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# The E-Sports Phenomenon in the University Environment: Involvement, Perceptions and Challenges. A Comparative Analysis between Technical and Economics Students

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**Abstract.** *The e-sports phenomenon has experienced an impressive expansion in recent years, transforming digital competitions into events with large audiences and considerable economic impact. The literature emphasizes multiple benefits of involvement in e-sports, from developing strategic, tactical and teamwork skills to attracting new professional and academic opportunities. Research on how e-sports influence students in various fields of study is limited, especially in the Romanian university context.*

*The present study contributes to fill this gap, having as main objective to identify the differences between technical and economics students in terms of perception, involvement and attitudes towards e-sports and video games, as well as to explore the relationship between these activities and the level of participation in physical activities. The methodology used is of a quantitative, descriptive-comparative type, based on an online questionnaire administered to a sample of 1,077 students from two representative universities in Romania. The research questions aim to determine both the extent of the e-sports phenomenon among young people and how it can be integrated into the university curriculum.*

*The results indicate significant differences between technical and economics students in terms of level of involvement in digital competitions, perception of the popularity of e-sports and attitudes towards their integration in education. In addition, the positive correlations between e-sports involvement and physical activity refute the perception that video games discourage physical activity. The major contribution of the research lies in highlighting the potential of e-sports that could be harnessed in the university environment.*

**Keywords:** curriculum, e-sports, implication, perception, physical activity, students, university.

## Introduction

The global video games industry has evolved rapidly over the last decades, which has favored the emergence of the e-sports phenomenon. Esports is a form of entertainment and a method for developing strategic, tactical and collaborative skills, which consistently attracts investment, sponsors and impressive audiences. In this context, universities around the world are exploring the opportunities e-sports offers in developing students' skills and diversifying extracurricular activities, introducing academic programs and forming competitive e-sports teams. Previous studies highlight multiple potential benefits of playing e-sports for students, including improved critical thinking, communication and teamwork skills (Zhong et al., 2024). With its significant

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impact on the economy, society and education as well as its increasing popularity among young people, it is important to understand this phenomenon in a university context.

In Romania, the interest in e-sports has grown with the development of local gaming and the organization of prestigious international competitions. However, the influence of e-sports on the local academic community remains relatively unexplored scientifically, especially in terms of the perceptions and behaviors of students from different backgrounds.



This study addresses this gap by analyzing whether:

Are there significant differences between technical and economics students in their perception, involvement and attitudes towards e-sports and video games? Are there significant differences in the correlation between these activities and the level of engagement in physical activities?

The answers to these questions pursue the following objectives:

To analyze the level of involvement in e-sports competitions and the perception of their popularity.
Investigating attitudes towards the integration of e-sports into the university curriculum.
Comparison of video game playing among students from the two profiles.
Exploring the relationship between e-sports, video games and physical activity levels.

By addressing these issues, the present study aims to provide an in-depth understanding of the e-sports phenomenon among future engineers and economists, contributing to the literature by contextualizing a global phenomenon in a specific national setting, providing insight into its adaptability to diverse academic environments.

Using a descriptive-comparative research design, the study provides useful information for universities and educational decision-makers who wish to capitalize on the potential of e-sports as a tool for training and professional development.

## Literature review

The development of the gaming industry led to the emergence of e-sports, a term added to Dictionary.com in May 2015. E-sport is defined as a form of organized and institutionalized competition, in which professional players and official teams participate in tournaments using popular video games, with the goal of winning prize money and achieving fame. (Dominteanu, et al., 2023a). Similar to traditional sports, e-sports require skills, strategy, tactics, concentration, communication, coordination, teamwork and intensive training (Marelić & Vukušić, 2019; Zhouxiang, 2022). According to the Asian E-sports Federation, e-sport is a combination of technology and sport, involving professional competitions conducted using electronic devices and video games as the official platform (Scholz & Barlow, 2019). Although not all video games can be categorized as e-sports, all forms of e-sports involve, by definition, the use of video games.

Zhong and co-workers (2024) classify e-sport games into nine main categories according to their distinct characteristics: (1) First/Third-Person Shooters Games (e.g., Counter-Strike and Call of Duty), (2) Real-time Strategy Games (e.g., StarCraft and Warcraft), (3) Multiplayer Online Battle Arena Games (e.g., Defense of the Ancients and League of Legends), (4) Sports Simulation Games (e.g., the FIFA series), (5) Sandbox Games (e.g., Minecraft), (6) Massively Multiplayer Online Role-playing Games (e.g., World of Warcraft), (7) Fighting Games (e.g., Super Smash Bro), (8) Racing Games (e.g., iRacing), and (9) Card and Board Games (e.g., Hearthstone)

The evolution of eSports started in 1952 with the revolution of information technology when IBM released its first computer 701(Stanton, 2015) and the game *Tic Tac Toe* was created on the EDSAC -Electronic Delay Storage Automatic Calculator computer (Larch, 2023). In 1958, *Tennis for Two*, the first multiplayer game developed at MIT, introduced competition between

players and allowed spectators to watch the game (Bousquet & Ertz, 2021). This can be considered the birth of E-sports.

In 1972, the *Intergalactic Spacewar Olympics* competition was held at Stanford University, marking the debut of organized tournaments (Zhouxiang, 2022). In the same year, with the advent of the Magnavox Odyssey console, the development of home gaming, the popularization of video consoles and the promotion of arcade games took place (Bousquet & Ertz, 2021). The 1980s represent the "golden age" of arcade games such as *Pac-Man* and *Donkey Kong*. The *Space Invaders* Championship attracted over 10,000 participants, turning video games into a competitive and popular activity (Billings & Hou, 2019).



In the 1990s, with the advent of the internet and broadband networks, South Korea became a global eSports center. The South Korean government developed IT infrastructure and internet cafes (*PC bang*), spurring the rise in popularity of online gaming (Esports Insider, 2023). Competitions began to attract sponsors and offer increasing prizes. The first professional player is considered Dennis "Thresh" Fong, who won The Red Annihilation and the grand prize a Ferrari 328 GTS. (Bousquet & Ertz, 2021).

The 2000's were characterized by the spectacular growth of e-Sports globally. Russia was the first country to legitimize "cybersport" as a sport activity in 2001 (Dominteanu, et al., 2023b). International tournaments such as the *World Cyber Games* and the *CPL World Tour* as well as the popularity of *League of Legends* and *Dota* games have attracted a growing audience. In 2008, the International eSports Federation was established, but it has lost credibility due to disputes over its legitimacy (Bousquet & Ertz, 2021).

In the 2010s, online streaming platforms such as Twitch and YouTube Live revolutionized the way competitions were consumed, attracting new audiences and sponsors. (Kanellopoulos & Giosso, 2024). The advent of smart-phones and mobile gaming has diversified the market, and the launch of Dota 2, League of Legends and Fortnite, have increased the interest of the audience and the prizes on offer. In 2016, WESA (World Esports Association) emerged, which standardized the rules and promoted cooperation between stakeholders (Bousquet & Ertz, 2021).

The COVID-19 pandemic has had a limited impact on the industry, with mainly online competitions such as the *League of Legends World Championship* or *Overwatch League*. The popularity of mobile gaming has increased significantly and mobile eSports competitions have generated massive participation and new revenue opportunities. Currently, eSports is the fourth largest source of online content after Netflix, Google and Apple TV, consolidating its position in the global entertainment industry (Billings & Hou, 2019; Bousquet & Ertz, 2021).

The eSports industry has seen impressive growth, surpassing $1 billion as of 2020, China was the global leader generating $385.1 million, followed by North America and Europe. In 2023, China had the highest competition earnings (USD 37.78 million), followed by the US (USD 28.71 million) and Russia (USD 14.47 million), and in terms of global revenue, the US was in first place (USD 871 million) and China in second place (USD 445.18 million). Over the entire period, the industry grew by USD 1,404 million, equivalent to an increase of approximately 723.7% in ten years. (Bousquet & Ertz, 2021; InfluencerMarketingHub, 2024), with emerging markets and optimistic projections reinforcing the growth potential.

These data highlight the exceptional expansion of the eSports industry and underline its social and economic relevance.

In Romania, the development of eSport was closely linked to the emergence of the Professional Gamers League (PGL), an organization founded in 2002. Its main objective was to

promote e-sports at national level. PGL inaugurated the first professional Counter-Strike championship in Romania, organized in a format inspired by football competitions, with teams distributed in divisions from A to D and significant prizes offered with the support of sponsors. The popularity has grown steadily, with more teams participating each season. The expansion has been boosted by the possibility of online matches in the intermediate stages, with the finals being organized in LAN format in Constanta. The Elder Gods has distinguished itself as the most performing Counter-Strike 1.6 team, setting high standards for the Romanian eSports scene by participating in international competitions. With the launch of Counter-Strike: Global Offensive (CS:GO) in 2012, the popularity of Counter-Strike 1.6, decreased rapidly. In this context, PGL abandoned the Playzeek platform in 2013 and made the transition to CS:GO, concurrently with the third edition of the Romanian Esports Championship, including games such as DotA 2, League of Legends and, later, Hearthstone (Nistor, 2019).



The World eSports Championship, held in Iași in 2022, The International Dota 2 tournament, organized in Bucharest in 2021, the individual performances of Ana Dumbravă (Counter-Strike world champion for two consecutive years in 2022, 2023) reflect the competitive potential of the local scene. Romania ranks among the most important video game development centers in Europe, with over 200 studios and revenues of €332 million recorded in 2022. Electronic Arts Romania, Ubisoft Romania and Amber Studio stand out among the most representative companies on the local market, contributing significantly to the industry's growth and boosting the country's global visibility in the gaming sector. According to RGDA data, approximately 7.8 million people between the ages of 15 and 64 participate in gaming activities on a monthly basis (Diaconu, 2024; Pana, 2024). Romania ranks 41st among the top countries participating in esports competitions. 650 Romanian esports players won a total of 6,129,207.06 USD in prizes, participating in 1,744 tournaments. The game with the highest winnings was Dota 2, with prizes worth 2,808,712.09 USD, representing 45.83% of the total winnings obtained by Romanian players. Aliwi "w33" Omar is the highest-paid Romanian player - 2,294,325.43 USD won from Dota 2 tournaments. (esportsearnings.com,n.d.)

With the growing popularity of tournaments and the professionalization of the field, universities around the world are integrating e-sports into their academic curricula, recognizing it as a career opportunity. In the United States, there are more than 1,600 e-sports clubs spread across 600 universities. In the United Kingdom, over 100 universities participated in the Esports University of the Year competition in 2021/22, and in China, the number of universities offering dedicated courses has increased significantly (Zhong, Guo, & Chu 2024).

Since 2013, American universities, such as Robert Morris University and the University of Pikeville, have been awarding scholarships to esports competitors (Dominteanu, et al. 2023b). University programs involve students in various roles - players, presenters and members of support teams, while university staff manage administrative activities. About 70% of programs offer scholarships for players, and up to 92% have built specialized competition facilities. Universities actively invest in attracting fans, students and sponsors to support and expand these initiatives, differentiating them from informal gaming clubs. University sports officially recognize students' interest in video game culture. Integrating them into the curriculumm contributes to the professional industry by developing talent and supports universities in attracting students and enhancing the experience of campus life. (Cote, et al. 2024)

There are many types of competitive sports programs, including varsity level teams, secondary teams, competitive and recreational clubs, each organized according to the interests of the institution (Foxman et al., 2024).

Zhong, Guo, & Chu (2024) draw attention to the need for teacher training to effectively integrate e-sports into the educational curriculum, and Feng (2024) points out that e-sports involve significant risks that need to be carefully managed, such as the possibility of developing addiction to the games and negative health impacts on participants, and a strategic approach is needed to maximize benefits and minimize risks.



The economic benefits of e-sports, such as revenues from media rights and sponsorship, (Papadakis, Z. & Morris, K. 2024), students' positive perception of the activity (Zhao, et al., 2022; King, et al., 2021)) and unique learning opportunities (Zhong et al., 2024) are strong arguments for its inclusion in the sports programs of academic institutions.

## Methodology

The study is of a quantitative, descriptive-comparative and cross-sectional nature, aiming to investigate students' behaviors, perceptions and attitudes in relation to the phenomenon of e sports. The research aims to identify differences between students from different academic profiles (technical and economic) and explore the relationships between the variables analyzed**.**

The research used a structured, self-reported questionnaire that was administered online via Google Forms survey administration software between December 1 and December 31, 2024. The questionnaire was accompanied by an informed consent procedure drafted in accordance with the ethical standards and principles set out in international regulations on research involving human subjects.

The questionnaire was structured in six sections, containing a total of 44 closed questions:

- Socio-demographic data (5 questions).
- Involvement in e-sports activities (5 questions).
- Perceived popularity of e-sports (5 questions).
- Attitudes towards the integration of e-sports in education (10 questions).
- Playing video games (7 questions).
- Involvement in physical activities (12 questions).

Depending on the specificity of the questions, a five-step Likert scale was used to quantify the factors for frequency and perception.

The data were imported and coded in Excel and processed using SPSS 26. The following statistical methods were applied:

1. Descriptive statistics: For general characterization of variables and sample.
2. Independent samples t-test: To identify significant differences between students from the two academic profiles and application of Welch's test for unequal variances.
3. Spearman correlation: To explore the relationships between e-sports and physical activity variables.
4. Distribution Verification: Ensuring the validity of tests by assessing the symmetry of the data distribution.

   For data visualization and reporting the graphs were made in Excel software.

   The selection of the students included in the research aimed to:

- Convenience sampling: subjects were selected on the basis of accessibility from two Romanian universities.
- Purposive sampling: students from two distinct academic backgrounds (technical and economics) were included to allow comparison between groups.

Study participants were selected from two major universities in Romania, representative for technical and economic profile. The research sample comprised 1077 students from the Politehnica University (483 students) and from the Academy of Economic Studies Bucharest (594 students) (Figure 1). Of these, 538 (50%) were male, 536 (49.8%) were female, and 3 (0.2%) declared that they did not belong to the above mentioned genders.



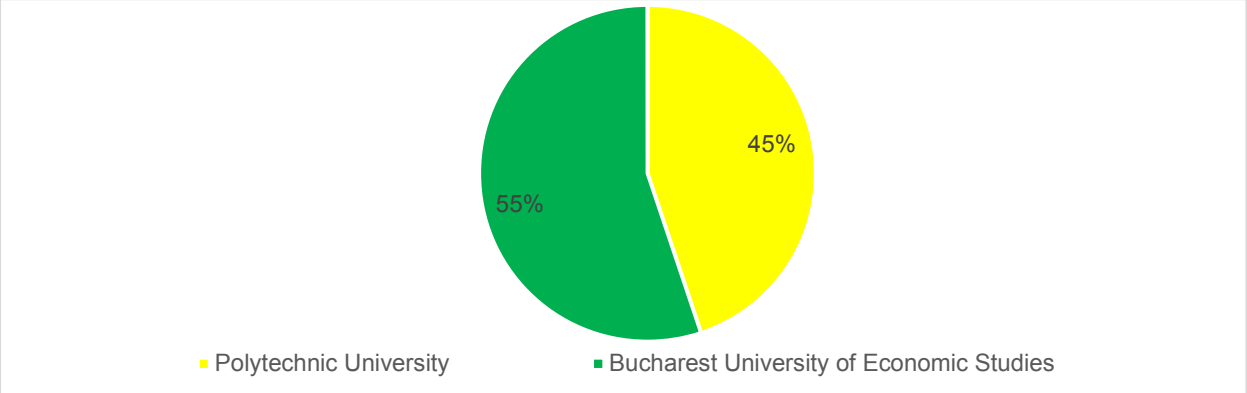


**Figure 1. Percentage of participating students by university**

Source: Authors' own research.

The analysis of the data related to the gender of the respondents (Figure 2) showed that 65% of the students from the Politehnica University were male (314), 34.8% female (168), and 37.7% of the students from the Academy of Economic Studies of Bucharest were male (224), 62% female (368).

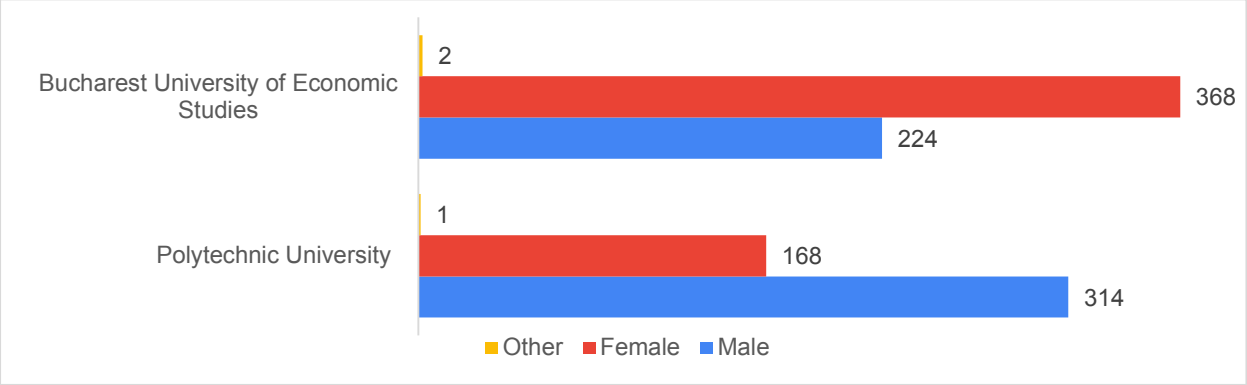


**Figure 2. Number of students in surveyed universities gender**

Source: Authors' own research.

Statistical analysis of the age of the 1,077 respondents indicates a mean age of 19.28 years (SD = 1.729), with a median age of 19 years, suggesting a concentration of respondents around this age (Figure 3). The range of variation is 13 years, with a minimum age of 18 years and a maximum age of 31 years, reflecting a moderate diversity of participants.

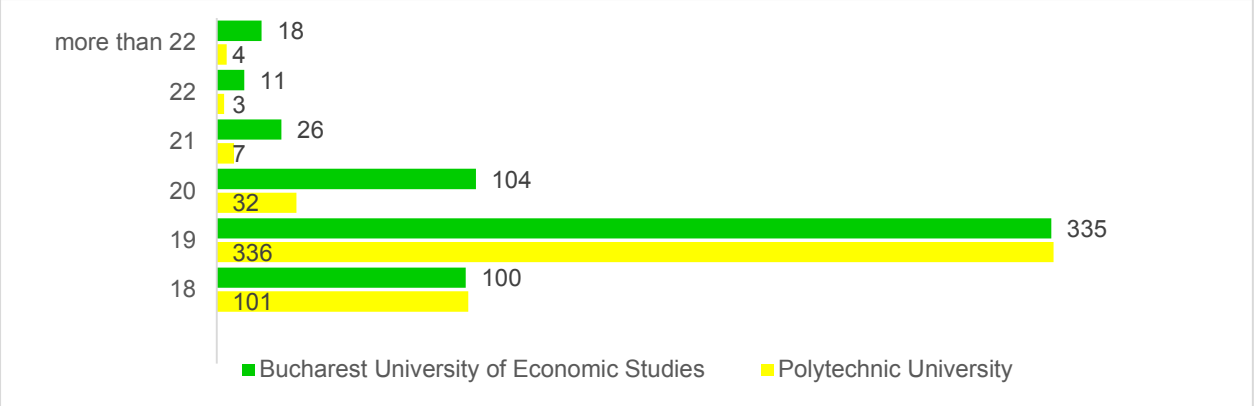


**Figure 3. Number of students in surveyed universities by age**

Source: Authors' own research.

The participating students are distributed over four years of study (Figure 4), with a majority in the first year (90% of the total). 9.3% of students are in the second year, while the third and fourth years are poorly represented, accounting for only 0.6% and 0.1% respectively, In technical universities, almost all students are in the first year of study (98.3%), with a minimal presence in the second year (1.7%) and complete absence in the third and fourth years. In contrast, students from economic universities are more diversely distributed: 83.16% are in the first year, 15.66% in the second year, and the third and fourth years are represented by 1.1% and 0.1% respectively.

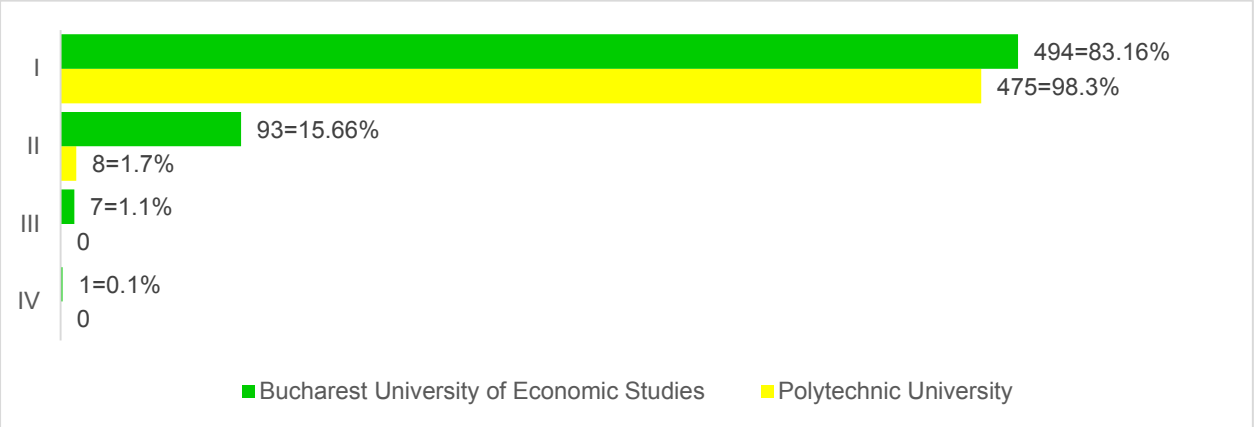


**Figure 4. Number and percentage of students in surveyed universities by year of study**

Source: Authors' own research.

The majority of the students involved in the study come from urban areas (73.9%), followed by rural areas (23.9%), while respondents from other countries represent only 2.2% of the total (Figure 5). Analyzing the two university profiles separately, it can be seen that in technical universities 71.2% of students come from urban areas, 27.5% from rural areas and 1.2% from other countries, while in economics universities the proportions are 76.1% (urban), 20.9% (rural) and 3.0% (other countries). These data show a slight predominance of urban students in both profiles.

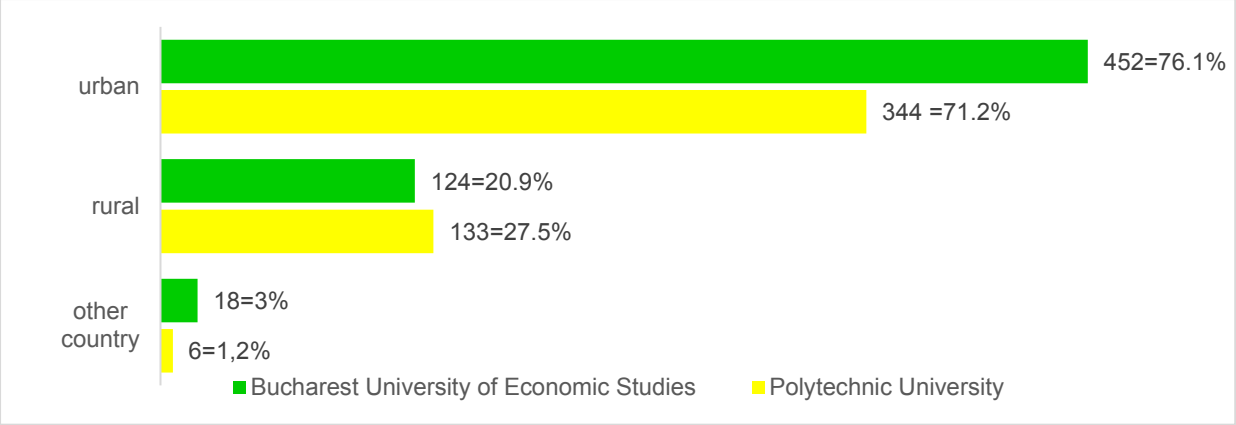


**Image no. 5. Number and percentage of students in surveyed universities by background**
Source: Authors' own research.

## Results and discussions

To assess the internal consistency of the instruments, Cronbach's Alpha coefficient values were calculated for each set of items associated with the constructs of interest: involvement in Esports (5 items): α=0.867; Perception of popularity of Esports (5 items): α=0,762; Attitude towards the integration of e-sports in education (10 items): α=0,928; Physical activity (12 items): α=0,774 - by removing one item a value α=0,794 was obtained; Playing video games (7 items): α=0,891.

The values obtained (between 0.762 and 0.928) indicate that all scales show a level of reliability within the generally accepted thresholds ($\alpha \geq 0.70$).

Student's t-test for independent samples was applied to answer the first research question on the differences between technical and economics students in terms of involvement in e-sports activities, perception of the popularity of e-sports activities, attitude towards the integration of e-sports in the university curriculum and level of video game playing.

**Table 1. Data distribution**

| Factor | Profile | Skewness | Asymmetries |
|---|---|---|---|
| Get involved | Technical | 0.295 | Almost symmetrical distribution. |
| | Economic | 0,861 | Moderately asymmetric distribution |
| Perceived popularity | Technical | -0.766 | Moderately asymmetric distribution |
| | Economic | -0,208 | Almost symmetrical distribution |
| Attitudes towards the integration of e-sports in education. | Technical | -0,999 | Moderately asymmetric distribution |
| | Economic | -0,603 | Moderately asymmetric distribution |
| Playing video games | Technical | -0,892 | Moderately asymmetric distribution |
| | Economic | -0,351 | Almost symmetrical distribution |

Source: Authors' own research.

The sample size for 95% confidence level and 5% margin of error is required to be at least 384 subjects. (Infomass.ro., n.d.). Because the samples are sufficiently large (483 technical profile and 593 economic profile), the Central Limit Theorem (Economy-Pedia, n.d.) ensures that the distribution of the sample mean tends to be normal, even if the distribution of the raw data is moderately skewed (Table 1), and the Student's t-test for independent samples is robust enough to ensure the validity of the data (SPSS, 2024).



**Table 2. t-student test results independent samples**

| Levene's Test for Equality of Variances | | | | T test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Equal variances | F | Sig | t | df | Mr. | Mean difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| Get involved | assumed | 8.194 | 0.004 | 7.326 | 1075 | 0.000 | 1.917 | 0.262 | 1.404 | 2.431 |
| | not assumed | | | 7.259 | 988.696 | 0.000 | 1.917 | 0.264 | 1.399 | 2.435 |
| Popularity | assumed | 7.805 | 0.005 | 4.887 | 1075 | 0.000 | 1.169 | 0.239 | 0.700 | 1.639 |
| | not assumed | | | 4.817 | 960.317 | 0.000 | 1.169 | 0.243 | 0.693 | 1.646 |
| Attitude | assumed | 1.017 | 0.313 | 3.781 | 1075 | 0.000 | 1.824 | 0.482 | 0.878 | 2.771 |
| | not assumed | | | 3.762 | 1008.531 | 0.000 | 1.824 | 0.485 | 0.873 | 2.776 |
| Jocuri_video | assumed | 8.019 | 0.005 | 7.135 | 1075 | 0.000 | 2.958 | 0.415 | 2.145 | 3.772 |
| | not assumed | | | 7.210 | 1062.980 | 0.000 | 2.958 | 0.410 | 2.153 | 3.764 |

Source: Authors' own research.

Regarding *the level of involvement in e-sports*, Levene's Test, F= 8.194, indicated that the variances between the groups were not equal (sig. = 0.004), thus the interpretation was based on the results of the test (Equal variances not assumed). The results of the Welch test revealed a statistically significant difference between the two groups, t(988.696) = 7.259, sig. < 0.001. The mean difference between the groups was 1.917 (±0.264), indicating a consistent difference, with a 95% confidence interval between 1.399 and 2.435 (Table 2).

The result of the analysis suggests that the groups differ significantly in their level of involvement in e-sports. According to the results, students from the technical profile show a higher level of involvement in e-sports than those from the economic profile. This result is consistent with the studies of Zhong et al. (2024), who argue that ease of use of constructs in the digital environment and perceived usefulness of the digital environment contribute to active involvement in e-sports. The differences between the profiles can be explained by different academic and professional interests; the passion for technology characteristic of the students of the technical profile motivates them to be more interested in the digital competition characteristic of e-sports

The analysis of *the perception of e-sports popularity*, Levene's Test, F = 7.805, showed that the variances of the groups were not equal (sig = 0.005), thus the interpretation was based on the results of the Welch's test (Equal variances not assumed). The result of the Welch's test confirmed a statistically significant difference between the two groups, t(960.317) = 4.817, sig. < 0.001, with a mean difference of 1.169 (±0.243). The 95% confidence interval for this difference ranged from 0.693 to 1.646, emphasizing the relevance of the difference between the groups (Table 2).

The obtained data indicate that the groups differ significantly in their perception of the popularity of e-sports. The study highlights that students from technical majors consider e-sports more popular compared to the perception of those from economics majors. This observation is

supported by the research conducted by Bousquet and Ertz (2021) and Said, Azli and Sabri (2023), which emphasize that e-sports has become a global phenomenon, integrated into digital culture and perceived distinctly according to educational and professional background. The differences noted between the two groups could be related to more frequent access to digital infrastructure, more frequent exposure to this phenomenon in their academic community, as well as to the specific future professional directions of each field.



For *attitudes toward the integration of e-sports in education*, Levene's Test, F=1.017, showed that variances between groups were equal (sig. = 0.313). Student's t-test for independent samples showed a statistically significant difference between groups, $t(1075) = 3.781$, sig. < 0.001, with a mean difference of 1.824 (±0.482). The 95% confidence interval for this difference is between 0.878 and 2.771 (Table 2).

This result highlights that the groups differ significantly in their attitudes towards the integration of e-sports in education. Technical profile students are more open to embrace such a change, suggesting that they recognize the educational potential of this activity. This finding is supported by the study by Ashgar, S. and co-workers in 2024 which indicates students' willingness to incorporate esports into academic practice. Zhong and co-writers (2024) emphasize the benefits of integrating elements of e-sports into the traditional university curriculum, arguing that these optimize critical thinking, creativity, collaboration and communication, skills needed in post-university professional life. Competitive video games provide a stimulating environment for practicing these skills, and the level of player engagement - experience, frequency and duration of game sessions - is directly associated with the development of these skills. Critical thinking is developed through the use of strategies, tactical planning and the ability to adapt to unpredictable situations, while creativity is enhanced by personalizing game experiences, exploring virtual universes and integrating original narratives. Collaboration is supported by setting common goals, assuming diverse roles and implementing mutual support mechanisms, and communication is optimized through the use of integrated interactive systems such as chat. Being part of an esports team helps students develop a spirt of belonging to the academic community they are part of, develop social relationships with players from other teams, and collaborate with co-teammates. This experience becomes a source of satisfaction and a way of learning (Ashgar, S., et al., 2024).

The interpretation of the data related to *video game playing* indicated by Levene's Test, F = 8,019, that the variances were not equal (sig. = 0.005), thus the interpretation was based on the results of the Welch test (Equal variances not assumed).The Welch test showed a statistically significant difference between groups ($t(1062.980) = 7.210$, $p < 0.001$), with a mean difference of 2.958 (±0.410). The 95% confidence interval for this difference ranged between 2.153 and 3.764, indicating a considerable difference between groups (Table 2).

The results show a significant difference between the groups in terms of involvement in video game activity, with students from the technical profile showing a higher level of video game playing compared to those from the economic profile, which may influence both their perceptions and their involvement in e-sports. The higher level of video game playing among students from the technical profile is in line with the player typologies proposed by Hedlund (2021). He identifies that technologically inclined individuals prefer video games, which explains the differences between the groups. Playing video games may also be related to the internal motivations described by Feng (2024), such as fun, relaxation, and belonging to virtual communities, which are characteristic of those who show technological preoccupation

To determine whether *factors associated with e-sports and video game activity are negatively associated with the level of engagement in physical activity*, Spearman correlation was applied. Table 3 shows the Spearman correlation coefficients between physical activity involvement and factors associated with e-sports and video games:



**Table 3. Spearman correlation between involvement in physical activities and factors related to e-sports and video games**

| | Involvement in e-sports | Perceived popularity of e-sports | Attitude towards introduction e-sports in university curricula | Playing video games |
|---|---|---|---|---|
| Correlation Coefficient | 0.292** | 0.259** | 0.215** | 0.078* |
| Sig. (2-tailed) | 0.000 | 0.000 | 0.000 | 0.010 |
| N | 1077 | 1077 | 1077 | 1077 |
| Correlation is significant at the 0.01 level (2-tailed).** Correlation is significant at the 0.05 level (2-tailed).* | | | | |

Source: Authors' own research.

1. Involvement in e-sports (rho = 0.292, $p < 0.01$). The low to moderate positive correlation indicates that as involvement in e-sports increases, there is a tendency for involvement in physical activities to also be higher. Although not a very strong association, it remains statistically significant. This contradicts the perception that e-sports discourages physical activity.
2. Perceived popularity of e-sports (rho = 0.259, $p < 0.01$). The low-moderate positive correlation (0.26) indicates that individuals who perceive e-sports as more popular tend to have higher physical activity involvement, which may reflect the influence of a culture of competition and performance on lifestyle.
3. Attitude towards the introduction of e-sports in university curricula (rho = 0.215, $p < 0.01$). The positive correlation of low-moderate intensity suggests that those who have a more favorable attitude towards the introduction of e-sports in university curricula are likely to be more physically active, suggesting that they value both the digital and physical aspects of competition.
4. Playing video games (rho = 0.078, $p = 0.010$). This correlation, although significant, is very weak (less than 0.10) indicating that involvement in video games does not considerably influence physical activity.

The data indicate a moderate positive association between the e-sports and video games variables and the level of physical involvement. The statistical analysis suggests that people more involved in e-sports or with a positive attitude towards e-sports may have a more active lifestyle, so that involvement in e-sports activities is not associated with a reduction in physical activity, but on the contrary. The correlation indicates that the two sets of variables vary together in a positive direction. The results show a modest positive correlation, between e-sports involvement and physical activity level which contradicts the preconceptions that e-sports involvement reduces physical activity (Di Francisco-Donoghue, et al., 2022; Trotter, et al., 2020). The result is also partially supported by the study of Ng and co-workers, 2023. They showed that esports players involved in sports video games (e.g. FIFA) exhibit more intense physical activity. Our study contributes to the literature by supporting the idea that e-sports can coexist with an active lifestyle and may even stimulate physical activities by promoting discipline and competition.

This research makes significant theoretical and practical contributions. Within the literature, the study extends existing knowledge by addressing the differences between technical and economics students' perceptions of the e-sports phenomenon, a relatively under-investigated topic until now. The obtained results align global trends with a local perspective, providing a detailed insight into how e-sports is perceived and integrated in the Romanian academic environment. The study also underlines the importance of developing educational policies that capitalize on the potential of e-sports as a personal and professional training tool.



## Conclusion

Growing popularity: The study confirms that e-sports is becoming an increasingly popular phenomenon, especially among technical students. This suggests an opportunity for academic institutions to capitalize on this interest for educational purposes.

Integration into education: the positive attitude of technical students towards the integration of e-sports into the university curriculum highlights the potential of e-sports to develop transversal skills such as collaboration, strategy and critical thinking.

Involvement in physical activity: E-sports and playing video games are not associated with a reduction in physical activities, contrary to some stereotypes. This suggests that students can balance digital activities with an active lifestyle, especially those actively involved in e-sports.

Cultural and structural differences between profiles: students from the technical profile are more exposed to technology and digital competition culture, which explains the higher level of involvement in e-sports. Students from the economic profile have a more practical and less technological orientation, which might require initiatives to promote e-sports to increase interest and involvement.

## Research limitations and future directions:

Cultural Bias: The sample includes only students from the Polytechnic University and the Academy of Economic Studies of Bucharest. This may limit the generalizability of the results internally and externally.

First year focus: The majority of respondents are first year students (90%), which may influence perceptions and behaviors.

Imbalance in background: the dominance of urban students (73.9%) may influence the results, as access to e-sports and technology is different between urban and rural areas.

Cross-sectional design: the study collects data at a single point in time, which does not allow for the analysis of dynamics or changes over time in e-sports perceptions and behaviors.

Self-reported instruments: Data come from questionnaires completed by respondents, which introduces the possibility of self-reporting errors, such as exaggeration, minimization of behaviors, or context-sensitive responses.

Selection Bias: Students interested in e-sports may be more likely to participate in the study, which may overestimate involvement in e-sports or perceptions of its popularity.

These limitations suggest that future research is needed which should broaden the scope, include additional variables and adopt a longitudinal or mixed (quantitative and qualitative) approach.

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