# ACADEMIC SATISFACTION AND TECHNOLOGICAL ENGAGEMENT AMONG GENERATION Z STUDENTS

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## Abstract

**Purpose:** This study examines Generation Z students' expectations and perceptions of the university environment at Alexander Dubček University of Trenčín, focusing on (1) the integration of modern technologies in higher education—particularly artificial intelligence (AI) and augmented reality (AR), (2) satisfaction with study-life balance, and (3) the perceived alignment of study programs with labor market needs.

**Design/methodology/approach:** A quantitative research design was applied using a structured online questionnaire. The dataset comprises 554 randomly selected students

from all faculties. Responses were measured on a five-point Likert scale. Data analysis employed descriptive statistics, Pearson's chi-square tests, and Cramer's V to assess associations between demographic/academic characteristics and students' attitudes.

**Findings:** Faculty affiliation is significantly associated with attitudes toward including AI and AR in curricula, with students from technically oriented faculties showing the strongest support. Satisfaction with study-life balance differs significantly by gender and field of study, with higher satisfaction reported by female students and by students in applied or healthcare-related programs. Perceived labor market relevance of study programs is significantly influenced by both region and field of study, with greater confidence reported in vocational and healthcare disciplines. Overall, the results indicate that Generation Z students' academic experience is shaped by an interplay of technological, personal, and institutional factors.

**Research limitations/implications:** The study is limited by its single-institution context and reliance on self-reported questionnaire data, which may constrain generalisability. The findings imply a need for (a) broader and more consistent integration of advanced technologies across disciplines, (b) targeted institutional measures to support student well-being and study-life balance, and (c) curriculum strengthening to reflect evolving labor market expectations.

**Originality:** The study contributes empirical evidence from a Central European university context by jointly analysing students' attitudes toward AI/AR integration, study-life balance satisfaction, and perceived labor market alignment, while also testing how these perceptions differ across faculties, demographic groups, and regions.

**Key words:** generation Z, higher education, artificial intelligence, study-life balance, labor market relevance

**JEL:** I23, O33, J24

## Introduction

Understanding the expectations, motivations, and characteristics of Generation Z is becoming increasingly important for educational institutions, as this cohort is now the dominant demographic within higher education. Born between the mid-1990s and early 2010s, Generation Z represents a generation that has grown up with digital technology as a constant presence, shaping not only how they communicate and consume information but also how they learn and prepare for the future labor market. As such, their entrance into the academic and professional spheres has prompted researchers to explore how their distinct characteristics influence their engagement with education, technological innovation, and employment readiness (Lalic et al., 2019).

In addition to educational and psychological perspectives, the topic also carries

economic relevance. As Generation Z enters a rapidly transforming labor market by digitalization and automation, their academic choices are increasingly driven by pragmatic considerations such as future employability, job security, and alignment with labor market demands. Understanding how students perceive these aspects can provide valuable insight for both educational institutions and policy makers.

Recent research emphasizes that Generation Z places a high value on practical, real-world applications of knowledge, which has created pressure on universities to bridge the gap between theoretical instruction and labor market demands (Kupczyk et al., 2021). This generation expects their studies to reflect not only academic rigor but also clear relevance to employability, underpinned by the use of modern technologies and interactive educational formats. In fact, their perceptions of whether academic programs prepare them adequately for the workforce play a key role in shaping their overall satisfaction and motivation to learn (Ozkan & Solmaz, 2015). While much attention has been paid to technological engagement in education, recent studies also emphasize the importance of students' economic expectations in shaping academic satisfaction and decision-making. According to various labor market analyses, students today tend to favor academic programs that are perceived as closely aligned with future job opportunities and offer practical skills relevant to the evolving demands of the economy (e.g., ICT integration, digital competencies, adaptability). This reflects a broader shift toward economically rational academic behavior among Generation Z. A related line of research highlights that access to digital platforms and financial literacy contributes not only to economic empowerment but also fosters self-transformation and social cohesion (Sumitro et al., 2022) – insights that are increasingly relevant in academic contexts where students seek both personal growth and labor market preparedness.

In this context, the role of technology – particularly artificial intelligence and digital tools – has emerged as a central focus. Generation Z students are not only receptive to but also expectant of the integration of such technologies in their educational experience, seeing them as essential to developing future-oriented competencies (Nebgen & Kurz, 2025). This sentiment is echoed in studies that underscore how AI-driven learning environments can enhance personalization, interactivity, and learner autonomy, thereby aligning well with Gen Z's preference for self-directed and technology-enhanced learning (Zolak Poljašević et al., 2024).

Moreover, Generation Z's expectations are not limited to curriculum content or instructional delivery; they also encompass broader issues of well-being and personal development. Studies point to a growing concern among students regarding their ability to maintain a healthy balance between academic and personal life, especially in demanding or rigid academic environments (Kupczyk et al., 2021). Universities are therefore increasingly challenged to create institutional cultures that are both academically robust and supportive of student well-being.

Despite growing interest in Generation Z's attitudes toward education and technology, there remains a lack of research focusing on how students in Central Europe perceive the

alignment of their academic experience with labor market demands, digital innovation, and well-being. To address this gap, the present study investigates the expectations and perceptions of Generation Z students at Alexander Dubček University of Trenčín with respect to three key areas: the inclusion of artificial intelligence and augmented reality in their studies, their satisfaction with the balance between academic and personal life, and their views on how well their study programs align with labor market needs. By addressing these dimensions, this research contributes to the broader discourse on how higher education can evolve to meet the needs of a digitally native, goal-oriented generation whose values are redefining traditional educational models. Moreover, the findings may inform policy and institutional strategies aimed at enhancing employability, well-being, and technological readiness among students.

The aim of this study is to investigate the expectations and perceptions of Generation Z students regarding the practical and real-world applicability of higher education, with a particular focus on the inclusion of modern technologies, study-life balance, and alignment between academic programs and labor market needs. The study is based on a quantitative research design using a structured questionnaire administered to a diverse sample of university students. The instrument was developed specifically for this research and underwent validity and reliability testing. While the findings provide valuable insights, they are limited by the single-institution context and the absence of qualitative data, which may constrain the generalizability and depth of interpretation. Future research incorporating comparative or mixed-method approaches is recommended.

## Literature review

As Generation Z increasingly enters higher education institutions and the labor market, scholarly attention has turned toward examining the unique expectations, values, and learning preferences of this demographic cohort. Typically defined as individuals born between 1995 and 2012, Generation Z is distinguished by its digital upbringing, which significantly shapes its perspectives on education, work, and the integration of emerging technologies into everyday life (Jayatissa, 2023). Existing research indicates that members of this generation prioritize educational experiences that are purposeful, practically oriented, and enriched with technology, accompanied by a strong expectation for alignment between academic instruction and the demands of the labor market (Huțanu & Iftode, 2020). These shifting expectations challenge traditional academic paradigms and underscore the imperative for higher education institutions to adapt their curricula and pedagogical approaches.

A recurring theme in the literature is Generation Z's strong affinity for modern technologies, particularly artificial intelligence (AI), augmented and virtual reality, and digital communication platforms. The educational relevance of AI and AR has been explored across multiple studies, which argue that these technologies not only align with the

preferences of digital-native students but also cultivate competencies increasingly sought in contemporary labor markets (Jäckel & Garai-Fodor, 2024; Tursunova et al., 2024). This technological integration is not merely a pedagogical enhancement but also a response to generational expectations for interactive and application-based learning environments. A broader view on digital transformation also suggests that technological innovation must be contextualized within national economic frameworks and digital entrepreneurship dynamics, which shape not only educational strategies but also long-term labor market engagement (Radović-Marković et al., 2022). Özaltun and Kahraman (2024) emphasize that student engagement is significantly heightened when immersive technologies such as AR are employed, as they support experiential learning and the development of practical problem-solving skills.

In addition to technological engagement, scholars have drawn attention to the critical interplay between educational structures and student well-being. Rachman and Satwika (2024) highlight that satisfaction with study-life balance is a central determinant of academic contentment among university students. This balance is often influenced by institutional demands, academic workloads, and cross-disciplinary expectations. Complementary findings by Anhar et al. (2024) suggest that institutional flexibility and learner-centered educational models are vital to mitigating stress and supporting well-being, especially for Generation Z students, who frequently balance academic responsibilities with employment and personal development activities.

Expectations concerning labor market preparedness also exert a significant influence on educational satisfaction. A number of studies report that Generation Z places a premium on acquiring practical knowledge and employability skills, often favoring them over purely theoretical learning (Amilhamja, 2025; Rani et al., 2022). This preference is corroborated by Tagraf et al. (2014), who demonstrate that students' perceptions of program relevance are closely linked to their academic motivation and overall engagement. Similarly, recent research on young Ukrainian migrants with tertiary education highlights that digital competencies and professional skills – especially in dynamic or crisis-driven labor markets – are key determinants of employability, reinforcing the importance of job-market-aligned curricula even in times of structural disruption (Roshchyk et al., 2023). These findings emphasize the need for flexible and responsive educational systems that prepare students not only academically but also for volatile economic environments. The extent to which academic content aligns with labor market opportunities is thus increasingly viewed as a benchmark of institutional effectiveness. Said et al. (2020) observe that students critically assess the applicability of their academic programs to real-world career contexts, especially within sectors such as public administration, healthcare, and engineering.

Consequently, higher education institutions are under growing pressure to revise their curricula and pedagogical strategies to reflect these generational shifts. Zábojník and Hromada (2024) underscore the transformative potential of generative AI in education, highlighting its dual role in enhancing instructional delivery and promoting learner autonomy and innovation. Similarly, Nebgen and Kurz (2025) argue that Generation Z's fluency with

AI and machine learning technologies facilitates the rapid adoption of complex digital tools, thereby expanding the possibilities for modern instructional design and competency development.

Institutional responses to the expectations of Generation Z differ across national contexts and academic disciplines, indicating a degree of situational variation. For instance, Kuleto et al. (2021) find that extended reality technologies are more rapidly adopted in technical faculties compared to social sciences, a trend influenced by both student demand and faculty readiness. This divergence is mirrored in the work of Grow and Yang (2018), whose study of Generation Z's entry into professions such as advertising reveals a pronounced emphasis on digital fluency. Dieguez et al. (2024) argue that despite incremental improvements, a persistent gap remains between institutional offerings and generational expectations—particularly in terms of applied learning opportunities and personalized academic support.

Several studies also highlight the importance of career guidance and expectation management within the university setting. Kurter and Aydan (2024) report that while Generation Z students often articulate clear career aspirations, they frequently lack a coherent understanding of how their academic experiences translate into employment pathways. This observation underscores the necessity of robust advising systems and comprehensive career development initiatives within universities. Further, Self et al. (2020) stress that institutional reputation and the perceived quality of student services are central to how Generation Z evaluates their overall educational experience, placing heightened expectations on both academic and administrative staff.

As higher education systems continue to evolve in response to these changing demands, institutional readiness remains a critical determinant of success. Hope (2016) was among the early voices calling for a shift away from traditional, lecture-dominated instruction toward more agile and participatory learning models. More recently, Ayoobzadeh et al. (2024) reaffirm that generational differences in educational and professional attitudes are reshaping the university landscape. They contend that a deep understanding of Generation Z's values and preferences is essential for designing inclusive, relevant, and future-oriented academic programs.

In conclusion, the existing literature clearly demonstrates that Generation Z's expectations for higher education are marked by a strong preference for technological integration, balanced academic demands, and robust alignment with labor market needs. These insights provide a critical foundation for the present study, which investigates how Generation Z students at Alexander Dubček University of Trenčín perceive the inclusion of AI and AR in their academic programs, their satisfaction with study-life balance, and the perceived relevance of their educational paths to future employment opportunities. By situating the empirical analysis within this broad scholarly context, the study contributes to ongoing discourse on how higher education can remain responsive, effective, and human-centered in an era of generational transition.

## Methodology

The primary objective of this study was to investigate the expectations and perceptions of Generation Z students regarding the practical and real-world applicability of higher education, with a particular focus on the inclusion of modern technologies, study-life balance, and alignment between academic programs and labor market needs. To address this aim, a quantitative research design was employed, using a structured questionnaire titled "The Road to Better Education: Generation Z's Views on the University Environment". The questionnaire was specifically developed for this study and was designed to measure students' attitudes across several domains using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

The research sample consisted of 554 university students enrolled at Alexander Dubček University of Trenčín. All participants were members of Generation Z and represented all faculties within the institution. The sample was demographically diverse, including 406 female and 148 male respondents. To ensure broad representation, participants were selected through a random sampling process. The questionnaire was distributed online via the university's digital platforms, and data collection was conducted over a period of 24 days in 2024. Although the instrument was not pre-validated in previous research, it was reviewed to ensure clarity, internal consistency, and relevance to the study's research questions.

The key variables examined in the study included students' attitudes toward the inclusion of artificial intelligence (AI) and augmented reality (AR) in their studies, their satisfaction with the balance between academic responsibilities and personal life, and their perceptions of how well their academic programs align with labor market needs. These constructs were analyzed in relation to demographic and institutional variables, namely faculty affiliation, gender, region of origin, and study program.

The study addressed the following research questions and tested the corresponding hypotheses:
- Research Question 1 (RQ1): What are the expectations of Generation Z regarding practical opportunities within higher education?
  - $H_1$: There is an association between faculty affiliation and students' attitudes toward the importance of including artificial intelligence in their studies.
  - $H_2$: There is an association between faculty affiliation and students' attitudes toward the importance of including augmented reality in their studies.
- Research Question 2 (RQ2): How satisfied is Generation Z with the quality and real-world applicability of their higher education experience?
  - $H_3$: There is an association between gender and students' satisfaction with the balance between their studies and personal life.
  - $H_4$: There is an association between study program and students' satisfaction with the balance between their studies and personal life.
  - $H_5$: There is an association between region and students' perception of whether their study program reflects the needs of the labor market.

– H$_6$: There is an association between study program and students' perception of whether their study program reflects the needs of the labor market.

The data were analyzed using both descriptive and inferential statistical methods. Descriptive statistics were applied to summarize response distributions and to characterize the sample. To test the stated hypotheses, Pearson's Chi-Square test was employed to assess associations between categorical variables, and Cramer's V was used to measure the strength of those associations. All statistical analyses were conducted using SPSS and Microsoft Excel.

The questionnaire used in this study was developed by the authors specifically for the purposes of this research. Its structure and content were informed by a review of relevant literature on Generation Z, academic satisfaction, digital engagement, and perceived labor market alignment. Additionally, the development process included consultations with experts in higher education and youth policy to ensure that the items were relevant and clearly formulated. To ensure the robustness of the survey instrument, exploratory factor analysis (EFA) was conducted to examine the underlying structure of the items and confirm construct validity. Sampling adequacy and factorability were verified, and the factor solution was found to align with the conceptual dimensions of the study: technological engagement, academic satisfaction, and labor market preparedness. In addition, internal consistency was tested using Cronbach's alpha, with all subscales demonstrating satisfactory reliability ($\alpha > 0.70$), in accordance with established psychometric standards. To further explore the influence of demographic and institutional factors, multivariate statistical techniques were applied. Specifically, logistic regression and one-way ANOVA were used to analyze the effects of faculty affiliation, gender, and regional origin on students' responses. These models allowed for the identification of statistically significant differences across groups ($p < 0.05$). Where appropriate, effect sizes and confidence intervals were considered to support the interpretation of these findings. The instrument was designed to reflect the three core areas of interest: (1) the integration of digital technologies such as artificial intelligence and augmented reality into academic programs, (2) students' satisfaction with their ability to balance academic and personal life, and (3) their perceptions of how well their studies align with current labor market needs.

## Results

This analysis investigated students' attitudes across various faculties concerning the integration of modern technologies—specifically artificial intelligence (AI) and augmented reality (AR)—into their academic curricula. The findings indicate statistically significant differences among faculties in both cases, as evidenced by the results of the Pearson Chi-Square test and the corresponding Cramer's V coefficients.

**Table 1:** Inclusion of AI and AR in Studies: Faculty Comparison

| Faculty | Disagree | Neutral | Agree |
|---|---|---|---|
| Faculty of industrial technologies | 0% | 13% | 87% |
| Faculty of social and economic relations | 1% | 10% | 89% |
| Faculty of special technology | 6% | 29% | 65% |
| Faculty of healthcare | 3% | 24% | 73% |
| Department of political science | 14% | 86% | 0% |
| Chi-square test | Value | df | Asymptotic Significance (2-sided) |
| Pearson chi-square | 35,102a | 8 | ,000 |
| Cramer's V | ,252 | | ,000 |

| Faculty | Disagree | Neutral | Agree |
|---|---|---|---|
| Faculty of industrial technologies | 0% | 6% | 94% |
| Faculty of social and economic relations | 2% | 28% | 70% |
| Faculty of special technology | 6% | 13% | 81% |
| Faculty of healthcare | 2% | 38% | 61% |
| Department of political science | 25% | 75% | 0% |
| Chi-square test | Value | df | Asymptotic Significance (2-sided) |
| Pearson chi-square | 29,658a | 8 | ,000 |
| Cramer's V | ,231 | | ,000 |

*Source: own elaboration*

To evaluate the relationship between faculty affiliation and students' attitudes toward the inclusion of artificial intelligence in their studies, the following hypotheses were formulated:

- **H$_0$:** There is no association between faculty affiliation and students' attitudes toward the importance of including artificial intelligence in their studies.
- **H$_1$:** There is an association between faculty affiliation and students' attitudes toward the importance of including artificial intelligence in their studies.

The data revealed that students from the Faculty of Social and Economic Relations and the Faculty of Industrial Technologies expressed the highest levels of agreement, with 89% and 87%, respectively, affirming the importance of including AI in their academic programs. The Faculty of Healthcare (73%) and the Faculty of Special Technology (65%) followed in level of support. In contrast, students from the Department of Political Science expressed no agreement with the statement, with the majority (86%) indicating a neutral stance. The Pearson Chi-Square test yielded a value of $\chi^2 = 35.102$ with 8 degrees of freedom and a significance level of $p < .001$, resulting in the rejection of the null hypothesis. These findings confirm a statistically significant association between faculty affiliation and students' views on the inclusion of AI. The Cramer's V coefficient of 0.252 further indicates a moderate strength of association. These results suggest that students' perspectives on artificial intelligence are shaped, at least in part, by the academic context of their faculty, likely reflecting differences in curricular focus and exposure to digital technologies.

A similar pattern emerged in students' responses concerning augmented reality. To test for differences in attitudes across faculties, the following hypotheses were posed:

- **H$_0$:** There is no association between faculty affiliation and students' attitudes toward the importance of including augmented reality in their studies.
- **H$_1$:** There is an association between faculty affiliation and students' attitudes toward the importance of including augmented reality in their studies.

The highest level of agreement was found among students from the Faculty of Industrial Technologies, where 94% supported the inclusion of AR in their studies. High levels of agreement were also recorded among students from the Faculty of Special Technology (81%) and the Faculty of Social and Economic Relations (70%). The Faculty of Healthcare showed a more moderate level of support at 61%. Once again, students from the Department of Political Science demonstrated no agreement, with 75% remaining neutral. The Chi-Square test produced a value of $\chi^2 = 29.658$ with 8 degrees of freedom and a significance level of $p < .001$, leading to the rejection of the null hypothesis. These findings confirm a statistically significant association between faculty and attitudes toward augmented reality. The corresponding Cramer's V value of 0.231 indicates a moderate association, albeit slightly weaker than the one observed for artificial intelligence.

Taken together, these findings highlight that faculty affiliation plays a statistically significant and moderately strong role in shaping students' perceptions of the value of integrating

modern technologies—such as artificial intelligence and augmented reality—into higher education. Technical faculties, in particular, exhibit the highest levels of support for these technologies, while students from the Department of Political Science consistently adopt a neutral or skeptical stance. These patterns may reflect broader differences in disciplinary orientation, curricular priorities, or the extent of students' exposure to emerging technologies within their academic programs.

This study investigated students' satisfaction with the balance between their academic responsibilities and personal life, with a specific focus on variations based on gender and field of study. The analysis revealed statistically significant differences in satisfaction levels across these demographic and academic categories, suggesting that both gender and study program exert a meaningful influence on students' perceptions of their ability to maintain a healthy study-life balance.

**Table 2:** Study-Life Balance Satisfaction by Gender and Field of Study

| Gender | Disagree | Neutral | Agree |
|---|---|---|---|
| Female | 18% | 14% | 69% |
| Male | 36% | 22% | 42% |
| Chi-square test | Value | df | Asymptotic Significance (2-sided) |
| Pearson chi-square | 16,092a | 2 | ,000 |
| Cramer's V | ,241 | | ,000 |
| | | | |
| Study program | Disagree | Neutral | Agree |
| Human resources and personnel management | 27% | 16% | 56% |
| Materials engineering | 40% | 20% | 40% |
| Physiotherapy | 24% | 26% | 50% |
| Nursing | 34% | 21% | 45% |
| Public administration | 53% | 27% | 20% |
| Special mechanical engineering | 44% | 17% | 39% |
| Political science | 54% | 15% | 31% |
| Chi-square test | Value | df | Asymptotic Significance (2-sided) |
| Pearson chi-square | 48,788a | 14 | ,000 |
| Cramer's V | ,297 | | ,000 |

*Source: own elaboration*

The study examined students' satisfaction with the balance between their academic responsibilities and personal life, with particular attention to variations based on gender and field of study. The findings revealed statistically significant differences in satisfaction levels, indicating that both gender and academic discipline play a meaningful role in shaping students' perceptions of study-life balance.

To assess whether gender is associated with differences in study-life balance satisfaction, the following hypotheses were tested:

- **$H_0$:** There is no association between gender and students' satisfaction with the balance between their studies and personal life.
- **$H_1$:** There is an association between gender and students' satisfaction with the balance between their studies and personal life.

The results demonstrated that female students reported notably higher levels of satisfaction. Specifically, 69% of female respondents indicated they were satisfied with their study-life balance, compared to only 42% of male students. Dissatisfaction was more prevalent among male students, with 36% reporting dissatisfaction, in contrast to 18% of female respondents. The association between gender and satisfaction was statistically significant, as evidenced by the Pearson Chi-Square result ($\chi^2 = 16.092$, df = 2, p < .001). The Cramer's V value of 0.241 indicates a moderate strength of association. These findings suggest that gender-based differences significantly influence students' academic well-being, with female students generally reporting a more favorable balance between academic and personal life.

In addition to gender differences, the analysis also revealed significant variation in satisfaction levels across study programs. To assess whether students' satisfaction with study-life balance differs by academic discipline, the following hypotheses were tested:

- **$H_0$:** There is no association between study program and students' satisfaction with the balance between their studies and personal life.
- **$H_1$:** There is an association between study program and students' satisfaction with the balance between their studies and personal life.

The data indicated that students enrolled in Human Resources and Personnel Management reported the highest level of satisfaction (56%), followed by those in Physiotherapy (50%) and Nursing (45%). Conversely, students in Public Administration and Political Science expressed the lowest satisfaction, with only 20% and 31% respectively reporting a positive balance. These same programs also had the highest dissatisfaction rates—53% in Public Administration and 54% in Political Science—potentially reflecting more demanding workloads or reduced access to academic support. The Pearson Chi-Square statistic ($\chi^2 = 48.788$, df = 14, p < .001) confirmed a statistically significant association between study program and satisfaction levels. Cramer's V was calculated at 0.297, suggesting a moderate strength of association and a slightly stronger effect than that observed for gender.

Taken together, these results indicate that satisfaction with study-life balance is not evenly distributed across the student population. Academic discipline, in particular, appears to exert a notable influence, with students from applied or health-related fields generally reporting greater satisfaction than those in the social sciences or public administration.

These findings underscore the importance of considering both demographic and curricular factors when designing institutional strategies to promote student well-being in higher education.

The analysis also extended to students' perceptions of whether their study programs adequately reflect the demands of the labor market, with results disaggregated by region and field of study. The findings revealed statistically significant variation across both dimensions, supported by Pearson Chi-Square test results and corresponding Cramer's V coefficients, indicating moderate associations.

**Table 3:** Student Views on Program Relevance to Labor Market

| Region | Disagree | Neutral | Agree |
|---|---|---|---|
| Banská Bystrica region | 0% | 33% | 67% |
| Bratislava region | 33% | 0% | 67% |
| Košice region | 17% | 17% | 67% |
| Nitra region | 0% | 29% | 71% |
| Prešov region | 8% | 46% | 46% |
| Trenčín region | 8% | 25% | 68% |
| Trnava region | 31% | 19% | 50% |
| Žilina region | 9% | 20% | 70% |
| Chi-square test | Value | df | Asymptotic Significance (2-sided) |
| Pearson chi-square | 30,645a | 14 | ,006 |
| Cramer's V | ,235 | | ,006 |
| | | | |
| Study program | Disagree | Neutral | Agree |
| Human resources and personnel management | 7% | 27% | 66% |
| Materials engineering | 0% | 40% | 60% |
| Physiotherapy | 13% | 26% | 61% |
| Nursing | 10% | 10% | 79% |
| Public administration | 20% | 27% | 53% |
| Special mechanical engineering | 11% | 22% | 67% |
| Political science | 15% | 15% | 69% |
| Chi-square test | Value | df | Asymptotic Significance (2-sided) |
| Pearson chi-square | 31,945a | 14 | ,004 |
| Cramer's V | ,240 | | ,004 |

*Source: own elaboration*

To evaluate whether regional differences are associated with students' perceptions of the labor market relevance of their study programs, the following hypotheses were tested:

- **$H_0$:** There is no association between region and students' perception of whether their study program reflects the needs of the labor market.
- **$H_1$:** There is an association between region and students' perception of whether their study program reflects the needs of the labor market.

Analysis of responses across regions revealed substantial variation in perceived alignment between study programs and labor market demands. The highest levels of agreement were reported in the Nitra Region (71%), Žilina Region (70%), and Trenčín Region (68%). Banská Bystrica and Bratislava Regions also showed relatively high agreement at 67%, though the Bratislava Region concurrently exhibited the highest level of disagreement (33%). Lower agreement rates were observed in the Trnava Region (50%) and the Prešov Region (46%), with the latter showing the highest level of neutrality (46%), suggesting considerable uncertainty or ambivalence among students. The Košice Region reported 67% agreement, accompanied by moderate levels of neutrality and disagreement.

The Pearson Chi-Square test yielded a value of $\chi^2 = 30.645$ with 14 degrees of freedom and a significance level of $p = .006$. This result led to the rejection of the null hypothesis, confirming a statistically significant association between students' region of origin and their perception of labor market alignment. The corresponding Cramer's V coefficient of 0.235 indicates a moderate strength of association.

These findings suggest that regional context may meaningfully influence how students perceive the practical relevance of their academic training. This variation could stem from differences in regional labor markets, economic development, or the availability of local employment opportunities. Higher levels of perceived relevance in regions such as Nitra, Žilina, and Trenčín may reflect stronger regional integration between higher education institutions and labor market needs, while greater neutrality or skepticism in regions like Prešov and Trnava may point to gaps in such alignment. These insights underscore the importance of implementing regionally responsive strategies to strengthen the connection between academic programs and local employment landscapes.

In addition to regional differences, the study also examined variation in students' perceptions of labor market alignment across academic disciplines. To assess this relationship, the following hypotheses were tested:

- **$H_0$:** There is no association between study program and students' perception of whether their study program reflects the needs of the labor market.
- **$H_1$:** There is an association between study program and students' perception of whether their study program reflects the needs of the labor market.

Results indicated that Nursing students expressed the highest level of agreement (79%) regarding the alignment of their studies with labor market needs. This was followed by students in Political Science (69%) and Special Mechanical Engineering (67%). Similarly, students in Human Resources and Personnel Management and Physiotherapy reported agreement levels of 66% and 61%, respectively. In contrast, students in Materials Engineering

demonstrated the highest rate of neutrality (40%) and recorded no disagreement, suggesting a generally positive outlook tempered by uncertainty. Public Administration students reported the lowest agreement (53%) and the highest disagreement (20%), indicating more critical views about their program's labor market relevance.

The Pearson Chi-Square test produced a value of $\chi^2 = 31.945$ with 14 degrees of freedom and a significance level of p = .004. Based on this result, the null hypothesis was rejected, confirming a statistically significant association between study program and perceived alignment with labor market needs. The Cramer's V coefficient of 0.240 again suggests a moderate strength of association.

These results indicate that students' perceptions of labor market relevance are influenced by their academic discipline. Fields with a strong vocational or applied orientation—particularly healthcare and engineering—are generally associated with higher confidence in employment readiness. In contrast, students in more policy- or administration-focused fields, such as Public Administration, appear more skeptical, which may reflect perceived mismatches between academic content and real-world job requirements. These generational preferences must also be interpreted in light of broader macroeconomic dynamics. Recent research on employment trends in the European Union between 2000 and 2020 demonstrates that higher education significantly increases job stability, particularly during economic downturns. Workers with tertiary education were found to be more resilient to employment shocks than those with lower levels of education, highlighting the protective role of academic credentials in turbulent labor markets (Dargenytė-Kacilevičienė et al., 2023). These findings reinforce the argument that aligning academic programs with labor market realities is not only a question of relevance but also of long-term socioeconomic resilience.

The findings reveal that Generation Z students hold diverse views on educational relevance and well-being, shaped significantly by faculty affiliation, field of study, gender, and regional context. Support for integrating advanced technologies into curricula is particularly strong among students in technical disciplines, while satisfaction with study-life balance and perceptions of labor market preparedness vary notably by both demographic and academic factors. These results underscore the multidimensional nature of students' higher education experiences and point to the need for differentiated, context-sensitive academic strategies.

## Discussion

The findings of this study offer a nuanced insight into how Generation Z students at Alexander Dubček University of Trenčín perceive their academic experiences, particularly concerning the integration of technology, the balance between academic and personal life, and the alignment of academic programs with labor market demands. These results directly address the stated research questions and align with broader scholarly discourse on

generational shifts in higher education.

In response to Research Question 1—What are the expectations of Generation Z regarding practical opportunities within higher education?—the data indicate a strong preference among students for the integration of modern technologies, specifically artificial intelligence (AI) and augmented reality (AR), into university curricula. This preference is particularly pronounced among students from technical faculties, such as the Faculty of Industrial Technologies and the Faculty of Special Technology. These findings resonate with prior research underscoring Generation Z's technological fluency and its preference for interactive and application-oriented learning environments (Jäckel & Garai-Fodor, 2024; Özaltun & Kahraman, 2024). The rejection of the null hypotheses in both related tests ($H_1$ and $H_2$), alongside moderate Cramer's V values, confirms a statistically significant association between faculty affiliation and student attitudes toward AI and AR integration. These patterns support arguments suggesting that faculty culture and curricular focus significantly shape students' receptivity to technological advancements (Kuleto et al., 2021).

Notably, students from the Department of Political Science consistently exhibited neutrality or skepticism regarding the inclusion of AI and AR. This could reflect a curricular emphasis less oriented toward digital competencies. The observed disciplinary divide mirrors the findings of Grow and Yang (2018), who documented varied rates of digital adoption across academic fields, with social sciences often trailing behind STEM disciplines. This disparity highlights the importance of a more integrated, cross-disciplinary approach to technological education, both to meet generational expectations and to equip students with skills that are increasingly vital in contemporary labor markets (Zábojník & Hromada, 2024).

Addressing Research Question 2—How satisfied is Generation Z with the quality and real-world applicability of their higher education experience?—the findings reveal that satisfaction with study-life balance and perceptions of labor market alignment differ significantly by gender, academic field, and region. Female students reported significantly higher levels of satisfaction regarding their study-life balance compared to male students, a trend corroborated by previous research identifying gender-related differences in academic well-being and stress resilience (Rachman & Satwika, 2024; Anhar et al., 2024). The rejection of $H_3$, supported by a moderate Cramer's V coefficient, reinforces the role of gender as a determinant in students' perceived ability to balance academic and personal commitments.

Similarly, findings linked to $H_4$ demonstrate meaningful differences in satisfaction across academic disciplines. Students enrolled in Human Resources, Nursing, and Physiotherapy programs reported greater satisfaction with their study-life balance, while those studying Public Administration and Political Science expressed lower satisfaction levels. These observations align with research suggesting that perceived workload, curricular structure, and levels of institutional support significantly impact student well-being (Self et al., 2020; Said et al., 2020). They imply that social science students may face distinct stressors or experience gaps in support, necessitating discipline-specific well-being interventions.

The results regarding labor market relevance ($H_5$ and $H_6$) also reveal statistically significant patterns. Students' perceptions of how well their academic programs prepare them for employment differ by both region and field of study. Notably, students in Nursing and Political Science reported the highest levels of agreement regarding program relevance, while those in Public Administration expressed the lowest. This trend supports previous research asserting that vocational and professionally oriented programs tend to foster stronger confidence in career preparedness (Amilhamja, 2025; Tagraf et al., 2014). It also underscores the view that program relevance is a critical factor influencing student motivation and institutional assessment.

Regional differences further illustrate the complexity of student satisfaction. Students from the Nitra, Žilina, and Trenčín Regions expressed the highest confidence in their programs' labor market alignment, whereas those from Prešov and Trnava reported more neutral or critical perspectives. These variations may reflect underlying regional disparities in economic conditions, labor market opportunities, or academic infrastructure. The findings are consistent with Said et al. (2020), who emphasized the importance of local context in shaping students' perceptions of employability. They suggest that educational institutions must adopt regionally responsive strategies to ensure alignment with labor market demands.

Taken together, the study's findings contribute to the growing body of literature asserting that Generation Z's satisfaction with higher education is shaped by intersecting variables, including academic discipline, gender, technology engagement, and regional context. As Ayoobzadeh et al. (2024) note, institutional responsiveness to these variables is essential in meeting the expectations of a generation that prioritizes innovation, flexibility, and real-world applicability. The evidence from this study reinforces that these expectations are not monolithic but rather context-dependent, requiring thoughtful and targeted educational strategies.

The findings of this study must be interpreted in light of the unique cultural and institutional context of post-transition Central European higher education. Slovakia, like other Visegrád countries, has undergone rapid transformations in both the educational and economic spheres following the collapse of state socialism. These historical and structural shifts have influenced institutional attitudes toward innovation, student services, and labor market alignment. For example, while technical faculties may be more proactive in integrating emerging technologies due to closer ties with industry, social science programs often remain rooted in traditional pedagogies, contributing to generational dissatisfaction with perceived relevance. Similarly, the relatively recent institutionalization of student-centered well-being policies in Slovak universities may explain variations in study-life balance across fields. In this context, Generation Z students not only reflect global digital fluency but also carry expectations shaped by broader cultural transitions, EU integration, and evolving national labor market dynamics. As such, the study contributes to understanding how legacy institutional structures intersect with modern student expectations in post-socialist academic environments.

While the present study relied on a quantitative approach, future research could benefit from the inclusion of qualitative methods to enrich understanding of the student experience. Open-ended student comments or focus group interviews could provide contextual depth to the statistical trends observed. These narratives would allow researchers to explore the nuances of satisfaction and engagement from the perspective of students themselves, offering insights into motivations, unmet expectations, and institutional practices that may not be fully captured through survey items.

While the current study is institution-specific, its findings raise important questions that could be further explored in broader academic contexts. A valuable direction for future research would be to conduct comparative studies involving multiple universities across Slovakia or the Visegrád region. Such studies could validate the generalizability of observed trends and offer insights into potential cultural, institutional, or regional differences in how Generation Z students perceive technology integration, study-life balance, and labor market alignment. Comparative data would also enhance the robustness of policy recommendations and support the development of more harmonized educational strategies across Central European higher education systems.

The implications for higher education policy and practice are both clear and urgent. Institutions must advance technological integration across all disciplines, provide targeted support to enhance student well-being, and ensure curricula remain responsive to evolving labor market demands. These measures will not only elevate student satisfaction but also safeguard the relevance and adaptability of higher education. By grounding its analysis in the specific context of Alexander Dubček University of Trenčín, this study contributes empirically to ongoing debates surrounding generational change in higher education and offers practical insights for institutional advancement. The findings also carry economic implications. Students' preferences for the integration of digital tools and alignment with labor market needs indicate that academic satisfaction is increasingly influenced by the perceived economic value of their education. In this context, higher education institutions are encouraged to design curricula that not only foster digital engagement but also strengthen employability and practical readiness for the labor market.

Beyond enhancing individual academic satisfaction, the findings of this study underscore the strategic role of higher education in building national knowledge capital and improving long-term labor productivity. By aligning academic programs with the expectations of Generation Z – particularly in terms of technological integration and labor market relevance – universities contribute directly to the formation of a digitally competent and economically adaptive workforce. The emphasis placed by students on the applicability of education to employment highlights a generational demand for curricula that are not only academically rigorous but also economically valuable. In this context, higher education institutions serve as pivotal actors in advancing national competitiveness and resilience in an increasingly digital economy. To operationalize these insights, institutions should consider integrating AI literacy modules and digital competencies across all disciplines, including non-STEM fields, to democratize technological fluency. In parallel, the implementation of institutional well-being frameworks – such as flexible academic scheduling, mental health

support services, and workload management systems – can enhance student retention and academic performance, further reinforcing economic outcomes. These measures not only respond to student expectations but also serve broader socioeconomic objectives by linking academic experience with workforce readiness and societal well-being.

Theoretically, the present study contributes to the growing body of literature on Generation Z by integrating perspectives from educational psychology, technological engagement, and labor market alignment. While previous studies have often addressed these dimensions separately, our findings emphasize the interconnectedness of these factors in shaping academic satisfaction. In particular, the study highlights the importance of perceived technological innovation and curriculum relevance in forming students' attitudes toward their academic environment. From a practical standpoint, the results offer valuable insights for higher education institutions and policy makers. The clear preference of Generation Z students for interactive technologies and real-world applicability suggests that universities must go beyond traditional pedagogy and invest in digital tools that support autonomous and personalized learning. Moreover, the emphasis students place on employability signals the need for closer cooperation between academia and industry, especially in program design and career-oriented education. These findings may also inform national education strategies focused on digital transformation, graduate readiness, and mental well-being in tertiary education.

To deepen the interpretative strength of the findings, future studies could benefit from grounding analyses within established theoretical frameworks. For instance, Self-Determination Theory may help explain how institutional practices support or hinder students' intrinsic motivation and academic well-being. Similarly, the Technology Acceptance Model provides a valuable lens for understanding students' receptivity to technological tools in learning environments. Integrating such frameworks would allow researchers to move beyond descriptive insights and offer more explanatory models of student behavior and satisfaction.

## Conclusion

This research examined how Generation Z students at Alexander Dubček University of Trenčín perceive the role of modern technologies in education, the balance between academic obligations and personal life, and the relevance of their study programs to labor market demands. The study employed a quantitative design using a structured questionnaire, and results were analyzed through descriptive statistics, chi-square tests, and Cramer's V to evaluate the strength and significance of associations.

The findings revealed that faculty affiliation significantly shapes students' attitudes toward the inclusion of artificial intelligence and augmented reality in their studies. Students from technically oriented faculties showed markedly higher levels of agreement, suggesting that curricular content and disciplinary orientation strongly influence the perceived relevance of technological integration. Furthermore, the study identified meaningful

gender-based differences in satisfaction with study-life balance, with female students reporting notably higher satisfaction than their male counterparts. Variability was also observed across study programs, with students in human resources and healthcare-related fields expressing greater contentment than those in political science or public administration.

Regarding the perceived alignment between academic programs and labor market needs, regional and disciplinary disparities were again evident. Students from regions with stronger economic infrastructure, as well as those enrolled in vocational or healthcare programs, generally reported higher confidence in the applicability of their education. In contrast, students from the social sciences expressed greater uncertainty or dissatisfaction, highlighting potential mismatches between theoretical curricula and practical job requirements.

In light of these findings, several recommendations can be made. First, institutions should expand the integration of advanced technologies, such as AI and AR, across all fields of study—not only in technical programs—to enhance digital literacy and engagement. Second, efforts should be made to support a healthier study-life balance, especially in disciplines where students report higher levels of stress or dissatisfaction. Lastly, curriculum development must increasingly reflect labor market dynamics, incorporating more experiential learning, internships, and industry collaboration to ensure graduates are well-prepared for employment.

Future research could build on these findings by exploring longitudinal trends in student expectations and outcomes, examining qualitative dimensions of student satisfaction, or conducting comparative studies across multiple institutions or countries. Such work would offer deeper insight into the evolving needs of Generation Z and help universities better align academic structures with the priorities of a new generation of learners.

In summary, the findings of this study can be interpreted through key theoretical frameworks that explain student behavior and motivation. From the perspective of Self-Determination Theory, students' satisfaction with digital integration and academic-life balance reflects the extent to which educational environments support autonomy, competence, and relatedness – fundamental to internal motivation. At the same time, students' openness to technologies like AI and AR aligns with the Technology Acceptance Model, in which perceived usefulness and ease of use determine acceptance. By embedding these theoretical perspectives, the study not only contributes empirically but also offers conceptual insights into how higher education can enhance both satisfaction and employability in digital-era academic environments.

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## References

1.  Dargenytė-Kacilevičienė, L., Butkus, M., & Matuzevičiūtė, K. (2023). Understanding employment dynamics across the business cycle: Is education important in reducing the risk of losing a job during an economic downturn? *Intellectual Economics*. https://doi.org/10.13165/IE-24-18-1-09

2.  Dieguez, T., Loureiro, P., & Ferreira, I. (2024). The gap between the expectations of Gen Z and Organizations in Industry 4.0. *2024 International Conference on Intelligent Systems and Computer Vision (ISCV)*, 1–6. https://doi.org/10.1109/ISCV60512.2024.10620114

3.  Grow, J. M., & Yang, S. (2018). Generation-Z Enters the Advertising Workplace: Expectations Through a Gendered Lens. *Journal of Advertising Education*, *22*(1), 7–22. https://doi.org/10.1177/1098048218768595

4.  Huțanu, A., & Iftode, D. (2020). *Generation Z Is Going to Work. What are its Expectations?* International Conference: The Future of Education.

5.  J. Amilhamja, A. (2025). Integrating Gen Z perspectives in industry-aligned curriculum design. *Environment and Social Psychology*, *10*(1). https://doi.org/10.59429/esp.v10i1.3197

6.  Jayatissa, K. A. D. U. (2023). Insights Into the Next Generation: A Methodological Review of Career Expectations in Generation Z. *Journal of Business Studies*, *10*(2), 21–39. https://doi.org/10.4038/jbs.v10i2.96

7.  Katalin, J., & Garai-Fodor, M. (2024). AI as viewed by Generation Z. Advantages, Disadvantages and Challenges of AI based on Primary Findings. *2024 IEEE 18th International Symposium on Applied Computational Intelligence and Informatics (SACI)*, 000243–000248. https://doi.org/10.1109/SACI60582.2024.10619810

8.  Kuleto, V., P., M. I., Stanescu, M., Ranković, M., Šević, N. P., Păun, D., & Teodorescu, S. (2021). Extended Reality in Higher Education, a Responsible Innovation Approach for Generation Y and Generation Z. *Sustainability*, *13*(21), 11814. https://doi.org/10.3390/su132111814

9.  Kupczyk, T., Rupa, P., Gross-Golacka, E., Urbanska, K., & Parkitna, A. (2021). Expectations and Requirements of Generation Z towards Salary. *EUROPEAN RESEARCH STUDIES JOURNAL*, *XXIV*(Issue 4), 85–96. https://doi.org/10.35808/ersj/2564

10. Kurter, O., & Aydan, Ü. (2024). Measuring Career Expectations of Generation Z: Karabuk University Example. *Yönetim ve Ekonomi Araştırmaları Dergisi*, *22*(3), 67–90. https://doi.org/10.11611/yead.1465459

11. Lalić, D., Stanković, J., Bošković, D., & Milić, B. (2020). Career Expectations of Generation Z. In Z. Anisic, B. Lalic, & D. Gracanin (Eds.), *Proceedings on 25th International Joint Conference on Industrial Engineering and Operations Management – IJCIEOM* (pp. 52–59). Springer International Publishing. https://doi.org/10.1007/978-3-030-43616-2_6

12. Nebgen, T., & Kurz, W. (2025). Generation Z: AI Affinity and Adoption in Competitive German Organisations. *Journal of Next-Generation Research 5.0.* https://doi.org/10.70792/jngr5.0.v1i2.81

13. Özaltun, G., & Kahraman, M. E. (2024). Academic Opinions on the Use of Augmented Reality in Basic Design Education. *Yedi*, *Sanatta Dijitalizm Özel Sayısı*, 281–292. https://doi.org/10.17484/yedi.1502671

14. Ozkan, M., & Solmaz, B. (2015). The Changing Face of the Employees – Generation Z and Their Perceptions of Work (A Study Applied to University Students). *Procedia Economics and Finance*, *26*, 476–483. https://doi.org/10.1016/S2212-5671(15)00876-X

15. Radović-Marković, M. (2022). Technology Development and Creative Destruction: Challenges for Digital Transformation in Entrepreneurship, Work, and Education. *Intellectual Economics*, 19(1). https://doi.org/10.13165/IE-25-19-1-01

16. Rachman, H. A., & Satwika, P. A. (2024). The relationship between workload and work life balance in generation Z employees. *Journal of Indonesian Psychological Science (JIPS)*, *4*(2), 149–159. https://doi.org/10.18860/jips.v4i2.26816

17. Rani, I. H., Jara Hardiyanti Jalih, & Lestari Adhi Widyowati. (2022). Indonesian Generation Z Work Expectation and Intention to Apply for Job: Role of Social Media. *Quantitative Economics and Management Studies*, *3*(2), 193–206. https://doi.org/10.35877/454RI.qems831

18. Reisya Aulia Anhar, Adhila Suryaningsih, & Raysha Naya Putri Fadillah. (2024). Pengaruh Fleksibilitas Jam Kerja dan Work Life Balance terhadap Peningkatan Produktivitas Karyawan Gen Z. *JURNAL MANAJEMEN DAN BISNIS EKONOMI*, *3*(1), 233–243. https://doi.org/10.54066/jmbe-itb.v3i1.2760

19. Roshchyk, I., Mishchuk, H., Bilan, Y., & Brezina, I. (2023). Determinants of demand for young professionals with tertiary education amidst migration resulting from the war in Ukraine. *Intellectual Economics*, 18(2). https://doi.org/10.13165/IE-24-18-2-08

20. Said, R. A., Rashid, M. A. A., & Othman, M. A. (2020). Generation Z for Job Employment: Characteristic and Expectation. *International Journal of Academic Research in Business and Social Sciences*, *10*(3), Pages 570–575. https://doi.org/10.6007/IJARBSS/v10-i3/7072

21. Self, S., Larsen, K. J., & Ford, A. (2020). Student Expectations and Campus Realities: Facing the Challenge. In J. P. Freeman, C. L. Keller, & R. L. Cambiano (Eds.), *Advances in Higher Education and Professional Development* (pp. 295–312). IGI Global. https://doi.org/10.4018/978-1-7998-2410-7.ch014

22. Sumitro, I., Permana, D., Indrajaya, S., & Wibowo, M. (2022). Advancing Wellbeing: The Financial Accessibility and Social Integration through Self-Transformation. *Intellectual Economics*, 19(1). https://doi.org/10.13165/IE-25-19-1-05

23. Tagraf, H., Ozkan, A., & Nemutlu, G. (2014). A Comprehensive Look at Generation Z and Their Expectations from Public Administration. *International Burch University*.

24. Tursunova, F., Oripova, N., Muhammadiyeva, M., Nurullayeva, S., Hamroyev, S., & Tishabaeva, I. (2024). Augmented Reality and AI in Higher Education: Creating Immersive Learning Experiences. *2024 International Conference on Knowledge Engineering and Communication Systems (ICKECS)*, 1–5. https://doi.org/10.1109/ICKECS61492.2024.10617355

25. Zolak Poljašević, B., Šarotar Žižek, S., & Gričnik, A. M. (2024). The Future of Employees' Learning: Understanding Generation Z Attitudes Towards Artificial Intelligence. *Challenges in the Turbulent Economic Environment and Organizations' Sustainable Development*, 559–570. https://doi.org/10.18690/um.epf.5.2024.53