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ENTREPRENEURIAL COMPETENCES FOR DESIGN STUDENTS: A COMPARATIVE STUDY OF LATVIAN AND UKRANIAN STUDENTS

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Abstract

The relevance of the research is high as it addresses the intersection of entrepreneurship education and creative industries, focusing on design students in Latvia and Ukraine. It highlights the importance of the perceived entrepreneurial competencies for enhancing the employability and innovation potential of the students of the creative industries, thus impacting the national economy and resilience.

The problem of the research lies in the identification and evaluation of entrepreneurial competencies among design students in Latvia and Ukraine.

The purpose of this research is to investigate which entrepreneurship competencies are the most important to the students of design-related programs from HEIs of Latvia and Ukraine, as well as to see if there is a difference in the perceived importance of these competencies between the two countries and, finally, how the students perceive the opportunities to start a business and to suggest according to recommendations for the higher education institutions.

The research methods - quantitative research design was used to collect data in a survey of students of Latvian and Ukrainian HEIs.

The main results revealed which competencies are the most valued and if there are any differences between Latvian and Ukrainian students. It also demonstrated the level of the preparedness of the students to start their own businesses.

Keywords: *Entrepreneurial competencies, design education, EntreComp, higher education, creativity.*

JEL Codes: *I23, I25, J24, M10.*

Introduction

The purpose of the study is to investigate which entrepreneurship competencies are the most important to the students of design-related programs from HEIs of Latvia and Ukraine, as well as to see if there is a difference in the perceived importance of these competencies between the two countries and, finally, how the students perceive the opportunities to start a business in their countries and to suggest according recommendations for the higher education institutions.

The problem of the identification and evaluation of entrepreneurial competencies among design students in Latvia and Ukraine became an object of interest due to the following reasons: the importance of entrepreneurship in creative industries and the unique context of the countries. While Latvia is trying to expand its competitiveness in the international markets, Ukraine faces the challenge of economic recovery during the geopolitical instability. The increase of entrepreneurial competences is vital for the national economy and social development of the countries.

The object of the research is higher education within the field of design-related programs and the subject of the research are entrepreneurial competencies perceived by the design students.

To attain the purpose of the study, the quantitative methods were used.

The research benefits higher education institutions by providing recommendations on curriculum design enhancement by entrepreneurial competencies in creative industries. It provides comparative insights into the impacts on entrepreneurial education and highlights the key perceived competencies.

There were 103 respondents involved in the survey. In total, 57 Latvian students, from EKA University of Applied Sciences, Latvia, and 46 Ukrainian students, from Kyiv National University of Technologies and Design, Ukraine, represented design related study programs, such as computer game design and computer graphics, interior design and graphic design and others design-related programs.

The majority (74%) of respondents were female, and 5% of respondents preferred not to indicate their gender. The age distribution of respondents was as follows: 93% were 18-30, others 31-45, and one respondent represented the age interval from 46-60.

96% of respondents were bachelor students, the minor part (5%) were master students, and only one respondent was a doctoral student, and one was a college student.

To reach the aim of the study, we developed the questionary, that was based on EU Entrepreneurship Competence Framework (EntreComp) (Elin at al., 2018) and Global Entrepreneurship Monitor 2023/2024 Report questions (GEM, 2023). The questionnaire consisted from three major blocks. The first block included the questions on socially demographic aspects: represented country, gender, age, level of education, represented study program. The second block included three scales: "Competence area: Into Action", "Competence area: Resources" and "Competence area: Ideas and opportunities". Each competence area included 5 competences. The task for respondent was to express the agreement with presented statements from 1 to 5, where 1 is "strongly disagree" and 5 "strongly agree". The third block of statements consisted from attitudes to entrepreneurship and perceptions (5 items), and statements about business intentions (2 items). Data were collected anonymously.

Then the mapping method was used to compare Latvian and Ukrainian design-related study programs on the presence of entrepreneurial competences in each content. To map the study programs to the EntreComp framework, the 15 entrepreneurial competences in three areas (Ideas&Opportunities, Resources, Into Action) were used as reference points. The following study programs were compared: EKA University of Applied Sciences bachelor programs "Computer Games Design" and "Interior Design" and Kyiv National University of Technologies and Design bachelor program "Graphic design". Then, the courses of these study programs, whose outcomes include familiarization with the components of entrepreneurship, business, and management, were directly mapped to the relevant competencies. Courses, whose study content referred to design, innovation, and digital marketing components, were related to the competences like Creativity, Spotting Opportunities, and Mobilizing Resources. Courses, contained elements of project management, research work, and communication, were linked to competences such as Planning & Management, Mobilizing Others, and Business communication. Next, a qualitative content analysis was performed to analyze how each study course content contributes to the familiarization with the entrepreneurial competences. Study courses and their content were matched with the closest relevant competences based on the description of their content, objectives, and expected outcomes.

Theoretical framework

Entrepreneurship has been promoted globally due to its positive socioeconomic effects on national development (Da Costa & Miragaia, 2024; Feola et al., 2024), including the quality of life and well-being of the population (Joensuu-Salo et al., 2023). Therefore, the influence of entrepreneurs on the labour market has been growing (Uzule et al., 2019). Among the drivers of entrepreneurship development is education. Education has the capacity to inspire and support innovation creation (Muller, 2021), which is why the entrepreneurship education has been among the key objectives within the European Union (henceforth – EU) education initiatives (Strautia et al., 2018). One reason why the EU is interested

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in supporting entrepreneurship education is such that it supports national socioeconomic development. According to Verdenhofa et al. (2019), education is a factor (co)creating national intellectual capital. Therefore, many higher education (henceforth - HE) institutions (henceforth - HEIs) have been opening entrepreneurship program (Liu, 2023) and have been striving to create an entrepreneurship culture (Kargytė et al., 2024), not merely promote entrepreneurship education. Cultivating various aspects of entrepreneurship culture within HE contributes to satisfaction of various groups of higher education stakeholders. Among them are students, academic staff, higher education institutions and larger society (Kargytė et al., 2024; Titko et al., 2023). The collaboration of various stakeholders at various levels in this regard creates the entrepreneurship capital of a nation. Obviously, the quality of entrepreneurship capital is associated with HEIs and their entrepreneurship education (Joensuu-Salo et al., 2023), which is why many nations have started to implement entrepreneurship education at various levels, not only in HE (Joensuu-Salo et al., 2023; Tiberius et al., 2023), to ultimately ensure that the interest in entrepreneurship and entrepreneurship knowledge is developed in the population even prior to HE and remains relevant to all people, including those who are interested in vocational education and work experience.

In addition to the development of national entrepreneurship capital, the importance of entrepreneurship education relates to its positive impact on socioeconomic markets. The fact is, entrepreneurship is not only about the creation of new companies (Monteagudo et al., 2025; Tiberius et al., 2023), but also about spotting new venture opportunities and acting upon them (Monteagudo et al., 2025). Thus, entrepreneurship education is important not only for business studies, but also for other professions, such as social entrepreneurship, tourism and hospitality, STEM initiatives (Rocha et al., 2024) IT specialization (Titko et al., 2023), sports (Da Costa & Miragaia, 2024), engineering (Ilyas et al., 2024; Strautia et al., 2018), nursing (Gardim et al., 2024; Monteagudo et al., 2025), etc. For example, in case of nursing, entrepreneurship helps nurses to design and introduce change into healthcare practices (Gardim et al., 2024), enabling them to identify new healthcare opportunities, design new healthcare service modules and invent new equipment (Monteagudo et al., 2025). One consequence of such an effect is the capacity of entrepreneurship to reduce socio-economic inequalities, including unemployment and engagement of socioeconomically vulnerable groups of the population in economic activities (Henry et al., 2024). Therefore, one recent areas of interest in entrepreneurship education have been inclusivity in entrepreneurship education for underprivileged groups, such as women and ethnic minorities (Henry et al., 2024).

Entrepreneurship education contributes to entrepreneurship not only by educating entrepreneurs but also by supporting the emergence of both entrepreneurship attitudes and intention (Fan et al., 2024; Feola et al., 2024), entrepreneurship mindset and entrepreneurship initiatives among non-business study students. In general, entrepreneurship mindset can be development in educational context due to educational resources, student engagement (Titko et al., 2023) and repeated practice opportunities that are offered by HEIs. The development of entrepreneurship mindset is vital not only for the youth's professional development but also for their personal growth (Feola et al., 2024). Entrepreneurship education rests on various approaches, e.g. experiential learning (Larsen et al., 2024), teaching entrepreneurship competence development, administration willingness to engage in the promotion of entrepreneurship education (Joensuu-Salo et al., 2023), etc. Since the concept of entrepreneurship is not constrained by any one definition (Kargytė et al., 2024) and the concept of entrepreneurship education is relatively vague (Fan et al., 2024), the development of an entrepreneurial mindset may commence with entrepreneurial competences. In fact, among the key indicators of student preparedness to engage in entrepreneurial activities might be entrepreneurship competence,

which, consistently with Chell (2013), might be defined as the ability to spot and create opportunities for value creation for others (Liu, 2023). By promoting entrepreneurship competence development, HEIs bridge some gaps between academic programs and business demands on the labour market (Bernado & Bratzke, 2024), while boosting students' resistance to adverse socio-economic circumstances through the lens of opportunity identification, students' abilities to yield new solutions and to navigate through uncertainty, which ultimately improves students' self-employment abilities (Bernado & Bratzke, 2024). Entrepreneurship competences stimulate not only entrepreneurship interest, intention, but also students' entrepreneurial self-efficacy (Liu, 2023), which is critical for entrepreneurship initiatives characterized as risky undertakings.

Over the past few decades, various entrepreneurship competences have been proposed, drawing from both empirical and theoretical perspectives, and from more focused and expansive views of entrepreneurship (Bernado & Bratzke, 2024). The growing body of research on entrepreneurship and entrepreneurship education has resulted in various classifications of entrepreneurial competences, which, however, yields a fragmented understanding of which competences are most essential in entrepreneurship education. As a result, entrepreneurship education tends to incorporate vague and generalized learning outcomes (Strautia et al., 2018), which is why the European Entrepreneurship Competence Framework (EntreComp) (Bacigalupo et al., 2016) might be particularly useful. The EntreComp framework solves as a structured model helping to understand entrepreneurial competences. EntreComp contains a set of standardized competences divided into 3 competence areas (Ideas and Opportunities, Resources, and Into Action), 5 competences per each competence area and 8 levels of proficiency.

It identifies three main competence areas that cover different aspects of entrepreneurship:

1. Ideas and opportunities – this area includes such competences as spotting opportunities, creativity, vision, valuing ideas, ethical and sustainable thinking.

2. Resources – this area includes such competences as mobilising others, financial and economic literacy, mobilising resources, motivation and perseverance, self-awareness and self-efficacy.

3. Into Action – this area includes such competences as taking the initiative, planning and management, coping with ambiguity, uncertainty and risk, working with others and learning through experience.

Introducing these three categories provides a structured approach to analyze entrepreneurial competences perceived by design students, ensuring a comprehensive assessment tool giving availability to investigate their preparedness for entrepreneurship. The study utilizes these categories in line with the provided literature review and provides meaningful insights to understand how design program students perceive and develop entrepreneurial competencies.

The increasing role of entrepreneurial competences in a process of innovation, serving to better employability has led to the integration of EntreComp into educational policies and curriculum design (Bacigalupo et al., 2016). However, challenges remain in determining which entrepreneurial competences are most crucial for students of creative disciplines (such as design) as well as how these

competences align with different cultural and economic contexts.

Entrepreneurship is no longer a solely part of business education but is increasingly recognized as a vital skill needed to be implemented across various professional areas, such as design education, including (Feola et al., 2024). Creative industries are characterized by a high level of uncertainty and the constant need for innovation, thus requiring design students to develop their entrepreneurial mindsets, enabling them to identify opportunities, mobilize resources and implement ideas effectively (Ilyas et al., 2024). Research provides the following explanation - entrepreneurial skills not only enhance employability but also empower design students to foster their achievements in competitive markets (Fan et al., 2024; Titko et al., 2023).

Since its creation, the EntreComp framework has been widely applied in research,

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supporting self-assessment tools, educational program design, individual student analysis, and EU policy evaluation (Bernado & Bratzke, 2024). There is also some evidence to suggest that it can be used for administrative and academic purposes. For example, it has been utilised to assess the orientation of education programs (Strautia et al., 2018), including the outcomes of entrepreneurship education (Ilyas et al., 2024; Morselli, & Gorenc, 2022), student entrepreneurship competence and comparison of entrepreneurship programs (Morselli & Orzes, 2023). In this way EntreComp aligns entrepreneurship education with more tangible and measurable objectives. EntreComp is a framework, and like any broad approach, it has its imperfections, some of which pertain to the lack of consideration of specific contexts or specialized area (Morselli, & Gorenc, 2022), which is crucial for entrepreneurship initiatives tight to specific market demands and market capacities affected by local cultures. The importance of culture and cultural differences in entrepreneurship education was reviewed by Feola et al. (2024), who argued for the inclusion of cross-cultural competence into entrepreneurship competences. Despite such imperfections, EntreComp is suitable for education because gaps can be addressed via constructive alignment theory (Morselli, & Gorenc, 2022), when additional elements are introduced and others are adjusted.

Existing research highlights a clear need for the adaptation of EntreComp when applying this framework to such specific areas of business, as the design industry (Feola et al., 2024). Traditional entrepreneurial competences widely used in a business education, may require modification to align better with the specific demands of the creative industry, where uncertainty and project-based approach are mostly dominant (Rocha et al., 2024).

Overall, the importance of entrepreneurship education for the socioeconomic development of nations cannot be overstated, as it not only nurtures the growth of entrepreneurs but also equips individuals across various professions with the skills needed to identify and capitalize on new opportunities on markets. This, in turn, plays a crucial role in reducing unemployment and addressing broader socioeconomic issues, such as inequality. This explains a growing interest in entrepreneurship education among various levels of stakeholders (Da Costa & Miragaia, 2024), including HE students in entrepreneurship education (Fan et al., 2024). The EntreComp framework, with its comprehensive approach to entrepreneurship competence, proves to be a highly valuable tool for research, academic curriculum development, and administrative purposes within higher education. Its versatility and alignment with the multifaceted goals of entrepreneurship education make it an ideal resource for fostering a more innovative, inclusive, and resilient society.

The article compares entrepreneurial competences between the Latvian and Ukrainian students of design related programs. Entrepreneurial education is important not only for business studies, but also for other professions, such as design industry related, due to the following reasons:

- Design related education drives creativity, innovation and problem-solving skills – core components of entrepreneurship;
- Students become more versatile, applying their skills in diverse fields, related to product development, elaboration of digital media, urban and environmental design as well as sustainable solutions;
- Design equipped with the entrepreneurial competence can address broader societal challenges, such as inclusivity and sustainability;
- Latvian students can access international markets, competing on a global scale and contributing to the grow of the national economy throe development of entrepreneurial skills;
- Ukrainian students are currently possessing ongoing economic and political challenges. Entrepreneurial skills can help as a pathway to resilience and recovery, helping Ukrainian students to spread their initiatives in reconstruction of the country and technology integration, contributing to national redevelopment efforts.

Results

The reliability analysis was performed for the survey, and the results of Chronbach's α indicated overall reliability of the instrument on satisfactory level, Cronbach's α varied from 0.688 till 0.771 across the scales.

Table 1. Reliability analysis

	Cronbach's α
Learning through experience (5 items)	0.771
Resources (5 items)	0.688
Ideas and opportunities (5 items)	0.759
Attitudes to entrepreneurship and perceptions (5 items)	0.699

To reach the aim of the study we formulated following hypotheses:

- ***H1a****: the most important entrepreneurial competence perceived by design students is creativity.*
- ***H1b****: such entrepreneurial competence as vision is also perceived important by design students.*
- ***H1c****: ethical and sustainable thinking as an entrepreneurial competence is perceived as an essential by design students.*
- ***H2****: There is a difference in perceived importance of entrepreneurship competences between students of Latvia and Ukraine.*
- ***H3:*** *Latvian and Ukrainian students differently perceive the opportunities to start business in their countries.*

To test the H1a, H1b, H1c, the descriptive analysis and Friedman test for repeated measures were performed (Tab. 2).

Table 2. Descriptives, all competence areas

						Shapiro-Wilk	
	N	Missing	Median	Sum	IQR	W	p
D-MEAN (Ideas and opportunities)	103	0	4.20	433	0.800	0.925	<.001
B-MEAN (Into action)	103	0	4.20	430	0.800	0.907	<.001
C-MEAN (Resources)	103	0	4.20	424	0.600	0.964	0.007
E-MEAN (Attitudes towards entrepreneurial perceptions)	103	0	2.60	265	1.000	0.980	0.113

In general, the most highly evaluated competence group in the perception of Latvian and Ukrainian students is "Ideas and opportunities". The competence area "Attitudes towards entrepreneurial perceptions" is perceived as the least important according to the results.

The competencies we aimed to test (creativity, vision, ethical and sustainable thinking) all are included in the competence area: Ideas and opportunities, that is assessed in the highest level. In addition, competence areas: Into action, and Resources are evaluated almost equally.

Students are confident in assessing the competence area: Ideas and opportunities, but they don't feel confident about attitudes toward entrepreneurial perceptions.

As presented in Table 3, there is no statistically significant difference in perception of competence area "Ideas and opportunities" between Latvian and Ukrainian samples.

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Table 3. Difference between Latvian and Ukrainian students' assessment of competence area "Ideas and opportunities"

		Statistic	p
Ideas and opportunities	Mann-Whitney U	1169	0.343

Note. $H_a\ \mu_{Latvia} \neq \mu_{Ukraine}$

We ranked the competences included in competence area: Ideas and opportunities, and concluded that competence perceived as the most important is "Creativity", but the competence "Ethical and sustainable thinking" is perceived as least important in this competence area. The competence "Vision" is perceived equally to "Spotting opportunities" and "Valuing ideas" (Tab. 4), which are also a part of competence area "Ideas and opportunities". The importance of the competence "Valuing ideas"" is explained by the fact the ability to recognize the potential of ideas is crucial for opportunity development in creative industries (Fan et al., 2024; Bacigalupo et al., 2016). The relevance of this competence is the same high as the "Vision" and "Spotting opportunities".

Table 4. Descriptives, competence area: Idea and opportunities

						Shapiro-Wilk	
	N	Missing	Median	Sum	IQR	W	p
Spotting opportunities	103	0	4	424	1.00	0.821	<.001
Creativity	103	0	**5**	455	1.00	0.741	<.001
Vision	103	0	4	436	1.00	0.793	<.001
Valuing ideas	103	0	4	428	1.00	0.812	<.001
Ethical and sustainable thinking	103	0	4	421	2.00	0.825	<.001

To determine whether there is a statistically significant difference between the competence "creativity" and other competencies that are assessed lower in this competence group, a Friedman test for repeated measures was performed (Tab. 5). It confirms a statistically significant difference between the competence "creativity" and other competencies in this competence area, and it confirms H1a: the most important entrepreneurial competence perceived by design students is creativity. However, H1b hypothesis (vision is also perceived important by design students) is partially rejected as its importance is perceived on the same level, as other competences, such as spotting opportunities and valuing ideas. H1c hypothesis is rejected as the competence "Ethical and sustainable thinking" is perceived as least important in its competence area.

Table 5. Friedman test, Competence area: Ideas and opportunities

χ^2	df	p
16.8*	4	0.002

*Statistically significant differences, if *p<0.05, **p<0.01*

Further to indicate, which competences significantly differs, Pairwise Comparison by Durbin-Conover test was conducted. The competence "Creativity" is assessed higher than others, and the difference between competencies "Spotting opportunities", "Vision", "Valuing ideas" and "Ethical and sustainable thinking" is statistically significant (Tab. 6).

Table 6. Pairwise Comparisons (Durbin-Conover), Competence area: Ideas and opportunities

			Statistic	p
Spotting opportunities	-	**Creativity**	3.4350**	<.001
Spotting opportunities	-	Vision	1.3567	0.176
Spotting opportunities	-	Valuing ideas	0.3464	0.729
Spotting opportunities	-	Ethical and sustainable thinking	0.0866	0.931
Creativity	-	Vision	2.0783*	0.038
Creativity	-	Valuing ideas	3.0886**	0.002
Creativity	-	Ethical and sustainable thinking	3.5216**	<.001
Vision	-	Valuing ideas	1.0103	0.313
Vision	-	Ethical and sustainable thinking	1.4433	0.150
Valuing ideas	-	Ethical and sustainable thinking	0.4330	0.665

*Statistically significant difference, if *p<0,05, **p<0,01*

The H1a hypothesis is verified. Creativity is perceived as the most important competence (confirmed by the Friedman test), but competencies "Vision" and "Ethical and sustainable thinking" don't significantly differ from other competencies in this area (Tab. 5, Tab. 6), although are assessed as the most important among all other competencies.

Considering the fact, that the respondents represented study programs in the creative industry, it seems to be logical, that they assume creativity to be the most important competence for starting their businesses.

The fact, that competence in "Ethical and sustainable thinking" is assessed lower than others, might have several explanations, such as limited emphasis in curriculum. Ethical and sustainable thinking may not be a significant focus in the academic curriculum of creative industries programs. If these concepts are not integrated into the curriculum or practical applications, students might perceive them as less relevant to their entrepreneurial aspirations. The second interpretation could be connected to the perceived practicality of ethicality and sustainability, which might be perceived as not directly tied to entrepreneurial success, such as creativity, vision, and opportunity recognition. Ethical and sustainable considerations may seem less immediately impactful on business outcomes, especially for young entrepreneurs in the early stages of their careers.

The competence "Vision" has obtained equally high evaluation is explained by its necessity for strategic planning, innovation, and leadership, making it indispensable for students aiming to succeed as entrepreneurs in the dynamic and competitive creative industries.

To verify the H2*: There is a difference in perceived importance of entrepreneurship competences between students of Latvia and Ukraine* we used Mann-Whitney U criterion and compared each competence. The results are presented in this section.

Competencies in the area: Into Action are devoted to active involvement: learning through experience, collaborating with others, coping with uncertainty and risk, planning, prioritizing and taking the initiative.

There are no statistically significant differences in perceiving the importance of competencies in: Into Action (Table 7).

Students from both samples represent the study programs in a creative field, that is

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practical and applied. That is why learning through experience, working with others, and taking the initiative seem to be primarily valued. In contemporary circumstances coping with ambiguity, uncertainty, and risk is crucial, considering the present geopolitical conflict and its influence on the region. In the continuing circumstances of uncertainty, competencies of planning and managing could be primary factors in determining the success of future business.

Table 7. Differences between Ukrainian and Latvian students in assessment of competences in: Into Action

		Statistic	p
Learning through experience	Mann-Whitney U	1078	0.090
Working with others	Mann-Whitney U	1060	0.071
Coping with ambiguity, uncertainty and risk	Mann-Whitney U	1289	0.879
Planning and management	Mann-Whitney U	1193	0.407
Taking the initiative	Mann-Whitney U	1249	0.662

Note. $H_a\ \mu_{Latvia} \neq \mu_{Ukraine}$
*Statistically significant difference, if *p<0,05, **p<0,01*

The area: Resources is linked to competences, that help entrepreneur to stay motivated, focused, inspired, gather resources and create economic and financial know-how. As presented in Table 8, Ukrainian and Latvian students differently perceive the importance of competences "Mobilizing others" and "Financial and economic literacy".

Table 8. Differences between Ukrainian and Latvian students in assessment of competences in: Resources

		Statistic	p
Mobilizing others	Mann-Whitney U	**912****	0.004
Financial and economic literacy	Mann-Whitney U	**807****	<.001
Mobilizing resources	Mann-Whitney U	1220	0.517
Motivation and perseverance	Mann-Whitney U	1289	0.865
Self-awareness and self-efficacy	Mann-Whitney U	1160	0.269

Note. $H_a\ \mu_{Latvia} \neq \mu_{Ukraine}$
*Statistically significant difference, if *p<0,05, **p<0,01*

Notably, Ukrainian students assess "Mobilizing others" and "Financial and economic literacy" as more important competencies, than Latvian students (Tab. 9).

Table 9. Descriptives for competences "Mobilizing others" and "Financial and economic literacy"

						Shapiro-Wilk	
	Country	N	Mean	Median	SD	W	p
Mobilizing others	Latvia	57	3.32	3.00	0.736	0.815	<.001
	Ukraine	46	3.74	4.00	0.713	0.832	<.001
Financial and economic literacy	Latvia	57	4.07	4.00	0.678	0.799	<.001
	Ukraine	46	4.54	5.00	0.657	0.667	<.001

Note. $H_a\ \mu_{Latvia} \neq \mu_{Ukraine}$
*Statistically significant difference, if *p<0,05, **p<0,01*

We could explain differences in the assessment of competence "Financial and economic literacy" with the need to acquire more knowledge on financial aspects of business and economics for Ukrainian students, that might be absent in their curricula. Latvian students feel more confident in their knowledge in this regard. Ukrainian society feels more united in the present war situation, therefore it might seem obvious to them to assess higher competence "mobilize others".

The area: Ideas and opportunities demonstrate the ability to use imagination in developing new, innovative, and purposeful ideas, and assess consequences and impact.

As observed in Table 10 there is a statistically significant difference between Ukrainian and Latvian students in the assessment of the competence "Creativity".

Table 10. Differences between Ukrainian and Latvian students in assessment of competences in: Ideas and opportunities

		Statistic	p
Spotting opportunities	Mann-Whitney U	1172	0.321
Creativity	Mann-Whitney U	**951***	0.007
Vision	Mann-Whitney U	1216	0.498
Valuing ideas	Mann-Whitney U	1300	0.940
Ethical and sustainable thinking	Mann-Whitney U	1190	0.396

Note. $H_a\ \mu_{Latvia} \neq \mu_{Ukraine}$
*Statistically significant difference, if *p<0,05, **p<0,01*

Ukrainian students perceive this competence with higher level of importance (Tab. 11).

Table 11. Descriptives for competences "Creativity"

	Country	N	Mean	Median	SD
Creativity	Latvia	57	4.25	4	0.786
	Ukraine	46	4.63	5.00	0.610

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To interpret the results of this comparison, it must be added, that Latvian students were mostly from the computer game design program and Interior design program. Ukrainian students represented Graphic design study program as well as other study programs presented by fewer respondents. The difference between groups might be explained by specifics of their study program curricula, which affected their perception of importance of this competence.

To sum it up we can conclude, that H2 is accepted: there is a difference in the perceived importance of entrepreneurship competencies between students from Latvia and Ukraine. Ukrainian students assess the competencies of "Mobilizing others", "Financial and economic literacy" and "Creativity" higher than Latvian.

To test H3*: Latvian and Ukrainian students differently perceive the opportunities to start a business in their countries*, we used the Mann-Whitney U criterion to compare Latvian and Ukrainian student groups in their business intentions.

This questionnaire block included statements about how easy it is to start a business in Ukraine or Latvia, what are the opportunities and barriers.

As it is presented in Table 12, the statistically significant differences exist only in the assessment of the statement "In my country, it is easy to start a business in my field of entrepreneurship". Both groups have assessed the opportunities to start their business in their countries in a low level, but Ukrainian students perceive this aspect higher that Latvian students.

Table 12. Differences between Ukrainian and Latvian students in assessment of Attitudes to entrepreneurship and perceptions

		Statistic	p
I know someone of my future profession who has started a business in the past two years	Mann-Whitney U	1062	0.090
In my country, it is easy to start a business in my field of entrepreneurship	Mann-Whitney U	**980***	0.021
In the next six months, there will be good opportunities to start a business where I live in my field of entrepreneurship	Mann-Whitney U	1297	0.925
I have the knowledge, skills and experience to start my own business in my field of entrepreneurship	Mann-Whitney U	1271	0.784
I would not start a business for fear it might fail in my fail in my field of entrepreneurship	Mann-Whitney U	1138	0.237

Note. $H_a\ \mu_{Latvia} \neq \mu_{Ukraine}$
*Statistically significant difference, if *p<0,05, **p<0,01*

Table 13. Descriptives for statement "In my country, it is easy to start a business in my field of entrepreneurship"

	Country	N	Mean	Median
In my country, it is easy to start a business in my field of entrepreneurship	Latvia	57	2.30	2.00
	Ukraine	46	2.74	3.00

We can conclude that the present geopolitical situation in the region determines low involvement in entrepreneurial activities perceived by both countries' students (median in both groups varies from 2 to 3). At the same time, as observed in Table 13, Ukrainian students perceive the easiness of starting a business higher than Latvian.

The next set of statements is devoted to business intentions, which is the readiness to make active moves in starting own business or supporting another's business. The comparison in Table 14 shows, that there is a statistically significant difference in assessing the statement "I can invest in someone's else business".

In both groups, this statement is evaluated at a low level, but Latvian students assume, that they could invest in someone's else business with a larger probability than Ukrainian ones.

Table 14. Differences between Ukrainian and Latvian students in assessment of "Business intentions"

		Statistic	p
I am expecting to start a new business in the next three years	Mann-Whitney U	1262	0.740
I can invest in someone's else business	Mann-Whitney U	988*	0.025

Note. $H_a\ \mu_{Latvia} \neq \mu_{Ukraine}$
*Statistically significant difference, if *p<0,05, **p<0,01*

Table 15. Descriptives for statement "I can invest in someone's else business"

	Country	N	Mean	Median
I can invest in someone's else business	Latvia	57	3.11	3
	Ukraine	46	2.59	3.00

To sum it up we conclude, that H3: Latvian and Ukrainian students differently perceive the opportunities to start a business in their countries, is rejected. Both groups of respondents evaluate the possibility of starting a new business and investing in someone else's business the same low. Meanwhile, Latvian students are more positive about investing in someone else's business (confirmed by Mann-Whitney U).

A comparative analysis of the content of design study programmes was made to get deeper insights. Using the EntreComp framework, the courses of EKA "Computer game design" and "Interior design" were compared with the Kyiv National University of Technologies and Design (KNUTD) "Graphic design" study programme. The courses were mapped to correspond to one or more of the three competence areas: Ideas & Opportunities, Resources, and Into Action. Table 16 summarizes the percentage of courses at each university whose content aligns with these areas (taking into consideration that a single course can contribute to multiple competence areas).

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Table 16. Comparison of the design-related EKA and KNUTD bachelor study programs to the presence of EntreComp framework competences

EntreComp Competence Area	EKA: % of Courses	KNUTD: % of Courses
Ideas & Opportunities (e.g. creativity, spotting opportunities, ethical thinking)	**51%**	**60%**
Resources (e.g. mobilizing resources, financial literacy, mobilizing others)	**12%**	**5%**
Into Action (e.g. initiative, planning & management, learning through experience)	**14%**	**12%**

The content of each EKA bachelor study program consisted of 39 study courses and KNUTD study program consisted of 57 study courses. As a result, 57 courses of EKA design-related study programs contained entrepreneurial component, representing 73 % of its study curriculum linked to at least one EntreComp competence, whereas KNUTD has 41 courses (or 72%) linked to at least one entrepreneurial competence. It can be concluded that proportionally EKA and KNUTD bachelor programs are similar by the presence of entrepreneurial competences in study content. This can be commented as the perception of the need for entrepreneurial competencies is determined, first of all, not by the presence of courses with these components in the curriculum, but by the personal needs of students, which, in turn, may be determined by the current geopolitical differences between Ukraine and Latvia and the associated economic situation.

Discussion

According to the research provided, creativity is the most highly rated entrepreneurial competence for both Latvian and Ukrainian students of design programs, stating its role as a central component in design education (Fan et al., 2024). However, the study reveals that Ukrainian students find competences of financial literacy and ability to mobilize others more important compared to their Latvian counterparts. This difference may be explained by the different economic and even political conditions and existing entrepreneurial ecosystems in the two countries. As stated in previous researches (Feola et al., 2024; Gardim et al., 2024), students living in the countries which experience certain economic uncertainty tend to place greater importance on obtaining financial and strategic management skills as they perceive entrepreneurship crucial for their further professional intentions. According to the present geopolitical situation in Ukraine, it explains why Ukrainian students prioritize financial literacy considering it as a survival tool in their entrepreneurial activity, whereas Latvian students are used to acting in a much more stable economic environment, considering such competences as granted (Kargytė et al., 2024).

These results align well with Bernardo and Bratzke (2024) who considered that despite the fact that creativity remained the most valued competency among design students, its impact on the entrepreneurial abilities is limited without application of business and management skills. Similarly, Fan et al. (2024) emphasize that students representing creative industries may struggle when commercializing their ideas due to the lack of financial literacy skills. This goes in line with the present research findings, underlying that the financial competencies are perceived as more crucial by Ukrainian students and less by Latvian ones.

However, there is a certain level of contradiction between ethical and sustainable thinking, as previous studies (Feola et al., 2024; Gardim et al., 2024) underline that sustainability

should become a central pillar of entrepreneurship education. Still, the present research shows that design students of both countries rate ethical and sustainable thinking as less important than creativity or financial literacy. This discovers a gap in integration of sustainability into design curricula and provides a suggestion that higher education institutions need to place a greater emphasis while ensuring an element of sustainability in education with entrepreneurial components.

The study curriculum of EKA and KNUTD design-related bachelor programs was compared to the presence of EntreComp competences in each of the programs. There were key differences detected. Over half of EKA`s courses contribute to the familiarization with the competences of the area Ideas & Opportunities. This is stated by the presence of many creative design and innovation-oriented subjects as well as by the presence of the disciplines covering ethics and sustainability topics. For example, the content of the course "Innovations in Architecture and Design" (Interior Design program) encourages development of creativity and visionary thinking, while the course "Labor, Environment and Civil Protection" contributes to the familiarization with sustainable and ethical thinking. EKA courses that contain development of entrepreneurial and business skills in their study curriculum cover development of competences from the Resources area and form 12% of the total study content. Courses that contain elements of communication and marketing, (such as "Business Communication and Ethics" and "Digital Marketing" also help students to mobilize others and value ideas. About 14% of EKA`s courses content aligns with the skills of the competence area Into Action. For example, the study course "Project Management of Software Development" contributes to the planning skills. In summary, the study content of EKA`s design related programs develops entrepreneurship skills making them practical and applicable in the present circumstances.

On the other hand, the study curriculum of KNUTD design-related program shows heavy concentration around the competences of the Ideas& Opportunities area (60%). This is related to the strong focus on creative arts, as most of the design courses sharpen students` creativity and vision, such as disciplines related to the module of "Composition and Colour Science", or "Design Thinking", that fosters innovative problem-solving. Competences of ethical and sustainable thinking are covered by the general courses, such as "Ideology, Morality and Rule of Law". In contrast, resources competences are hardly presented in the KNUTD study curriculum (around 5% of course content). Only a few course outcomes address this area, such as "Mental Health Education" which supports self-awareness and personal development. KNUTD curriculum doesn't cover exact entrepreneurship or marketing dedicated courses, and it looks as students have limited availability on getting skills of mobilizing resources or financial literacy. However, the KNUTD study program includes courses related to the "Management in the Services Sector" that contribute to the introduction of planning and management skills, as well as its students gain real-world experience through various internships and practicums, covering the "learning through experience" competence.

To sum up the discussion, we can say that both EKA and KNUTD give strong preferences to the Ideas & Opportunities competences area in their study curricula, but the deeper emphasis is more covered in the KNUTD program due to its pure design focus. EKA`s courses are also on half of their content dedicated to the creativity, opportunity recognition, and ethics, also reflecting the creative nature of the design industry. However, the presence of entrepreneurship related disciplines allows EKA to incorporate entrepreneurial competences more deeply. EKA also has a greater number and variety of the courses, whose obtained competences relate to the Resources area (entrepreneurship, business, communication) while KNUTD has only slight presence in this area. EKA students have much more multiple entrepreneurship-oriented subjects (such as "Law", "Basics of Entrepreneurship", "Marketing") obtaining a possibility to mobilize resources and get to know the basics of business planning – the possibilities that KNUTD students largely do not receive. Both programs include the same average components of the Into Action area (courses focusing on management, initiative, and practical experience).

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Conclusion

The study results showed that the most highly evaluated competence group in the perception of Latvian and Ukrainian students is "Ideas and opportunities". According to the results, the competence area "Attitudes towards entrepreneurial perceptions" is perceived as the least important. The competencies we were supposed to be the most important (creativity, vision, ethical and sustainable thinking) were included in the group "Ideas and opportunities". The competence perceived as the most important within this group is "Creativity", but the competence of "Ethical and sustainable thinking" is perceived as least important in this competence area. According to the stated, the H1a is verified. The competencies "Vision" doesn't significantly differ from other competencies in this area, although is assessed as the most important among all other competencies, according to that H1b hypothesis are partially rejected. The competence "Ethical and sustainable thinking" is perceived as least important in its competence area, and the H1c hypothesis is rejected.

Regarding the H2, it is confirmed that there is a difference in the perceived importance of entrepreneurship competencies between students from Latvia and Ukraine. Ukrainian students assess the competencies of "Mobilizing others," "Financial and economic literacy," and "Creativity" higher than Latvian ones.

Considering H3, it should be emphasized the level of optimism regarding the opportunities to start a business or to invest in someone else`s business is the same low, so the hypothesis is rejected.

The selected topic requires further exploration of entrepreneurial competencies, and more in-depth studies, specific to the design field, especially in different cultural and economic contexts should be done. The application of frameworks like EntreComp for comparative studies across diverse disciplines should be provided and interdisciplinary research is to be made.

Regarding the recommendations for studies, it should be noted that disciplines, containing entrepreneurial competencies, such as creativity, ethical and sustainable thinking, and financial literacy should be integrated into the curriculum of the design-related programs. The learning process itself should be enhanced through practical experiences, such as workshops or hackathons encouraging students to apply entrepreneurial skills in existing circumstances.

The entrepreneurial mindset is to be promoted among students through mentoring programs, helping them to access role models and to apply the results of successful case studies into the design field.

Content of the study curriculum of the design-related programs of EKA and KNUTD was compared to the presence of the EntreComp framework components in each. It was found that the EKA`s study curriculum more fully integrates entrepreneurship and action-oriented skills. Also, EKA has a higher total number of courses, whose content is deeper linked with the entrepreneurial competences and has a more balanced distribution across all three competence areas. It is strictly advised to KNUTD to revise its study curriculum, adding courses that would cover components of the Resources competences. This could allow Ukrainian students to perform more actively on the working market and to evaluate the possibility of starting a new business more actively. The ability to be open to entrepreneurship, not to be afraid to start your own business and invest should help young Ukrainian entrepreneurs, including those from the design industry, to raise the country's ruined economy.

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