a lack of motivation to start a business at all. A large portion of students were ready to try entrepreneurship.

After the first phase, the students were divided into four groups, and work on implementing the relevant approaches began.

The first group was trained using the approaches applied in U.S. universities. The second group was trained using the European method—sharing expertise among students and entrepreneurs and communicating with businessmen. The third group relied on the Korean approach to improve students' motivation and knowledge of entrepreneurship. The fourth (control) group was set up to monitor the effectiveness of alternate methods in comparison with those currently used to improve entrepreneurial competence.

The U.S. methods introduced for the first group involved several of the 11 practices that are widely used in the U.S. and appear to be effective. More specifically:

- Combination of the traditional program and additional classes;
- Involvement of students in the teaching of undergraduates;
- Conducting joint classes and research with students from other universities;
- Engaging students in research outside the classroom (Crawley et al. 2020).

Such U.S. practices should reinforce the mission of universities and the traditional value of education. Several aspects are important to U.S. universities and play a particular role in the design of learning activities:

1. Careful choice of partners with whom to share expertise, followed by discussion of the community, university, or partner needs;
2. The partner's sensitivity and responsiveness to the research and teaching requirements, and their willingness to promote innovation;
3. Proactive exchange and sharing of discoveries, talented students, research findings, and assistance with uptake by the partner (Crawley et al. 2020).

Ongoing sharing and exchange of knowledge, discoveries, research findings, and discussions take place both formally and informally, and provide more proactive approaches and opportunities to conducting collaborative projects, sharing maps, and participating together in professional development.

### 3.3. *Methods and Practices Used in European Universities*

The second group adopted the European approach to enhancing entrepreneurial competence, which emphasized knowledge sharing between students and businesses. In addition to students and universities, governments and businesses in Europe are actively involved in fostering entrepreneurial competence. Under the European method, students take responsibility for innovations, the management of their phases, and the impact on the entire region (Kim and Park 2018).

Five key factors make up the research:

- The researchers' skills;
- The research quality;
- Knowledge transfer infrastructure;
- Research applicability (not applicable to all universities);
- Possible absorptions of innovations by the economies (Garlick et al. 2006; Pariseau and Kezim 2007).

Knowledge sharing, particularly between businesses and educational institutions, has a positive effect on the quality of skills and competencies, as well as the design and development of academic programs. Acquiring the necessary knowledge becomes highly effective when working to improve the competence of economics students. Students with appropriate training will be prepared for real-world challenges and will be able to use the skills learned at their universities and to develop them while gaining expertise in the workplace (Zhang et al. 2014).

### 3.4. *South Korean Methods for Enhancing Student Competence and Knowledge Transfer*

The South Korean method is based on improving students' motivations to learn and gain additional knowledge (Hytti et al. 2010). This was the approach chosen for the third group of students. According to the survey, a large proportion of students did not want or were afraid to become entrepreneurs. Aside from fears of not being able to handle their businesses, such situations also result from a lack of motivation. The Korean method focuses on improving motivation.

Professional development depends primarily on the student's desires and needs. Each student establishes personal goals that encompass both their aspirations and the capabilities to be attained throughout their academic journey. In this way, knowledge sharing and professional development are related to motivation. We broke these down into six main points addressing the reasons for becoming an entrepreneur:

1. Professional achievements: The goal is to enhance students' abilities to advance and build their careers and to provide additional professional and entrepreneurial development opportunities;
2. Social security is about enhancing students' abilities to contribute to society through entrepreneurial skills;
3. Social relation provides incentives to learn entrepreneurship and gain new skills while paying special attention to building communication with others;
4. Expectations encompass fulfilling the requirements and desires of various stakeholders in students' lives, including their loved ones, parents, teachers, and friends;
5. Social escape—meeting the goal of escaping an unpleasant and boring life;
6. Cognitive interest—this involves the students' desire to improve their knowledge and skills, making it possible to enjoy learning and receive new information (Good and Brophy 1990).

The study focuses on exploring how students can adjust their learning. According to this study, adaptation and assimilation have a positive effect on entrepreneurial learning, and mediate between the six motivation factors and entrepreneurial intentions. The study suggested that motivation for professional achievements increased by 10%, motivation to acquire new knowledge increased by 15%, and the entrepreneurial intentions of students increased by 12%. The study validated the premise that motivation for entrepreneurial achievements positively affects the development of entrepreneurial competence among students.

When students improve their skills, share knowledge, and improve their competence, they can later propose new ways of working and methods for business development (Krueger et al. 2000).

The South Korean research focuses on students' motivations to develop and enhance their entrepreneurial competence. The results show that many students want to improve their entrepreneurial competencies, specifically through knowledge sharing. For example, engineering and economics students can exchange information based on the six motivation factors listed above.

The fourth group was the control group. For students in this group, the same knowledge-sharing and professional development techniques commonly used at Russian universities were applied. The education system in the Russian Federation has only recently begun to focus its attention on the development of entrepreneurial skills among students. The learning model used to focus on state academic standards, which did not address improving entrepreneurial competence, but rather focused on training high-end professionals in specific areas (GEM 2021).

Increased interest in the development of entrepreneurial competence requires choosing the most appropriate teaching methods to build effective knowledge in entrepreneurship. Innovative and creative methods of transferring knowledge, designed to teach students to analyze problems from different perspectives, should be implemented. The ideal approach seems to focus on developing the key skills that are necessary for strong entrepreneurial competence. The foundation comprises a combination of essential skills, including planning, qualitative analysis, and the capacity to navigate unforeseen and critical situations effectively (Glukhikh 2016).

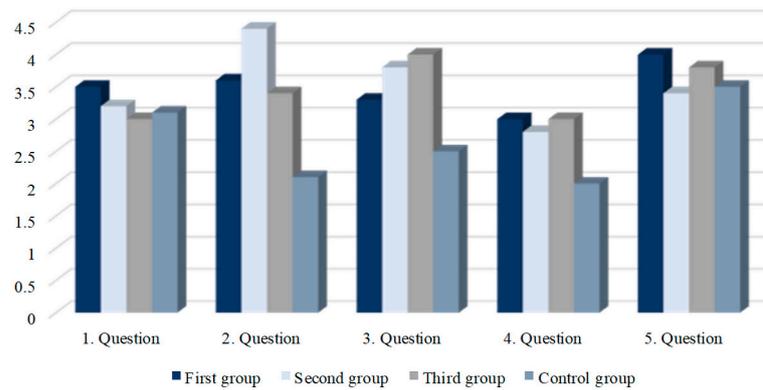
Case methods, training programs, master classes, communication between students, and knowledge sharing with businesses are effective methods that are not widely used, but are desirable. They profile themselves to be operational, but, due to some difficulties, they are not applied in the training of students (Glukhikh 2015).

At this point, the case method and very rare instances of training programs and master classes are used. Such methods can be quite effective if used with the required frequency.

### 3.5. Third Phase

The practices existing in other countries were adopted from November 2020 to June 2021, and afterward, to measure their effectiveness, it was necessary to test how the students' attitudes to sharing knowledge and improving entrepreneurial competence changed. Two tests were conducted to evaluate the implementation of the new methods. In the first case, students were asked to rate their skill improvements on a five-point scale. The students were required to answer the following questions:

1. Question: How do you assess your knowledge and abilities at the beginning of your training?
2. Question: Was the training effective?
3. Question: How can you assess your competence after the introduction of new methods?
4. Question: How much has your level improved?
5. Question: How do you rate your ability to start a business? (See Figure 3).



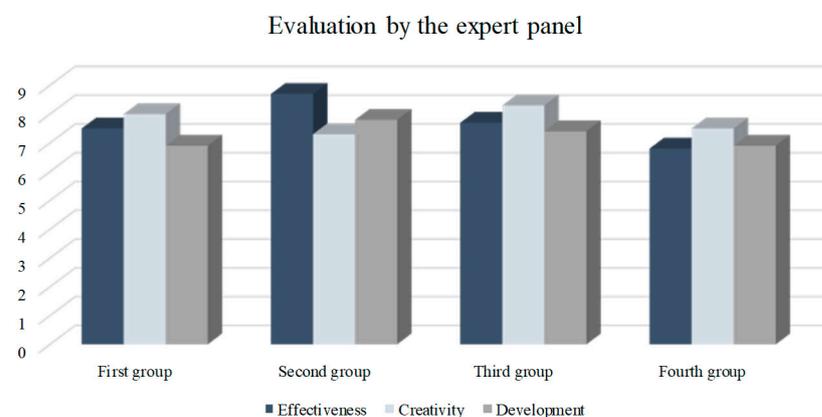
**Figure 3.** Students' evaluation of the effectiveness of new methods.

These findings suggest that at the beginning of the study, students mostly rated their skills and knowledge at the same level—3.5 out of 5 points. The results from the implementation of the new methods imply that the European methodology was believed to be the most effective, rated 4.4 out of 5 points, while the least effective methods were used in the control group, who were trained without any changes introduced (2.8 out of 5 points). Improved competence was observed in the group that used the European methods (with a score of 3.8 out of 5 points) and South Korean methods (with a score of 4 out of 5 points). Yet, the U.S. innovations were rated slightly lower, with a score of 3.3 out of 5 points, and the absence of innovations in the control group was rated even lower, with 3 out of 5 points. The improvement in entrepreneurial competence was almost identical in the three groups which relied on the new ways of sharing knowledge, but it was significantly lower in the group in which new techniques were not used. Interestingly, at the end of the study, students in all four groups rated their opportunities to start a business almost identically.

To ensure a more objective evaluation of the outcomes associated with the implementation of information exchange methods, a decision was made to assess the students' knowledge through testing. A critical situation that could arise with the development of their businesses was chosen, and each student was instructed to come up with ways out of it. The students' answers were evaluated by a panel that included:

- The heads of the departments of economics, economics and international business (with advanced study of Chinese), and economics and international business (with advanced study of English);
- Several entrepreneurs who acted as consultants and facilitators of master classes for the second and fourth groups of students during the experiment.

Students were graded on a ten-point scale in three categories: solution effectiveness, creativity, and development opportunities (see Figure 4).



**Figure 4.** Evaluation by the expert panel.

According to the evaluation by the expert panel, the students' knowledge after the experiment improved the most in the second group, for which training was based on the European methodology. They demonstrated a good understanding of problem-solving, with an average score of 8.7 out of 10 points for all students and an average of 7.8 out of 10 points for development opportunities. Their creativity remained essentially the same as that of the other students, with a score of 7.3. The highest creativity was demonstrated by the students who were taught the Korean methods—they were rated 8.3 out of 10 points. They showed good problem-solving skills, with a score of 7.7 out of 10 points, and skills to build development schemes, with a score of 7.4 out of 10 points. Students in the first group demonstrated improved performance on approximately all criteria. The expert panel gave 7.5 points for their ability to solve problems effectively, 8 points for creativity, and 6.9 points for development skills. Although students of the fourth group, where no teaching methods were added, showed good knowledge (6.8 points for effectiveness, 7.5 points for creativity, and 5 points for development), they still lagged behind groups in which the methods adopted in other countries were used.

### 3.6. Fourth Phase

The responses related to the category of business creation were particularly interesting. One of the respondents from the experimental group stated that "he had never wanted to have his own business before, but now he will seriously consider it". Additionally, students in this category provided various motivations for starting a business, such as "contributing to society by creating a useful product". In contrast, students from the control group expressed a desire to start their own businesses based on financial incentives, stating, "I want a business to achieve financial stability".

Similar studies in the United States, Europe, and South Korea were analyzed for comparison purposes.

Critical and creative thinking methods were used in the United States. They were only able to show their effectiveness if students were sufficiently engaged. The U.S. researchers relied on the methods of building students' skills and personal development, activity, and engagement as the basis of their research. The following methods of improving learning effectiveness through information exchange were used: introduction of additional classes, student involvement in the learning process, and joint research with students from other universities. U.S. scholars emphasize the importance of various activities in enhancing entrepreneurial competence, specifically the sharing of knowledge. U.S. universities rely on a combination of prior theoretical knowledge and personal experience. The quality of learning is based on human psychology (Hytti et al. 2010).

During the U.S. study, three methods were used to collect data. As in this study, students were surveyed on their level and quality of motivation, as well as their academic interest in learning and improving entrepreneurial competence. For the next phase, tests were developed from several typical questions. Two groups were involved in the study—an experimental and a control group (Anwer 2019).

The research findings suggested that the experimental group members were more satisfied with their learning than the control group students. Collaboration with students from other universities, an independent design of classes, and participation in events led to more involvement in the process than the usual lectures. Accordingly, learning became more effective, and the quality of students' knowledge improved (Yusuf 2008). Schmitz et al. (2017) observed a noticeable rise in motivation and engagement in the educational process.

European studies were conducted at several universities in five countries: France (2 universities), the United Kingdom (1 university), Spain (2 universities), Austria (2 universities), and Poland (1 university). The research involved students of different majors and study years. The main criterion for selection was the absence of previous experience in entrepreneurship. The methods introduced at these universities involved:

- Improving the competence in and awareness of entrepreneurship;
- Analysis of market opportunities;

- Providing students with the knowledge they need to develop their businesses;
- Improving innovation management skills.

The study was based on supplementing traditional teaching methods, such as lectures or case studies, with new practices, particularly the sharing of knowledge among students and businesses or business owners. Based on the experience gained in master classes, students tried their hands at problem-solving, conducting creative activities, and applying their skills and knowledge during the workshops (Ghandour et al. 2021; Ndou et al. 2019).

This study suggests that proper development of businesses and good entrepreneurial competence require not only theoretical, but also practical, knowledge gained by sharing experiences with entrepreneurs who can teach students to solve sophisticated situations while running their businesses. This would make it possible to stay close to real-world contexts and to observe the progress of building one's own enterprises in a "natural" environment (Fayolle 2013).

European researchers also focused on the involvement of universities in improving the entrepreneurial competence among students as the main motive and source of knowledge (Nahm et al. 2002). Supporting students in their entrepreneurial careers was assumed to incline more students to set up their businesses. Alternatively, a negative attitude by universities was anticipated to adversely affect entrepreneurial competence. This study focuses on the transfer of knowledge and motivation from universities to students, rather than on the importance of sharing knowledge with entrepreneurs and improving competence by acquiring knowledge from experienced businessmen (Sesen 2013).

Separate studies have highlighted the importance of the popularity of entrepreneurial careers among students. The specific feature of this opinion is that the desire to acquire and exchange new knowledge, and to improve competence, is based on motivation (Bae et al. 2014). A critical aspect to consider is the role of universities in establishing context that significantly contributes to the cultivation of entrepreneurial ambition. This, in turn, influences motivation and subsequently fosters competence among individuals (Zhang et al. 2014).

In South Korea, motivation was tested using a seven-point Likert scale. A total of 736 respondents participated in the study, of which 80% were male and 20% were female. The survey was conducted over a year through an online and paper survey. The utilization of the Q-Sort method facilitated a reliable estimation and validation of the findings. Its elements were subsequently sorted into structures that were disassembled by experts (Pariseau and Kezim 2007).

The study made it clear that many students are ready to improve their entrepreneurial competence and are interested in learning. Students are willing to improve their knowledge and skills. The study indicated that a substantial proportion of students who exhibited a willingness to enhance their competencies were driven by a compelling motivational factor. These findings show that strongly motivated students are more likely to improve their competence and, accordingly, to channel their energy into this area, learn, and become effective entrepreneurs (Lee and Wong 2007).

Korean researchers tend to emphasize the importance of role models in the development of entrepreneurial competence among students. Close contact with role models is an important factor in gaining useful information and confidence. It is efficacious in fostering the development of entrepreneurial skills and enhancing the requisite knowledge for initiating business ventures. Role models can make a significant contribution to shaping young people's expectations of their future careers and the specific features of their entrepreneurial identities. Connections with entrepreneurs play a crucial role in building entrepreneurial competence among students. An empirical analysis suggested that role models have a significant impact on students' development and awareness of their competence (Zhang et al. 2014).

Entrepreneurship education plays an essential role in building entrepreneurial competence and the intention to conduct business (Fernández-Pérez et al. 2019; Sun et al. 2017). Its development provides students with the opportunity to choose among a variety of

options for an entrepreneurial career (Schmidt and Van der Molen 2001). This implies that the development of skills, motivation, knowledge, and competence among students to achieve meaningful results has a positive impact on business development and quality (Sun et al. 2017).

Given present-day developments, many countries become interested in improving entrepreneurial competence. In the U.S., sharing knowledge among students and between universities is a well-established practice. These studies often focus on knowledge sharing between universities and businesses. This practice is widely adopted and aimed at fostering a strong entrepreneurial interest among students through interaction and knowledge exchanges with individuals who possess significant expertise in the field.

Given the current economic developments, researchers in the United States concur that entrepreneurial learning is a crucial practice for university students. U.S. universities are making great efforts to promote entrepreneurial education by teaching entrepreneurship and making connections with businesses (Crawley et al. 2020).

Some case studies suggest that such learning is effective as a proactive experiential method and allows students to learn about business models, approaches, and marketing strategies. These methods prioritize the interdisciplinary approach, which is quite common in U.S. universities, and blended learning strategies. Such methods of knowledge sharing will help students to build their entrepreneurial careers later (Schmidt et al. 2006).

On the other hand, based on the research conducted by Badawi et al. (2019), several competencies should not be developed for future entrepreneurs. These include training in outdated information technologies and programs, skills that contradict the values of the company or other ethical values, and others.

European studies have focused primarily on knowledge sharing among students and businesses. Universities are considered to be important areas for innovations and the sustainable development of the economy, with the case method playing a significant role. This method focuses on solving various business issues in real-world contexts, so that students learn how to discover ways out of difficult situations over the course of their studies. The effectiveness of such approaches has been demonstrated, as students trained under these methods exhibit enhanced comprehension of real-world business contexts, analytical thinking skills, and improved teamwork, as evidenced by Garlick et al. (2006) and Zvonnikov and Chelyshkova (2017).

In South Korea, researchers have not emphasized the importance of educational techniques and methods as strongly as the techniques and methods of motivating the students themselves (Kim and Park 2018). They focus primarily on developing the willingness of university students to improve their entrepreneurial competence.

The methods used in Russian universities combine many of those that are widely used in foreign educational institutions. Similarly to European approaches, case studies are utilized as a teaching method. The main difference is that Russian society does not perceive students as a way to promote innovations, and businesses are not particularly ambitious in cooperation with universities (Breznitz and Etzkowitz 2016). There are significant similarities between the methods used in the Russian Federation and those in South Korea: more specifically, the focus on improving the motivation and interest among students.

The methods used in the United States and Europe appear to be effective according to the evaluations by the students themselves, who rated the European method 4.4 out of 5 points and the U.S. method 3.6 out of 5 points. The expert panel also confirmed the observed improvements. The European method scored 8.7 out of 10 points, and the U.S. method scored 7.5 out of 10 points. Therefore, it makes sense to introduce such techniques in the training of economics students. For example, the information exchange not only among students or between students and instructors, but also between universities and businesses, will expand students' understanding of the current developments on the market and prepare entrepreneurs for future challenges.

The obtained data indicate that additional stimulation of entrepreneurial abilities yields a positive effect within any experimental model. Overall, several activities have been identified that have positive expectations regarding students' entrepreneurial competencies:

- Business simulations: Business simulations (often in the United States) allow students to experience the challenges and advantages of running a business;
- Entrepreneurship education programs (training): entrepreneurship education programs provide students with the knowledge and skills necessary for starting their own businesses;
- Mentoring programs: Mentoring programs connect students with experienced entrepreneurs who can provide advice and support, drawing on the influencers of their time;
- Competition: This approach indirectly emerges in all forms of entrepreneurial competence development, considering competitions and contests as a means of acquiring competency (Ferrerias-Garcia et al. 2021).

#### 4. Conclusions

By studying and implementing a variety of methods to improve entrepreneurial competence among economics students at Bashkir State University, we found that the Russian methods, although they overlap with similar methods adopted in the United States, European countries, and South Korea, are not as effective nor as implementable. Over the course of the experiment, it became clear that the introduced additional methods were effective in improving entrepreneurial competence among economics students. Applying methods that are commonplace in the United States, Europe, and South Korea in addition to those already available improved the quality of knowledge and skills and enhanced students' confidence in their competency. This was validated by the survey and testing conducted during the study. Compared to the control group, which scored 6.4 out of 10 points on the test, the first group scored 7.5, the second scored 7.9, and the third scored 7.8 points.

The methods used in European countries have appeared to be the most effective. Sharing expertise with entrepreneurs experienced in solving various problems and business development planning positively affects students' skills and capabilities. After the implementation of these practices, students demonstrated superior knowledge. Both the students and the expert panel considered the European methods to be the most effective (4.4 out of 5 points), with the control group results being the lowest (2.8 points). The U.S. method of enhancing entrepreneurial competence through the introduction of extra classes, involving students in lectures, joint practices, and research with other students and universities showed almost the same results as the South Korean method of improving motivation. Students trained with the U.S. method made more effective entrepreneurial decisions, receiving from the expert panel an overall score of 7.5 points, and students relying on the Korean method (focusing on creativity) scored 8.3 points. This implies that students in the first group gained more knowledge, but students in the third group were more interested in finding solutions.

#### *Practical Implications and Future Research*

Students should have sufficient competence to improve their standards of living. Studying the methods of achieving this utilized in other countries makes possible their subsequent implementation in local institutions of higher education, identifying the most effective methods and helping students to gain new skills and knowledge. Improving teaching at universities by sharing knowledge and developing new methods to improve competence contributes to a better quality of education, which positively affects the education of students and their standards of living after graduation. It also positively affects the proficiency of instructors who know and implement new methods and learn new information. Universities would benefit from an improved quality of teaching, which would bring in new applicants.

This study suggests that the introduction of new methods is effective and feasible for universities. For example, the U.S. methods require cooperation with other universities, which is not difficult. Improved motivation among students, as in the case of the South Korean methods, requires only the involvement of the instructors themselves and the university administration.

Further research might focus on various methods of teaching entrepreneurship and improving entrepreneurial competency among students. Such research might include case studies based on countries that were not presented in this paper or identifying specific features and opportunities to apply relevant achievements.

The research findings can be utilized to shape an entrepreneurship development program in any country worldwide based on the explored models. By assessing the effectiveness and potential of various strategies, a comprehensive evaluation of the current approaches can be employed to enhance or restructure them for the benefit of the future.

Future researchers can also leverage virtual reality technologies or playful intelligence to enhance the development of entrepreneurial competencies among Russian students.

However, this study is not standardized, as the mentioned cases are not universally accepted. The research was based on a small sample from a specific region, and only certain teaching methods were considered. The test is attached to the Appendix A below.

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## Appendix A

In this test, please choose one of the five options offered that best fits your opinion.

Note: Try not to select the “Somewhere Between” option—it will make summarizing the test results more difficult.

1. Entrepreneurs must complete a special academic program:

Absolutely disagree	Disagree	Somewhere between	Agree	Totally agree

2. Entrepreneurship requires additional courses and training:

Absolutely disagree	Disagree	Somewhere between	Agree	Totally agree

3. Universities can provide enough knowledge to build a business:

Absolutely disagree	Disagree	Somewhere between	Agree	Totally agree

## 4. Entrepreneurship requires special traits:

Absolutely disagree	Disagree	Somewhere between	Agree	Totally agree

## 5. Entrepreneurship requires a special position in society:

Absolutely disagree	Disagree	Somewhere between	Agree	Totally agree

## 6. It is impossible to start a business after graduation:

Absolutely disagree	Disagree	Somewhere between	Agree	Totally agree

## 7. Setting up a business requires hands-on experience:

Absolutely disagree	Disagree	Somewhere between	Agree	Totally agree

## 8. You want to be an entrepreneur, but you don't think you have enough skills:

Absolutely disagree	Disagree	Somewhere between	Agree	Totally agree

## 9. You are ready to start a business after graduation:

Absolutely disagree	Disagree	Somewhere between	Agree	Totally agree

## 10. You consider yourself capable of becoming an entrepreneur:

Absolutely disagree	Disagree	Somewhere between	Agree	Totally agree

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