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# AI, ACADEMIC EXPECTATIONS, AND THE MAKING OF INTELLECTUAL CAPITAL: EVIDENCE FROM POLISH AND GREEK UNIVERSITIES

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## Abstract

**Purpose:** This study analysed how the educational preferences of current students (referred to as digital natives), perceptions of artificial intelligence (AI), and expectations of academic teachers shape the development of intellectual capital in higher education in the context of differences in the level of digitisation in Poland and Greece.

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**Methodology:** The research draws on theoretical frameworks including learning styles, digital pedagogy, educational geography, expected value theory, and intellectual capital. A comparative analysis was conducted to examine students' attitudes toward teaching methods, active learning approaches, and the use of AI in education. Survey data were collected from higher education students in Poland and Greece and analysed to identify cross-cultural differences.

**Findings:** The results reveal significant national differences. Polish students, typically younger, preferred laboratories and group work, while Greek students favoured project-based learning and seminars. In terms of expectations, Polish students prioritised lecturers' expertise and teaching diversity, whereas Greek students emphasised the development of social competences. Both groups acknowledged the educational potential of AI, though Polish students more often highlighted risks to independent thinking, while Greek students viewed AI as more inspirational.

**Originality:** This study contributes to understanding how digital and socio-economic transformations shape educational expectations and learning preferences across cultures. It underscores the need for locally tailored academic programs that integrate technology and active learning strategies to enhance intellectual capital and better prepare students for digitally driven, knowledge-based societies. The results contribute to understanding how the development of intellectual capital in universities is linked to the creation of a skilled, innovation-oriented workforce, which is essential for the competitiveness of economies.

**Key words:** socio-economic transformation, spatial differences in education, Generation Z, active learning, digital natives, economic competitiveness

**JEL classification:** I23, I25

## Introduction

The digital transformation of education is a priority in European strategies such as the Digital Education Action Plan 2021–2027 and the European Education Area. The European Union emphasises the implementation of modern technologies in the education process in order to better prepare students for the dynamically changing labour market (Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Regions on Achieving the European Education Area by 2025, 2020; Digital Education Action Plan 2021–2027 Resetting Education and Training for the Digital Age, 2020). The dynamic development of technology requires continuous improvement of digital skills (Polychronidou et al., 2021), which play a key role in shaping intellectual capital – the foundation of competitiveness in knowledge-based economies. The transformation of digital education is not only a didactic challenge, but also a strategic element in preparing human resources for the digital and

innovative economy (World Economic Forum, 2023).

Countries exhibit different mechanisms of technology acceptance (Nistor et al., 2010; Harlie et al., 2019; Radović-Marković, 2025), which are determined by both cultural dimensions (Jorgji et al., 2024) and the available infrastructure required for implementing digital education. The pace of implementation of digital innovations in higher education and the acceptance of these changes vary across European countries (*OECD Digital Education Outlook*, 2023). Poland and Greece, despite being EU members, have different approaches to digital education. An analysis of the Digital Economy and Society Index (a composite index published annually by the European Commission to measure the progress of EU countries in their digital transformation) shows significant differences between the level of digitisation in Poland and Greece (Almeida De Figueiredo, 2024; *The Digital Economy and Society Index (DESI)*, 2024).

The varying levels of digitalisation across EU countries result in differing conditions for the development of human resources and intellectual capital in individual economies. At the same time, the European Commission views digital transformation as a process of comparable significance to the Industrial Revolution (*Shaping Europe's Digital Future*, 2020). Digital technologies have brought about a paradigm shift in the entire education system (Haleem et al., 2022; Strielkowski et al., 2022; Lis, 2021): they influence the way knowledge is acquired and constitute a kind of measure of economic innovation, which is the effectiveness of education systems in adapting to new technologies. This process is linked to the creation of a skilled, innovation-oriented workforce and directly impacts the long-term competitiveness of national economies.

The aim of the study is to analyse students' educational preferences, with particular emphasis on their perceptions of artificial intelligence in the educational process and their expectations regarding the role of academic teachers in shaping intellectual capital in higher education. The study, based on a comparison of students from Poland and Greece, identifies factors that may promote or limit the development of students' knowledge, skills, and competences in the context of digital transformation in education.

Existing research emphasises that students' preferences and needs in an educational context are determined by the presence of technology in their everyday routine (Cain et al., 2022; Wijaya et al., 2020; Zilka, 2023). These 'digital natives', who have been accompanied by technology from the first days of their lives (Shtepura, 2022), have a new learning style compared to previous generations (Purcell, 2020; Duzenli, 2021), need diversity and varied forms of activities, and need to be engaged during classes (Antosa et al., 2020; Ociepa-Kicińska et al., 2024; Rippé, 2020).

There is a lack of systematic research on digital education from students' perspectives, taking into account their educational preferences, perceptions of artificial intelligence, and expectations for the role of academic teachers in building intellectual capital.

Thus, we are filling a research gap by combining the analysis of teaching preferences with perceptions of innovative technologies. The results obtained can serve as a basis for developing educational programmes that are better adapted to local needs and student expectations.

Theoretical framework

Areas with higher levels of digital infrastructure and institutional support are implementing innovative teaching models more quickly, while others are lagging, creating a new axis of educational inequality in Europe. The digital transformation highlights and exacerbates this spatial diversity in access to technology and digital skills (Digital Education Action Plan 2021-2027 Resetting Education and Training for the Digital Age, 2020).

Students’ educational preferences are influenced by a complex interaction of social, economic and personal factors. This study is based on five complementary areas (Figure 1).

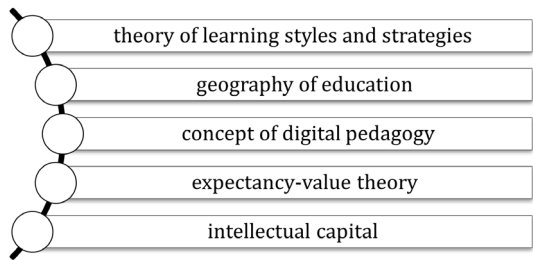


Figure 1. Theoretical framework of the study  
Source: own study.

The theory of learning styles and strategies suggests that individuals have unique preferences and approaches to learning that significantly influence their educational experiences (Griffiths, 2022). Taking the assumptions of this theory into account enables professors to design appropriate teaching strategies based on the actual needs of students (Palacio et al., 2024). According to the educational geography approach, educational institutions are embedded in a specific local, regional, national and transnational context, where infrastructure, technology accessibility and local values influence learning processes and student preferences (Holloway & Jöns, 2012; Kraftl et al., 2022). The concept of digital pedagogy encompasses the design, implementation, and evaluation of teaching practices that integrate digital technologies, including educational platforms, digital resources, and teachers’ digital competencies (Istrate, 2022). The assumptions of this idea explain the impact of technological transformation on students’ educational choices. Expectancy-value theory (EVT) is widely used to explain and predict student learning outcomes, perseverance and aspirations (Loh, 2019). It allows us to understand how students’ expectations of success and the perceived value of educational tasks influence their choices in educational forms - students choose teaching methods that are consistent with their sense of usefulness and the possibility of achieving success.

Finally, there is the theory of intellectual capital, which is considered a key resource for the development of knowledge-based economies (Cabrito et al., 2024). This concept comprises three components: Human Capital (knowledge, skills, creativity of individuals),

Structural Capital (systems, processes and technologies supporting knowledge creation) and Relational Capital (networks and relationships between organisations and their environment) (Vale et al., 2021). With regard to higher education and the subject of this paper, the human capital of students, which is shaped by the teaching process and the adaptation of modern educational technologies, is of particular importance. The intellectual capital of universities, which includes the preparation, attitude and (tangible and intangible) resources of academic teachers, cannot be overlooked either.

Due to the specific nature of a generation of students who have been immersed in a technology-saturated environment from an early age, it is also important to understand the digital divide in education systems and to implement strategies for educational institutions aimed at bridging this gap (Soomro et al., 2020). This can be achieved, among other things, through the use of active learning methods, including a range of dynamic tools and approaches for actively engaging students and deepening their understanding through experiential learning and collaborative activities (Chacon et al., 2023; Reilly & Reeves, 2022; Williams et al., 2022). Available research confirms not only the clear advantage of active learning over traditional approaches, but also the better performance of groups using these methods (Anakin & McDowell, 2021; Theobald et al., 2020). Researchers prove that active learning strategies have a significant impact on student performance, satisfaction and overall development (Capone, 2022; Kozanitis & Nenciovici, 2023; Lugosi & Uribe, 2022; Schweder & Raufelder, 2024; Yuretich et al., 2001).

This foundation allows for a multifaceted view of students' educational preferences, their approach to technology, including active learning and AI-based tools, as well as their expectations of academic teachers in the context of developing human capital in higher education. Therefore, the research question stand as follow:

What educational preferences regarding academic teachers and teaching methods, as well as attitudes toward artificial intelligence, do students from Poland and Greece have in the context of building intellectual capital? Are there any differences between both group of students?

## Methodology

The study was conducted on a sample of 289 students from Poland and 223 students from Greece. It was carried out in the second and third quarters of 2024, using a questionnaire prepared on the basis of previous focus studies conducted in three groups of students. This made it possible to tailor the questionnaire questions to the actual experiences and language of the respondents, as well as to include topics that were relevant to them.

The questionnaire included questions about educational preferences, perceptions of artificial intelligence in education, expectations of lecturers, and previous experiences with active learning strategies. Most of the questions were rated on a five-point Likert scale. Based on related questions, three scales were created ('Willingly participation', 'Interacted

with,’ ‘The perfect lecturer’), for which Cronbach’s  $\alpha$  coefficients were calculated to verify their internal consistency.

The online questionnaire was sent to students to whom the research team had direct institutional access, mainly through university mailing lists, academic platforms and contacts made by lecturers. Participation in the study was completely voluntary and anonymous, and completing the questionnaire was treated as an expression of informed consent to participate in the study. The study did not include sensitive data and was in line with general ethical guidelines for social research.

The selection of countries, Poland and Greece, was intentional. It resulted from the desire to compare two European Union member states that differ in terms of their level of digitisation (as confirmed, among others, by the DESI results) and the specificity of their higher education systems, while at the same time being subject to the same European strategies for the transformation of digital education. This choice allows for a better understanding of how the local socio-cultural and infrastructural context influences students’ educational preferences and the process of building intellectual capital in the context of digitisation.

Descriptive statistics (means, medians, standard deviations) were used to analyse the data, as well as chi-square independence tests and Student’s t-tests for independent samples, in order to identify significant differences between groups of students from Poland and Greece. The analyses were performed in IBM SPSS 21.

Results

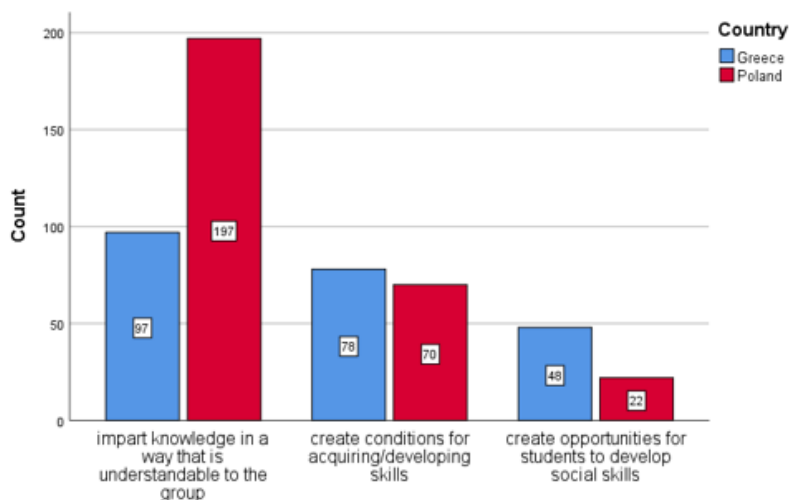
The research sample consists of 289 Polish and 223 Greek students. The mean age of Polish students is 22 years old, and their average year of study is 1.40 years. While Greek students are in average 28.22 years old, and they are at their 2.72 year of study (see, Table 1). In both samples the maximum age of a student is quite high, it is 54 and 56, respectively.

Table 1. Sample’s Demographics

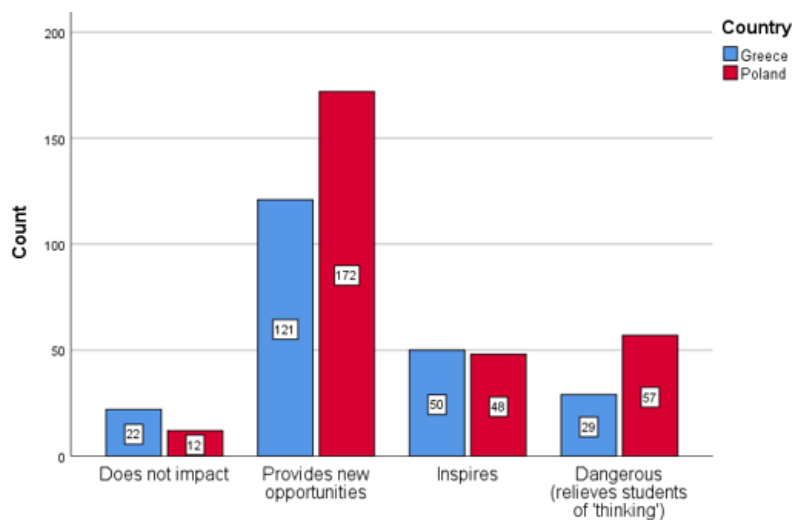
|               | Poland |        | Greece |        |
|---------------|--------|--------|--------|--------|
|               | Mean   | Median | Mean   | Median |
| Age           | 22.01  | 21     | 28.22  | 22     |
| Year of study | 1.40   | 1      | 2.72   | 2      |

The majority of students are in their undergraduate studies (235 Polish and 139 Greek students) and the rest are in their master studies (54 Polish and 84 Greek students). Regarding the students’ opinion on the most important thing in effective teaching is for the teacher to impart knowledge in a way that is understandable to the group for both sample groups, but the Polish students are strongly in favor of this opinion, since more than half replied to this category (see, Figure 1). Both sample groups believe that artificial intelligence provides

opportunities for their studies, while the Polish students are more cautious regarding the possible dangers that will occur from artificial intelligence (see, Figure 2).



**Figure 1.** In your opinion the most important thing in effective teaching is for the teacher to



**Figure 2.** How artificial intelligence affects studying?

For internal consistency and reliability when using Likert-type scales, it is imperative to calculate and report Cronbach's  $\alpha$  coefficient. Closely related questions were grouped in

three scales (see, Table 2). The high value of Cronbach's  $\alpha$ , for the last two scales, indicates good internal consistency of the items on the respective scale. The only scale that does not have a high Cronbach's  $\alpha$  value is "Willingly participation", probably because the students do not willingly participate in all types of classes (lectures, laboratories, thesis seminars, ...). This is evident from the Inter-item correlation matrix in which all correlations are lower than 0.315.

**Table 2.** Scale variables – Reliability analysis

| Scale name              | Questions | Cronbach's Alpha | N of Items | Mean  | Std. Deviation |
|-------------------------|-----------|------------------|------------|-------|----------------|
| Willingly participation | 2         | 0.463            | 6          | 16.98 | 4.89           |
| Interacted with         | 3         | 0.731            | 12         | 20.28 | 3.68           |
| The perfect lecturer    | 6         | 0.876            | 5          | 33.46 | 5.66           |

Table 3 presents the descriptive measures of scale variables in both countries, where there are no evidence of differences at this stage.

**Table 3.** Descriptive measures of Scale variables

|                     | Willingly participation |        | Interacted with |        | The perfect lecturer |        |
|---------------------|-------------------------|--------|-----------------|--------|----------------------|--------|
|                     | Poland                  | Greece | Poland          | Greece | Poland               | Greece |
| Total               | 284                     | 221    | 284             | 221    | 284                  | 221    |
| Mean                | 16.36                   | 17.77  | 19.87           | 20.30  | 34.14                | 32.58  |
| Median              | 15                      | 15     | 19              | 21     | 35                   | 34     |
| Interquartile Range | 4                       | 6      | 5               | 5      | 6                    | 6      |
| Std. Deviation      | 4.37                    | 5.40   | 3.5             | 3.85   | 5.11                 | 6.21   |
| Min                 | 5                       | 0.0    | 14              | 13     | 9                    | 8      |
| Max                 | 30                      | 30     | 33              | 33     | 40                   | 40     |

However, after running the Independent Samples t-test for the three scales and the two countries, there is evidence that there are statistically significant different opinions between the students of the two countries in all scales ( $p$ -values  $< 0.002$ ).

To examine whether the different countries of the respondents consist of significant differentiating factors for the expressed relative attitudes, chi-square tests are used. The scale of "Willingly participation" between the two countries is presented in Table 4, with



associations of p-value less than 0.01, indicating that the students of different countries have different preferences in participating in different types of classes. Specifically, Polish students do not prefer Lectures (64.8%), but Greek students are more neutral to this type of class, and they are almost equally divided in their preferences. Both countries prefer laboratories, but Polish students are most preferred (35.8%) with this type of class, while Greek students do not know this form of class yet (12.6%). Both student groups are not familiar, or they believe that project classes and thesis seminars are least important. Greek students seem to prefer project classes more (36.5%) than Polish students (13.6%) and Polish students are almost equally divided in their preferences in project classes.

**Table 4.** Willingly participation in ... and country

|  | Country     | I don't know this form of classes/ or least important % | Least preferred % | Least preferred % | Neutral % | Preferred % | Most Preferred % |
|--|-------------|---|-------------------|-------------------|-----------|-------------|------------------|
| Willingly participation in Lectures        | Poland      | 1.4   | 43.3              | 21.5              | 17.3      | 10.4        | 6.1              |
|  | Greece      | 4.5   | 13.6              | 18.1              | 26.7      | 17.2        | 19.9             |
|  | Association | $X^2 = 70.313$ , p-value = 0.0                          |                   |                   |           |             |                  |
| Willingly participation in Practicals      | Poland      | 1   | 4.9               | 10.8              | 20.8      | 37.5        | 25               |
|  | Greece      | 11.2  | 6.3               | 11.7              | 15.2      | 29.1        | 26.5             |
|  | Association | $X^2 = 29.096$ , p-value = 0.0                          |                   |                   |           |             |                  |
| Willingly participation in Laboratories    | Poland      | 4.1   | 6.3               | 11.1              | 16.3      | 26.4        | 35.8             |
|  | Greece      | 12.6  | 8.6               | 13.5              | 17.1      | 20.7        | 27.5             |
|  | Association | $X^2 = 17.327$ , p-value = 0.004                        |                   |                   |           |             |                  |
| Willingly participation in Project classes | Poland      | 20.9  | 12.5              | 12.8              | 22.2      | 12.2        | 19.4             |
|  | Greece      | 10.8  | 7.7               | 17.1              | 22.5      | 23          | 18.9             |
|  | Association | $X^2 = 20.756$ , p-value = 0.001                        |                   |                   |           |             |                  |
| Willingly participation in Thesis Seminars | Poland      | 36.6  | 15.3              | 18.1              | 16.4      | 7.7         | 5.9              |
|  | Greece      | 15.7  | 17.1              | 14.9              | 15.8      | 18          | 18.5             |
|  | Association | $X^2 = 49.099$ , p-value = 0.000                        |                   |                   |           |             |                  |

To examine whether students interact with several ways of teaching in different countries, Table 5 presents the chi-square tests of the scale “You interacted with” between the two countries, with associations of p-value less than 0.001, indicating that the students of different countries have different preferences. It is often to interact with group work in Poland (66.1%), but in Greece this happens sometimes (56.5%). In Poland students have never interacted with preparing a paper (40.1%), but in Greece this happens sometimes (50.2%), with a similar image in interaction with joint assessment of other students’ work. In Poland more than half students often make presentations (57.1%), while in Greece this happens to almost one out four students (24.7%). Polish students never (45.7%) or sometimes (46.4%) watch videos, while Greek students sometimes watch videos (52.5%). The majority of Polish students have never interacted with field work (87.6%), but Greek students sometimes (40.8%) and the similar image occurs in flipped classrooms.

**Table 5.** You interacted with ... and country

|  | Country     | Never %                           | Sometimes % | Often % |
|--|-------------|-----------------------------------|-------------|---------|
| You interacted with group work                               | Poland      | 0.3                               | 33.6        | 66.1    |
|  | Greece      | 16.6                              | 56.5        | 26.9    |
|  | Association | $X^2 = 99.391$ , p-value = 0.000  |             |         |
| You interacted with preparing papers (by students)           | Poland      | 40.1                              | 44.3        | 15.6    |
|  | Greece      | 23.8                              | 50.2        | 26      |
|  | Association | $X^2 = 17.984$ , p-value = 0.000  |             |         |
| You interacted with joint assessment of other students’ work | Poland      | 60.6                              | 30.8        | 8.6     |
|  | Greece      | 41.7                              | 47.1        | 11.2    |
|  | Association | $X^2 = 18.204$ , p-value = 0.000  |             |         |
| You interacted with making presentations (by students)       | Poland      | 19.7                              | 23.2        | 57.1    |
|  | Greece      | 20.1                              | 55.2        | 24.7    |
|  | Association | $X^2 = 65.498$ , p-value = 0.000  |             |         |
| You interacted with watching videos                          | Poland      | 45.7                              | 46.4        | 7.9     |
|  | Greece      | 25.6                              | 52.5        | 21.9    |
|  | Association | $X^2 = 32.332$ , p-value = 0.000  |             |         |
| You interacted with field work                               | Poland      | 87.6                              | 10          | 2.4     |
|  | Greece      | 40.8                              | 44.4        | 14.8    |
|  | Association | $X^2 = 125.042$ , p-value = 0.000 |             |         |
| You interacted with flipped classroom                        | Poland      | 88.9                              | 9           | 2.1     |
|  | Greece      | 51.6                              | 42.2        | 6.2     |
|  | Association | $X^2 = 88.907$ , p-value = 0.000  |             |         |

To examine whether the perfect lecturer/academic is a significant differentiating factor between Polish and Greek students, chi-square tests are used. The scale of “The perfect lecturer” between the two countries is presented in Table 6, with associations of p-value less than 0.005, indicating that the students of different countries have different opinions about the perfect lecturer. For Polish students it is very important (63%) to have a lecturer with a high level of knowledge in the relevant area, while for Greek students this is important (45.3%). For Polish students it is very important (66.8%) for their lecturer to have practical experience in the relevant area, but not so many Greeks share this opinion (45.3%). Similar images occur in the students’ opinions regarding the lecturers who adds variety to the class (56.1% to 37.2% is very important for Polish and Greek students, respectively), who relates to students with respect (64.8% to 52.5% is very important for Polish and Greek students, respectively) and who is punctual (38.1% to 28.3% is very important for Polish and Greek students, respectively).

**Table 6.** The perfect lecturer... and country

|   | Country     | Not very important %             | Not important % | I have no opinion % | Important % | Very important % |
|---|-------------|----------------------------------|-----------------|---------------------|-------------|------------------|
| The perfect lecturer/academic is one who has a high level of knowledge in the relevant area | Poland      | 1.7                              | 1               | 5.9                 | 28.4        | 63               |
|   | Greece      | 2.2                              | 9               | 5.4                 | 45.3        | 38.1             |
|   | Association | $X^2 = 42.884$ , p-value = 0.000 |                 |                     |             |                  |
| The perfect lecturer/academic is one who has practical experience in the relevant area      | Poland      | 0.7                              | 3.1             | 4.5                 | 24.9        | 66.8             |
|   | Greece      | 1.8                              | 4.9             | 8.5                 | 39.5        | 45.3             |
|   | Association | $X^2 = 24.276$ , p-value = 0.000 |                 |                     |             |                  |
| The perfect lecturer/academic is one who adds variety to the class                          | Poland      | 0.6                              | 2.1             | 11.1                | 30.1        | 56.1             |
|   | Greece      | 1.7                              | 8.1             | 13.5                | 39.5        | 37.2             |
|   | Association | $X^2 = 24.103$ , p-value = 0.000 |                 |                     |             |                  |
| The perfect lecturer/academic is one who relates to students with respect                   | Poland      | 0.3                              | 3.1             | 9                   | 22.8        | 64.8             |
|   | Greece      | 1.3                              | 6.3             | 6.7                 | 33.2        | 52.5             |
|   | Association | $X^2 = 13.327$ , p-value = 0.010 |                 |                     |             |                  |
| The perfect lecturer/academic is one who is punctual  | Poland      | 3.8                              | 8               | 19.7                | 30.4        | 38.1             |
|   | Greece      | 2.2                              | 13.5            | 14.3                | 41.7        | 28.3             |
|   | Association | $X^2 = 14.843$ , p-value = 0.005 |                 |                     |             |                  |

Chi-square test is also used to examine whether students' opinion differs regarding the most important thing in effective teaching between the two countries. Table 7 presents the results of the chi-square test with  $p\text{-value} = 0.000$  indicating that Polish and Greek students have different opinions. Most Polish students (68.5%) believe that the most important thing in effective teaching is for the teacher to impart knowledge in a way that is understandable to the group, and they believe less that it is to create opportunities for students to develop social skills (21.5%). Greek students are almost divided in their opinion, stating that the most important thing in effective teaching is for the teacher to impart knowledge in a way that is understandable to the group (43.5%) followed by 35% and 21.5% for the other two opinions (create conditions for acquiring/developing skills and create opportunities for students to develop social skills).

**Table 7.** In your opinion, the most important thing in effective teaching is for the teacher to... and country

| Country     | impart knowledge in a way that is understandable to the group % | create conditions for acquiring/developing skills % | create opportunities for students to develop social skills % |
|-------------|---|---|--|
| Poland      | 68.2  | 24.2  | 7.6  |
| Greece      | 43.5  | 35  | 21.5   |
| Association | $X^2 = 36.197$ , $p\text{-value} = 0.000$                       |   |  |

Regarding the students' opinion on artificial intelligence and their studies, the chi-square test reveals significant differences ( $p\text{-value} = 0.006$ ) between the two countries (Table 8). Students from both countries believe that artificial intelligence provides new opportunities (with a slight difference of 5 percentage points), while there are more Greeks who believe that it inspires (with a difference of 5.9 percentage points), and there are more Polish who believe that it is dangerous to use (with a difference of 6.6 percentage points).

**Table 8.** How artificial intelligence affects studying? ... and country

| Country     | Does not impact %                         | Provides new opportunities % | Inspires % | Dangerous (relieves students of 'thinking') % |
|-------------|---|------------------------------|------------|---|
| Poland      | 4.2                                       | 59.5                         | 16.6       | 19.7  |
| Greece      | 9.9                                       | 54.5                         | 22.5       | 13.1  |
| Association | $X^2 = 12.404$ , $p\text{-value} = 0.006$ |                              |            |   |

## Conclusions

The study reveals a number of significant differences and similarities in the analysed area. The geographical differences in learning methods and attitudes towards digital tools are consistent with the concept of educational geography, which points to strong local influences in educational processes (Kraftl et al., 2022). On average, students from Poland were younger and at an earlier stage of their studies than their Greek counterparts, which may partly explain the differences in their expectations and readiness to undertake specific forms of learning, which is consistent with the findings (Loh, 2019) on the theory of expectations and values, which emphasises the role of the educational stage in shaping motivation and teaching choices.

The results show that Polish students were less inclined to participate in traditional lectures, while Greek students were rather neutral about this form of teaching. Both groups preferred laboratories, but this preference was more pronounced among Polish students. On the other hand, project classes and thesis seminars were more often rated higher among Greeks, which may be due to differences in study programmes and teaching experiences in both countries. This confirms earlier observations (Soomro et al., 2020), which indicated that the level of digitisation and different models of education can significantly influence students' willingness to engage in new forms of teaching.

An analysis of experiences related to active teaching methods revealed that Polish students participated in group work and prepared presentations much more often, while their Greek counterparts watched educational films, took part in field trips and participated in flipped classroom lessons more often. This distribution may reflect local academic traditions and access to appropriate teaching infrastructure. This is consistent with the concept of digital pedagogy (Istrate, 2022), which emphasises the importance of the institutional and technological context for the implementation of educational innovations.

When it comes to expectations towards lecturers, Polish students placed much greater emphasis than Greek students on the high level of subject knowledge and practical experience of teachers. They also value the punctuality of academic teachers and their ability to diversify their classes and show respect to students. Such expectations are in line with the assumptions of intellectual capital and confirm that the human capital of lecturers is an important element in building knowledge resources in higher education (Cabrilo et al., 2024; Vale et al., 2021). In this context, it should also be emphasized that motivated teachers work creatively (Lapénienė & Dumčienė, 2012).

In terms of effective teaching, Polish students considered it crucial to convey knowledge in a way that was understandable to the group, while Greek students more often emphasised the importance of creating conditions for developing social skills and competences. These observations confirm reports in the literature about the growing need to design classes that enable active learning and the development of soft skills (Reilly & Reeves, 2022).

Finally, with regard to artificial intelligence, students from both countries primarily recognised its potential and opportunities for their education. At the same time, Polish

respondents also more often pointed to the risks associated with limiting independent thinking, while Greeks emphasised the inspiring nature of this technology.

In summary, the results of the study show that educational preferences, experiences with active teaching strategies, expectations of lecturers, and attitudes towards artificial intelligence in the education process differ significantly between students from Poland and Greece. These differences may result from both cultural factors and the varying levels of implementation of modern digital solutions in the higher education systems of both countries, which is consistent with the OECD's findings (*OECD Digital Education Outlook*, 2023) regarding the varying pace of digital transformation in education in Europe. These results highlight the need to design study programmes and teaching methods in a way that takes into account local conditions and the individual needs of students, which in the long term promotes the building of intellectual capital in a knowledge-based economy. In this context, strengthening intellectual capital through tailored education contributes directly to the development of a skilled, innovation-oriented workforce and enhances the global competitiveness of national economies.

## Implications

The results of the presented study indicate the need to adapt higher education curricula to the local cultural context and the level of digital infrastructure development. The differences between students from Poland and Greece in terms of preferred types of classes, experiences with active teaching methods, and perceptions of AI show that a flexible approach to designing study programmes and teaching methods is key to effectively building the intellectual capital of universities and students.

Diverse expectations of lecturers – particularly in terms of their knowledge, practical experience and teaching methods – indicate the need to include these elements in academic staff development policies, with an emphasis on teaching and technological competences. At the same time, students' positive attitude towards artificial intelligence, combined with caution about its risks (especially in Poland), highlights the need to include elements of critical reflection on technologies in study programmes.

These findings should also be interpreted in the context of ongoing socio-economic transformation,

which redefines the role of higher education in equipping students with the skills necessary to thrive in knowledge-based, digitally driven societies. Universities play a strategic role in educating a skilled workforce that contributes to the development of national innovation potential and long-term economic competitiveness.

From a research perspective, the results obtained demonstrate the value of theoretical approaches such as EVT, digital pedagogy and the geography of education in analysing educational preferences and attitudes towards modern technologies. In this context, these results can form the basis for in-depth cross-cultural analyses and the design of activities

supporting the development of intellectual capital in higher education.

**Limitations.** The study was based on a deliberately selected sample of students from two countries, which limits the possibility of fully generalising the results. The data was obtained using a self-report method at a single point in time, without taking into account the dynamics of changes or the specific nature of the fields of study. These limitations indicate the need for further research involving more diverse samples and the use of qualitative methods to deepen the results.

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