

## DEVELOPING ENTREPRENEURIAL THINKING IN HIGHER EDUCATION STUDENTS THROUGH EDUCATIONAL PARTNERSHIPS WITH BUSINESS

Yurii Skyba\*

 <https://orcid.org/0000-0003-2238-8272>

Olena Otych\*\*

 <https://orcid.org/0000-0003-2686-2832>

Oleksandr Yarmola\*\*\*

 <https://orcid.org/0000-0003-0972-178X>

Valerii Yushchuk\*\*\*\*

 <https://orcid.org/0009-0003-9094-2607>

Olena Bulavina\*\*\*\*\*

 <https://orcid.org/0000-0002-0198-1838>

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### ABSTRACT

The relevance of the research into students' entrepreneurial thinking is underscored by the limited theoretical advancement of the issue as well as the critical importance of this aspect for future professionals' practical training. The purpose of the article is to determine the conditions for effective partnership interaction with the business sector in cultivating of students' entrepreneurial thinking. The study employed a formative pedagogical experiment designed to assess the impact of harmonizing pedagogical efforts with business representatives, which serves to be an essential condition for fostering students' entrepreneurial thinking. The methodology employed included the T. Ehlers' achievement motivation assessment, the subtests from the R. Amthauer intelligence test, and a questionnaire aimed at evaluating entrepreneurial skills. Furthermore, a statistical analysis was conducted. The results of the formative experiment reveal the effectiveness of educational partnerships with the business sector in shaping motivation for success: a notable increase in the high level was observed in 30.3% of the participants. Additionally, there was a significant enhancement in students' entrepreneurial skills, with the high level increasing by 57.58%. However, the indicators reflecting the development of the cognitive core of entrepreneurial thinking among higher education students exhibited no substantial changes. Nevertheless, in the cohort in which only developmental classes were conducted, the high level of verbal intelligence increased by 31.58% among the participants. The trends identified can be attributed to the more pronounced integration of students into the business environment. The findings of this study may serve as a foundational guideline for reforming higher education to cultivate entrepreneurial thinking as one of the essential competencies for future specialists. We see prospects for further research in the development of standardized methods for assessing students' entrepreneurial thinking.

**Keywords:** entrepreneurial thinking, students, motivation, verbal analytics, mathematical analytics, entrepreneurial skills, educational partnership.

*Desarrollar el pensamiento emprendedor en estudiantes de educación superior a través de alianzas educativas con empresas*

### RESUMEN

La relevancia de la investigación sobre el pensamiento emprendedor de los estudiantes se subraya por la limitada literatura existente sobre el tema, así como por su importancia crucial para la formación práctica de los futuros profesionales. El propósito del artículo es determinar las condiciones para una interacción eficaz de colaboración con el sector empresarial en el desarrollo del pensamiento emprendedor de los estudiantes. El estudio empleó un experimento pedagógico formativo diseñado para evaluar el impacto de la armonización de los esfuerzos pedagógicos con los representantes empresariales, condición esencial para fomentar el pensamiento emprendedor en los estudiantes. La metodología empleada incluyó la evaluación de la motivación de logro de T. Ehlers, los subtests del test de inteligencia de R. Amthauer y un cuestionario destinado a evaluar las habilidades emprendedoras. Además, se realizó un análisis estadístico. Los resultados del experimento formativo revelan la eficacia de las colaboraciones educativas con el sector empresarial para generar motivación hacia el éxito: se observó un notable aumento del nivel alto en el 30,3 % de los participantes. Asimismo, se observó una mejora significativa en las habilidades emprendedoras de los estudiantes, con un aumento del nivel alto del 57,58 %. Sin embargo, los indicadores que reflejan el desarrollo del núcleo cognitivo del pensamiento emprendedor en estudiantes de educación superior no mostraron cambios sustanciales. No obstante, en la cohorte donde solo se impartieron clases de desarrollo, el

\* Associate Professor, National Academy of Educational Sciences of Ukraine, Kyiv, Ukraine. [skybayurii8@gmail.com](mailto:skybayurii8@gmail.com)

\*\* Corresponding author. Professor, National Academy of Educational Science of Ukraine, Kyiv, Ukraine. [elenaotyach47@gmail.com](mailto:elenaotyach47@gmail.com)

\*\*\* Associate Professor, Bila Tserkva National Agrarian University, Bila Tserkva, Ukraine. [Oleksandyarmola@gmail.com](mailto:Oleksandyarmola@gmail.com)

\*\*\*\* Associate Professor, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine. [valeri1yushuck@gmail.com](mailto:valeri1yushuck@gmail.com)

\*\*\*\*\* Associate Professor, State higher educational institution "Kyiv National Economic University named after Vadym Hetman", Kyiv, Ukraine. [olenaabulavina4@gmail.com](mailto:olenaabulavina4@gmail.com)

alto nivel de inteligencia verbal aumentó un 31,58 % entre los participantes. Las tendencias identificadas pueden atribuirse a la mayor integración de los estudiantes en el entorno empresarial. Los hallazgos de este estudio pueden servir como guía fundamental para la reforma de la educación superior, con el fin de fomentar el pensamiento emprendedor como una de las competencias esenciales para los futuros especialistas. Vemos perspectivas para futuras investigaciones en el desarrollo de métodos estandarizados para evaluar el pensamiento emprendedor de los estudiantes.

**Palabras clave:** Pensamiento emprendedor, estudiantes, motivación, análisis verbal, análisis matemático, habilidades emprendedoras, colaboración educativa.

## Introduction

Successful entrepreneurship constitutes a pillar of a nation's economic advancement, due to the creation of new employment opportunities, the growth of tax flows, and the introduction of social innovations (Ince et al., 2023). As evidenced by international practical and scholarly experience, a critical element of effective business management is a special form of thinking that underlies the solution of relevant tasks (Rizvi et al., 2022; Shetty et al., 2024). That, in turn, has engendered substantial interest and the emergence of diverse scientific methodologies addressing the issue (Kuratko et al., 2021). Notwithstanding numerous interpretations, the potential for cultivating entrepreneurial thinking through specialized developmental programs has been empirically substantiated (Jena, 2020). This perspective is particularly salient within the educational framework, where entrepreneurial thinking plays a crucial role in shaping students' worldviews (Larsen, 2022). Effective higher education is unattainable without the deliberate cultivation of entrepreneurial thinking (de la Gala-Velásquez et al., 2023). In this regard, a significant theoretical and practical task is to investigate the optimal conditions for the development of this type of thinking (McLarty et al., 2023). Accordingly, one of these conditions is strategic collaboration between business entities and higher education institutions, which is relevant across different countries and governance systems. Such synergies facilitate enhancements in the labor market landscape and optimize the training of adept professionals (Kharchenko et al., 2022). The said approach enables a holistic implementation of specialist training that meets the current societal needs (Nguyen, 2024). Obviously, the partnership between the business sector and universities creates favorable conditions for cultivating entrepreneurial thinking among specialists, which is intrinsically linked to their practical engagement in economic and financial processes, as well as addressing the problems of international collaboration. However, this logical inference requires further empirical validation, attributable to the lack of discourse surrounding the issue within pedagogical scholarship.

Research novelty – for the first time, the conditions for the effectiveness of strategies aimed at developing entrepreneurial thinking were identified through a pedagogical experiment. Furthermore, the impact of fostering educational partnerships with business on the development of cognitive and motivational dimensions in students' approaches to solving entrepreneurial challenges was empirically established. The central hypothesis of the present study posits that aligning pedagogical efforts with business representatives constitutes a critical factor in enhancing the efficacy of nurturing students' entrepreneurial thinking.

This research paper seeks to delineate the parameters that enable corporate-educational partnerships to successfully enhance students' entrepreneurial mindset. In accordance with the above purpose, the following tasks were set:

- To analyze the conditions for the cultivation of entrepreneurial thinking within the higher education framework;
- To empirically ascertain the indicators pertinent to the development of students' entrepreneurial thinking;
- To evaluate the effectiveness of various methodologies for fostering entrepreneurial thinking in the context of collaboration with business.

## Literature review

An analysis of international scientific literature indicates that research on entrepreneurial thinking is represented across numerous scholarly works from various countries, resulting in significant divergence in the interpretation of this phenomenon. Given the above, we support Daspit JJ et al. (2023), who formulate an integrated definition of this concept. According to these researchers' perspectives, entrepreneurial thinking is regarded as a cognitive capability that empowers individuals to generate specific values by discerning developmental opportunities. It also involves decision-making in the face of limited information and facilitates effective adaptation to evolving social contexts. This perspective serves as a core guideline in this investigation.

Particularly noteworthy is the interpretation of entrepreneurial thinking as a synthesis of two distinct processes, problem-solving and the execution of planned actions to address the issue (Lynch & Corbett, 2021). Undoubtedly, entrepreneurial thinking is a systemic phenomenon encompassing several components. Winkler C. et al. (2023) emphasize that, within the framework of the concept under analysis, knowledge, skills, abilities, social cognitions, and creative potential in the realm of entrepreneurship are indispensable. Furthermore, it is evident that the phenomenon goes beyond the purely cognitive domain and encompasses the motivation to engage in entrepreneurial activity (Saptono et al., 2020). This further directions aligns with the assertions of Pidduck RJ et al. (2023) regarding the necessity of self-efficacy in the entrepreneurial process. To this end, effective entrepreneurial thinking ought to incite proactive behavior toward business and is considered one of the essential competencies of future professionals as socially significant figures (Villanueva-Flores et al., 2023). This line of reasoning contributes to addressing the issue of reconciling cognitive dispositions with entrepreneurs' specific actions (Mai & Dickel, 2023).

The positive influence of a specially organized educational environment at the university on the cultivation of mental preparedness for addressing challenges in the realm of entrepreneurship was empirically substantiated (Saidun et al., 2024; Shiri et al., 2025). The correlation of the examined processes with the gender and academic specialization of learners was established (Jung & Lee, 2020). A thorough analysis of the scholarly literature has elucidated the significance of the interplay between students' cognitive sphere and personal resilience in achieving success in entrepreneurial endeavors (Nguyen et al., 2025). Articulating the viewpoint of Zymivets (2022), who emphasizes the crucial role of the educator in this process. In this regard, the educator transcends the knowledge transmission, assuming advisory, research, and pedagogical roles. Luparenko (2022) emphasizes the need to employ diverse didactic forms and methodologies. Among these, project-based learning, workshops, master classes, discussions, round tables, and brainstorming sessions are emphasized as essential conditions for the effective development of entrepreneurial

competencies. In contemporary contexts, the developmental and educational potential of higher education is inextricably linked to the proactive integration of information technologies into the educational framework, which has expanded significantly the multimedia and interactive dimensions of didactic engagement (Tóth-Pajor et al., 2023). The possibilities for effective communication between educators and students in distance or blended education modalities are undoubtedly expanding (Yukhymenko et al., 2024). Moreover, another pertinent avenue of inquiry is the examination of AI's impact on cognitive transformations within the structure of students' entrepreneurial cognitive skills (Sollosy & McInerney, 2022).

Drawing on analyses of theoretical sources (Pidduck et al., 2023; Saptono et al., 2020), the following components of students' entrepreneurial thinking were delineated. These include the motivation for success, which serves as a catalyst for proactive engagement, along with verbal and mathematical analytical thinking, as well as entrepreneurial skills. This framework will establish distinct guidelines for empirical investigation, thereby facilitating empirical data collection.

In the context of the research objective, the exploration of partnership interactions with business and their impact on the cultivation of students' cognitive processes requires special attention. Despite existing gaps in this domain, we analyzed the scholarly contributions of various researchers. Martínez-Cañas R. et al. (2023) established the capacity of business representatives to foster effective motivation for entrepreneurship. It is particularly vital to enhance the indicators of motivation formation, which serves as a cornerstone for both successful endeavors and students' entrepreneurial mindset (Cárdenas-Gutiérrez et al., 2023). This study contend that it is imperative to discuss students' transformation of value orientations under the mentors' influence, a notion corroborated by prior theoretical assertions of other scholars (Li et al., 2020). Hence, the engagement with real business entities can stimulate the sustainable integration of entrepreneurial intentions within life planning frameworks (Minja et al., 2023). The positive impact of business partnerships in informal education on the development of professional skills among aspiring entrepreneurs has been empirically confirmed (Susantiningrum et al., 2023; Vasylyk et al., 2023).

Thus, this study observe that currently, the challenge of cultivating entrepreneurial thinking is significantly relevant in theoretical discourse. At the same time, efforts to investigate the influence of educational partnerships with business on the development of relevant cognitive skills remain sporadic. That is particularly true concerning the design and implementation of pedagogical experiments. Furthermore, the socio-cultural dimension of the issue must be acknowledged, notably the fact that similar studies were scarcely undertaken in Ukraine. These considerations underscore the imperative to broaden research into the scientific inquiries.

## **Materials and Methods**

### *Research procedure*

The study's stages align with the main provisions for of conducting a formative experiment. Highlighting these stages facilitates a comprehensive understanding of the strategies employed in the collection and analysis of scientific data. Let us address them in greater detail.

The organizational stage involved developing resources and adopting a systematic approach to achieving the research purpose. In particular, the overarching framework of the pedagogical experiment was delineated, empirical methodologies were selected, a representative sample was established, and techniques for the statistical analysis of the obtained data were determined. The components of entrepreneurial thinking, which constitute the focal point of the research, were identified. The trends and conditions conducive to the cultivation of cognitive abilities related to entrepreneurship during the student phase were elucidated. This stage covered the period from August to September 2024. The primary data collection stage involved collecting initial data on the development of students' entrepreneurial thinking. Various methodologies, including testing, surveys, as well as a formative experiment through direct engagement with students, were employed. The foundation of this period lies in the establishment of criteria for assessing the subject under study. Data collection spanned September to October 2024.

The experimental - is characterized by the facilitation of entrepreneurial thinking through the organization of targeted pedagogical interventions. The experimental factor is defined as a meticulously organized system of influence aimed at fostering entrepreneurial thinking. This approach incorporates a methodologically robust program, executed both through educational collaborations with the business sector and in a standalone format. Notably, the engagement with businesses was conducted within the scope of students' practical training. This stage covered October to December 2024.

Then, the development of the components of entrepreneurial thinking was reassessed. Methods analogous to those employed on the initial were utilized, with the exception of the assessment of analytical intelligence, which used an alternative testing format. The timeline was January 2025. The period of analyzing the obtained data focused on data analysis and involved applying mathematical statistical techniques to determine the dynamics of the entrepreneurial thinking components. The timeline for this stage was February 2025. The concluding level encompassed the comprehensive synthesis of information pertaining to the issue of fostering students' entrepreneurial thinking. This phase involved determining the outcomes of the hypothesis testing and evaluating the extent of achieving the study purpose. This stage spanned February to March 2025.

### *Sample formation*

To obtain reliable scientific data, two experimental groups (EG) and one control group (CG) were created. The total number of participants in the study was 105 individuals. Accordingly, the control group comprised 34 individuals, the first experimental group included 38 individuals, and the second comprised 33 individuals. The sample was drawn from students enrolled at the Faculty of Personnel Management, Sociology, and Psychology at the Vadym Hetman Kyiv National Economic University and the Bila Tserkva National Agrarian University. Participants were aged 20 to 21 years (third and fourth-year students). The gender ratio within the sample comprised by 50 females and 55 males. The principal selection criteria for the samples included academic specialty, student age, and gender balance. Drawing upon the findings of the preliminary diagnosis, the coefficients of the Pearson correlation coefficient were computed and are presented in Table 1.

**Table 1.** Indicators of the Pearson's correlation coefficient of the studied samples

Parameters under study	Pearson's correlation coefficient		
	CG – EG 1	CG – EG 2	EG 1 – EG 2
Motivation for success	39,248	41,409	39,525
Verbal intelligence	33,526	43,980	29,038
Mathematical intelligence	37,985	42,097	30,060
Entrepreneurial skills	33,409	44,001	35,465

Source: elaborated by the author

As shown there are no noteworthy discrepancies among the samples for all the parameters examined. This suggests a remarkable similarity within the statistical series and, consequently, the equivalence of the formed samples. It should be noted that, as regards the sample formation, communication was established with the management of the educational institution. A crucial aspect was the preparation of informed consent for participation in the study, which delineated the major aspects of the experiment. Consent was duly obtained from the participants, as the study exclusively involved adults.

### Research methods

To support the methodological and systemic argumentation of the study, the established theoretical methodologies were employed. A notable challenge encountered in our research was the lack of valid and reliable instruments for diagnosing entrepreneurial thinking as a systemic phenomenon. Consequently, we opted to select methodologies aimed at elucidating the development of individual components within the cognitive processes under study. The said strategy was substantiated by the findings of our theoretical analysis. The exploration of the motivational component of entrepreneurial thinking was conducted using T. Ehlers' methodology for assessing the motivation to achieve success (Polishchuk, 2023). To evaluate the cognitive component of the process under study, subtests of the R. Amthauer's intelligence test was employed (Polishchuk, 2023). Hence, the integrated application of the first, second, third, and fourth subtests provided insights into verbal intelligence. At the same time, the comprehensive application of the fifth and sixth subtests of the Amthauer's test enabled assessing mathematical intelligence as a facet of entrepreneurial thinking. The questionnaire for determining entrepreneurial abilities allowed for determining success in the studied field of activity (Ranok Publishing House, 2018). Therefore, objective testing and questionnaire methodologies were utilized to diagnose the structural components of entrepreneurial thinking.

Procedure for implementing an experimental study. To test the research hypothesis, a formative pedagogical experiment was designed and implemented. The dependent variable of the study was the entrepreneurial mindset, while the independent variable was multifaceted, targeting specific components of entrepreneurial cognition. In the first experimental cohort, the development program was conducted without collaboration with business representatives. The program included 12 lessons featuring exercises aimed at enhancing general intellectual abilities and analyzing specific business case studies, taking into account the students' academic majors. In the second experimental group, developmental sessions comprising ten classes were conducted in conjunction with interactions with business representatives. These interactions occurred within educational partnerships established with firms and organizations in the agribusiness and real estate sectors. Entrepreneurs were involved in the developmental and pedagogical activities and participated in case analysis. A requirement of the program was reflective evaluation after each session. The experiment and data collection were conducted by the authors of the article. It is worth noting that entrepreneurs played an integral role in the developmental and pedagogical processes, actively participating in case analyses. A mandatory condition for the program's implementation was the incorporation of reflective practices concerning the outcomes of each lesson. The experiment and subsequent data collection were carried out by the authors of the present article.

The statistical analysis methods were designed to evaluate the hypothesis regarding the efficacy of business partnerships in fostering entrepreneurial thinking among higher education students. The Pearson correlation coefficient and Student's t-test were utilized for this purpose. Hence, it is possible to ascertain the significance of differences in the development of the components of students' entrepreneurial thinking across the examined groups. Specifically, the Student's t-test facilitates determining the significance of differences in statistical series at the  $p=0.01$  or  $p=0.05$  levels. This method is parametric in nature and is applicable in scenarios where the metric data set adheres to a normal distribution.

### Results

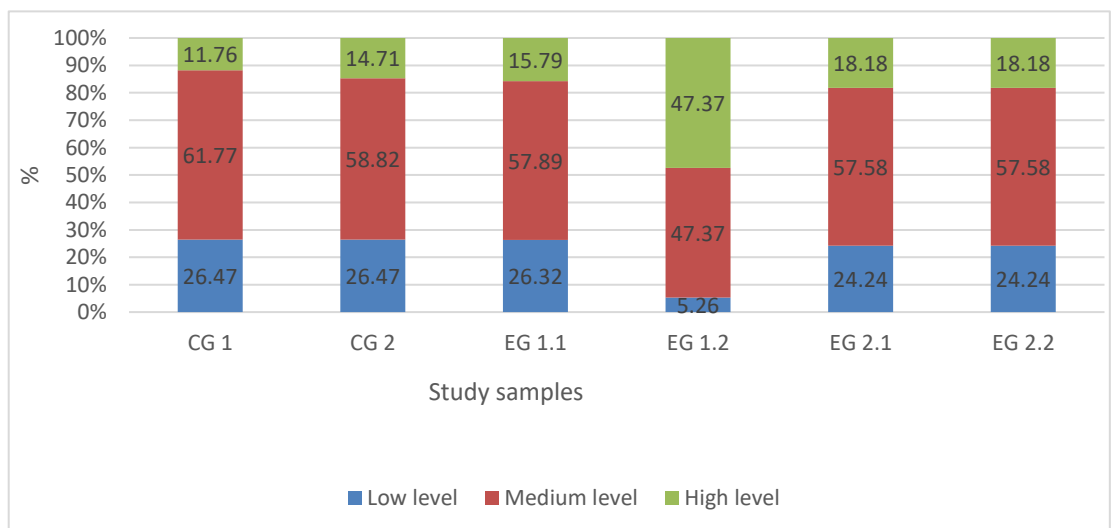
The indicators reflecting the components of students' entrepreneurial thinking "before" and "after" implementing the development program were elucidated. Let us scrutinize the identified trends. EG 1 implemented a program designed to cultivate entrepreneurial thinking; EG 2 implemented developmental sessions through educational collaborations with the business sector. Accordingly, the numbers 1 and 2 signify the type of assessment (primary or secondary). An analysis of the dynamics in motivation for success is illustrated in Figure 1.



**Figure 1.** Dynamics of motivation for success as a component of entrepreneurial thinking during a pedagogical experiment  
 Source: elaborated by the author based on analysis of empirical research results.

Primary diagnostics demonstrated a significant predominance of average motivation indicators to achieve success, with over 80% of the surveyed students falling within this category. Instances of extreme values were minimal, suggesting a moderate efficacy of traditional higher education in fostering personal development. Subsequent diagnostics provided a basis for asserting that there were no significant alterations in motivational indicators within the control group (CG). The same conclusion applies to the group in which the program aimed at cultivating entrepreneurial thinking was implemented without engagement with the business sector (EG 2). The observed shifts within this sample lack substantial significance. Nevertheless, the students who engaged with representatives from the actual business environment exhibited a positive trajectory in this parameter. Therefore, the proportion of students demonstrating high levels of motivation for success increased by 30.3% following the experiment. It is worth noting that the average indicators for this aspect of entrepreneurial thinking underwent considerable change.

An analysis of the dynamics of verbal intelligence indicates that students predominantly exhibit average verbal-logical thinking metrics. However, a considerable percentage of individuals were identified with low scores in this component. Just over 11% of the study participants were diagnosed with elevated rates.

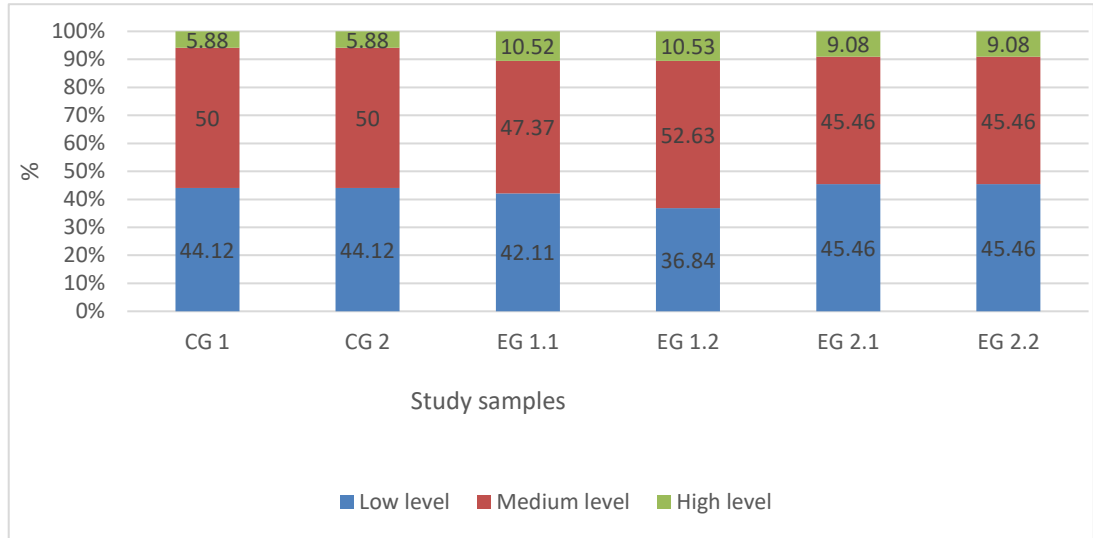


**Figure 2.** Dynamics of verbal intelligence as a component of entrepreneurial thinking during pedagogical experiment  
 Source: elaborated by the author based on analysis of empirical research results.

As can be seen from Fig. 2, no significant alterations in verbal intelligence were detected within the control group (CG). A comparable scenario is observed in the second experimental group (EG 2). Notably, a substantial transformation in verbal intelligence is recorded solely in the conditions of a specially organized development program. In the first experimental group (EG 1), subsequent diagnostics revealed a remarkable increase of 31.58% in the percentage of students exhibiting elevated indicators. This trend is directly proportional to the corresponding decrease in the percentage of individuals with underdeveloped verbal intelligence.

The examination of the dynamics of mathematical intelligence was conducted with reference to Figure 3. Overall, the trends mirror the distribution of qualitative levels observed in the preceding parameter (verbal intelligence). However, this parameter of entrepreneurial thinking demonstrates a more pronounced prevalence of low indicators. The said parameter holds exceptional

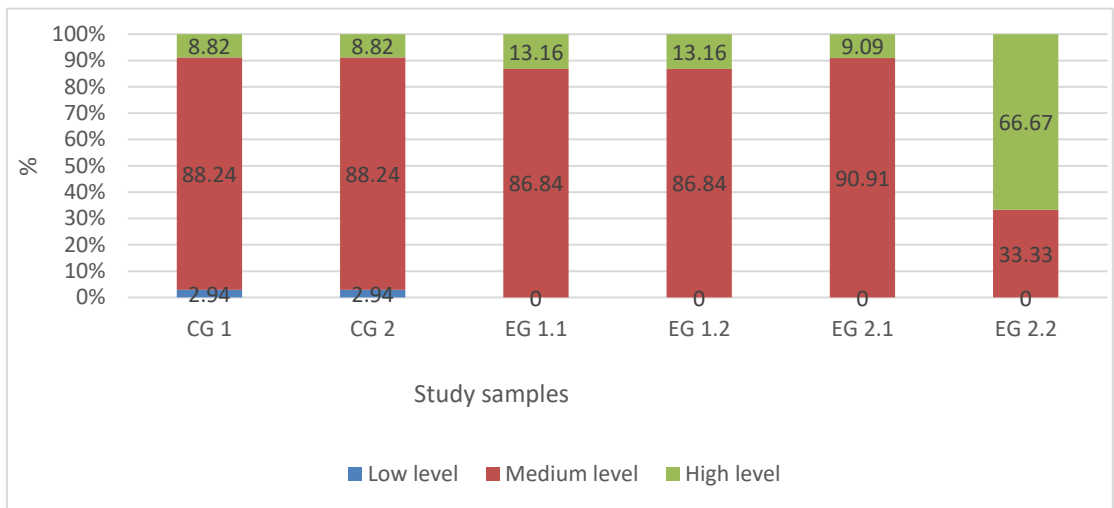
significance for cognitive processes within the framework of problem-solving, particularly in the context of planning and forecasting profits and expenditures.



**Figure 3.** Dynamics of mathematical intelligence as a component of entrepreneurial thinking during pedagogical experiment  
 Source: elaborated by the author based on analysis of empirical research results.

We can state systemic shortcomings in the mathematical component in students' higher education. The results obtained indicate that no significant transformation of the students' mathematical intelligence was detected in all three samples. Empirical data create conditions for improving the developed programs.

The analysis of entrepreneurial skills' dynamics is shown in Figure 4. Primary diagnostics demonstrated the absolute dominance of individuals with average parameter values. This indicates a moderate orientation of students' activities towards entrepreneurship. At the same time, the almost complete absence of students with low values of this parameter is striking. That reflects social trends and general characteristics of higher education.



**Figure 4.** Dynamics of entrepreneurial skills as a component of entrepreneurial thinking during the pedagogical experiment  
 Source: elaborated by the author based on analysis of empirical research results.

As illustrated in Figure 4, no substantial alterations in the indicators of entrepreneurial aptitude were discerned within CG and EG 1 following the completion of the experiment. At the same time, in the subset where educational collaborations with businesses were implemented, a noteworthy enhancement in the proportion of individuals exhibiting high component indicators (57.58%) was documented. This suggests that such pedagogical interventions can be characterized as exceptionally effective in cultivating students' entrepreneurial competencies.

The outcomes of the statistical analysis conducted via Student's t-test are shown in Table 2. The coefficients indicate the significance of the disparities observed between the study groups. This data enables us to evaluate the efficacy of the pedagogical interventions that were enacted.

**Table 2.** Indicators of the Pearson’s correlation coefficient of the studied samples

Components of students' entrepreneurial thinking	Student's t-test		
	CG	EG 1	EG 2
Motivation for success	1,092	1,901	2,542*
Verbal intelligence	1,409	2,404*	1,208
Mathematical intelligence	1,330	1,209	1,207
Entrepreneurial skills	1,431	1,888	3,522**

We can observe that the indicators attain significance at the  $p=0.05$  level for the verbal analytical parameter in EG 1 ( $t=2.404$ ). Furthermore, within the cohort where the educational partnership was instituted, noteworthy coefficients were identified for the parameters of motivation for success ( $t=2.542$ ;  $p=0.05$ ) and entrepreneurial skills ( $t=3.522$ ;  $p=0.01$ ). The statistical analysis conducted corroborates the preceding descriptive findings.

That said, upon analyzing the results from the formative experiment, yields several conclusions. Notably, it can be observed that students exhibit a greater inclination towards engaging with business representatives as opposed to their teachers. This phenomenon may be attributed to the novelty effect. Moreover, students demonstrated a more enthusiastic response to addressing specific business scenarios in comparison to abstract developmental tasks. No significant conflicts with the program moderators were noted on the part of the students. However, instances of passive-aggressive reactions were occasionally recorded in their interactions with teachers.

**Discussion**

The results of the formative experiment suggest that educational partnerships with businesses are partially effective in cultivating students' entrepreneurial thinking. This pertains to enhancing the indicators related to motivation for success and the individual's entrepreneurial competencies, consistent with the findings from other scholars (Martínez-Cañás et al., 2023). In this light, entrepreneurship has the potential to evolve into a sustainable life orientation (Minja et al., 2023) and transform the essence of the value sphere (Li et al., 2020). We attribute this trend to students' profound engagement in the business environment, which facilitates a more effective development of the psychological foundations of relevant activities. Nevertheless, we do not substantiate the business mentors' influence on the formation of cognitive schemas for addressing entrepreneurial challenges (Cárdenas-Gutiérrez et al., 2023). Furthermore, questions arise regarding the efficacy of specialized development programs aimed at fostering entrepreneurial thinking (Jena, 2020). We also cannot corroborate the findings of other researchers concerning the relationship between students' entrepreneurial thinking and variables such as gender and specialty (Jung & Lee, 2020). In our view, the identified discrepancies are attributable to socio-cultural variances within educational contexts. We can assume that collaboration with businesses may lack the developmental potential inherent in the specialized program implemented within a similar group.

It is imperative to explore avenues for a holistic approach that impacts the motivational, cognitive, and personal components of entrepreneurial thinking. In light of this, one should pursue an integrated, comprehensive theoretical definition of the phenomenon (Daspit et al., 2023). Special emphasis should be placed on nurturing students' creative abilities, as they serve as an important driver in the cognitive processes involved in problem-solving within the business sphere (Winkler et al., 2023). In synthesizing our thoughts, we can agree with the feasibility of a comprehensive methodological approach for cultivating entrepreneurial thinking (Luparenko, 2022) and advocate for the integration of modern information technologies in higher education institutions (Tóth-Pajor et al., 2023). The obtained results are consistent with findings from other studies on the transformation of value orientations among future students under the influence of targeted collaborations with business representatives (Li et al., 2020). In addition, previous conclusions regarding the systemic relationships between the personal sphere and entrepreneurial thinking require further clarification within the context of Ukrainian socio-cultural conditions (Nguyen et al., 2025).

Overall, the findings partially substantiate the research hypothesis. The implementation of educational partnership opportunities has benefited both the motivational and personal dimensions of the process. At the same time, this innovation has a profound impact on the cognitive core of the phenomenon under analysis. The findings elucidated herein possess the capacity to significantly enhance the effectiveness of and professional training initiatives within the higher education framework. In particular, the examination of the identified trends can facilitate the optimization of educational programs, rendering them more relevant in the context of fostering entrepreneurial thinking. That said, avenues for improving business representatives' readiness to address contemporary work challenges are expanding.

*Limitations:*

The results obtained have certain limitations. For instance, no randomization procedures were applied to sample formation. Thus, participants were also surveyed from a limited range of academic disciplines, higher education institutions, and geographical regions.

*Recommendations:*

Drawing upon the obtained data, the following recommendations were formulated to cultivate entrepreneurial thinking among students:

- 1) The pedagogical influence directed towards students' cognitive development within the domain of entrepreneurial activity should be intensified.
- 2) It is imperative to integrate interactions with business representatives into classroom instruction, ensuring that these encounters are both informative and developmental in nature.
- 3) Continuous enhancement of faculty competencies within the higher education framework is essential for fostering students' critical thinking.
- 4) The advancement of students' entrepreneurial thinking must be grounded in an understanding of the specifics of their specialty and the realities of the information society.

### Conclusions

The relevance of delving into students' entrepreneurial thinking is underscored by the insufficient theoretical advancement of the issue under study and the paramount importance of this aspect for the practical training of future professionals. The outcomes of the formative experiment validate the efficacy of educational collaborations with the business sector in cultivating a motivation for success. Notably, a significant enhancement in this motivation was observed in 30.3% of the participants, while entrepreneurial competencies increased in 57.58%. The metrics pertaining to the development of the cognitive core of entrepreneurial cognition among the students exhibited minimal fluctuations. The group that exclusively engaged in developmental classes, the incidence of high verbal intelligence was 31.58%. We attribute these trends to the students' profound engagement in the business environment, which facilitates a more effective cultivation of the psychological underpinnings of entrepreneurial activity. It is evident that traditional pedagogical approaches and methodologies in higher education are insufficient to foster entrepreneurial thinking among students. The findings of the present study may serve as a foundational reference for reforming higher education to cultivate of entrepreneurial thinking as one of the key competencies for specialists. We see the promising avenues for further research in developing standardized methodologies to assess students' entrepreneurial thinking.

### Declaración de Conflictos de Interés

No declaran conflictos de interés.

### Contribución de autores

Autor	Concepto	Curación de datos	Análisis/ Software	Investigación / Metodología	Proyecto/ recursos / fondos	Supervisión/ validación	Escritura inicial	Redacción: revisión y edición final
1	X		X	X			X	
2		X	X			X		X
3	X		X					X

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