**Financial Literacy Comparison: Has Generation Z Surpassed Millennials in Money Matters?**

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*Having a grasp on financial matters is vital for making intelligent decisions and ensuring financial security. For this reason, financial education is integrated into most educational programs, and young individuals actively seek out this content on their own. Our first research study on financial literacy was conducted in 2016, involving
1,600 students belonging to Generation Y or Millennials, from diverse academic backgrounds. The present goal is to examine the financial literacy levels and factors among 1,600 Generation Z students in 2022 and contrast these findings with the results obtained from Millennials in 2016. For this purpose, we developed a unique measure of financial literacy, based on data collected through a questionnaire that remained consistent in both 2016 and 2022. The study employs a fully comparable randomly selected proportional stratified sample. The results indicate an increase in financial literacy levels among Generation Z, surpassing Millennials. Additionally, the study suggests their financial literacy is influenced by distinct factors compared to those affecting Millennials.*

**Keywords:** financial literacy, Millennials, Generation Z, university students, survey, SEM.

# INTRODUCTION

In today's fast-paced digital world, financial literacy is crucial as technology rapidly integrates into daily life, presenting both challenges and opportunities in financial education. The modernization of finance, including the complex and accessible array of financial products and services (Livengood & Venditti, 2012), globalization, the online sharing of information, and liberalized markets, demands increased attention to financial literacy. As financial decisions grow in frequency, individuals without financial literacy struggle to navigate these opportunities, leading to challenges in informed decision-making and self-assessment of financial capabilities (Reifner & Herwig, 2003; Mantell, 2004; O'Connor, 2013).

Miller et al. (2014) indicate that tailored financial literacy initiatives aimed at behaviors and demographics can lead to smarter financial decisions. Research primarily directed toward students explores their adaptability to financial education and the implications of their financial decision-making. Notably in the U.S., the research delves into the impact of increasing student debt on the economy by analyzing young adults' credit card usage (Lusardi, Mitchell, & Curto, 2010). Numerous studies aim to evaluate the necessity for improved financial education, which has proven effective in improving financial knowledge and management, especially among those less familiar with financial concepts (Elliot, 2000; Fox, Bartholomae, & Lee, 2005; Peng et al., 2007). However, formal education access to financial literacy remains limited and is often confined to corporate or organizational settings (Fox, Bartholomae, & Lee, 2005). Studies reveal a correlation between enrollment in specialized finance courses and higher financial literacy, underscoring the significance of risk behavior in financial literacy (Le Fur & Outreville, 2022). This highlights the demand for comprehensive financial education from high school and throughout college (Thomas & Subhashree, 2020).

Mohd Padil et al. (2022) observed 211 Malaysian students and highlighted how possessing strong financial skills notably influences students' understanding of investment fraud. Meanwhile, Potrich, Vieira, and Mendes-Da-Silva (2016) examined 534 Brazilian students, revealing a positive correlation between financial knowledge, attitudes, and financial behavior. Additionally, Gok and Ozkale (2019) conducted research on 593 Turkish students, indicating that final-year students tend to possess higher financial literacy compared to their first-year counterparts, regardless of their field of study. However, students studying social sciences in advanced years showcased superior financial literacy compared to other disciplines.

Recently, there has been a growing body of literature examining the variations in financial literacy among different generations. Beck and Garris (2019) explored diverse viewpoints on individual finances and the influence of these finances across various generations. They found that Generation X expresses more concern about the financial decisions of future generations, whereas Millennials and Generation Z are anxious about the economic future and its impact on them. Rosdiana (2020) discovered notable distinctions in financial literacy, drive, social context, and investment interest between Generation Z and the Millennial Generation.

Lusardi and Oggero (2017) found that Millennials lack fundamental skills essential for making informed financial choices, underscoring the necessity to enhance financial competence among the younger population. Similarly, Fessler, Jelovsek, and Silgoner (2020) revealed that Austrian Millennials exhibit lower financial literacy, less organization in financial matters, potential inclination toward riskier actions, yet demonstrate a stronger inclination toward using digital financial tools. Regarding Generation Z, Chindemi (2022) indicates that American Generation Z university students exhibit greater readiness for a secure financial future compared to their Japanese counterparts. Shankar, Vinod, and Kamath (2022) find that financial literacy and technology do not notably affect the financial well-being of Indian Generation Z students, while factors like gender, parental education, employment status, and income changes have a significant influence.

The aim of this research is to assess the level of financial literacy among Croatian students belonging to the Generation Z cohort (1997 – 2012) and compare this level with the financial literacy observed in 2016 among students categorized as Millennials (1981 – 1996) (Pavković, Anđelinović, & Mišević, 2018). The study focuses on examining the connections between students' socio-demographic characteristics and their financial literacy. Furthermore, it explores how the characteristics of study programs are associated with the level of financial literacy and investigates potential differences in financial literacy between students from diverse academic disciplines.

The paper is structured into five sections. The second section details the research methodology, involving the questionnaire, factor analysis, and structural equation modeling. Section three highlights variations in knowledge, attitudes, and behaviors between Millennials and Generation Z, concluding on the generation that demonstrated greater financial literacy. The fourth section focuses on the determinants of financial literacy in Generation Z. Lastly, the fifth section brings the paper's conclusions.

# RESEARCH METHODOLOGY

This research incorporates quantitative methods to estimate the level of financial literacy in Generation Z using primary data collected through survey research. The developed measure is compared with the financial literacy level observed among Millennial students, aiming to identify the factors that determine financial literacy in Generation Z in comparison to Millennials.

## Survey

The study involved 1,600 students across all 34 units of the University of Zagreb, comprising 31 faculties and 3 academies (see Appendix 1). Both genders participated, with a slightly higher proportion of female students at 62.75%, reflecting the population distribution (60.17% female students - Croatian Bureau of Statistics, 2021). The average participant age was 22.13 years, with most students surveyed being in their third year of studies. In the 2016 research on Millennials, 1,600 students participated across 33 university units.

The primary data used to create the financial literacy measure were gathered through a questionnaire provided in Appendix 2. This survey was designed based on the OECD's internationally comparative questionnaire for measuring financial literacy (OECD/INFE, 2011). The first three sections of the questionnaire were constructed around the widely accepted definition of financial literacy, encompassing a blend of knowledge, attitudes, and behaviors. The extension of this definition was encapsulated in the fourth section, focusing on practical financial knowledge.

The questionnaire segments on *Financial knowledge* and *Practical knowledge* are comprised of multiple-choice questions where one response is designated as correct. Regarding the *Financial Attitudes* and *Financial Behavior* components, a Likert scale ranging from 1 to 5 was employed. The number of questions in each of these components was determined by the variety of financial concepts and skills requiring examination, ensuring coverage of different aspects of financial disciplines.

This research tool entirely mirrors the one used in the 2016 study on Millennials, enabling identical measurement across generations. Moreover, it facilitates the comparison of Generation Z students' financial literacy across various socio-demographic characteristics, unveiling potential patterns and offering an objective overview of their financial literacy. Additionally, this tool serves as a starting point, indicating the necessity for enhancing students' financial literacy. Based on the measurement results, it will be possible to identify student groups necessitating specific attention when considering proposals to enhance their financial knowledge. The complete model assessment process is detailed below.

## Model Estimation

To examine the correlation between numerous variables and explain them using fewer shared factors with minimal data loss, this research employed confirmatory factor analysis. Confirmatory factor analysis aims to validate a theoretical concept by aligning it with empirical data. A key aspect involves verifying the measurement model by employing observed indicators (manifest variables) for presumed unobserved (latent) variables (Hair et al., 2010). Using the measurement model, standardized factor loadings were compared to establish a weight matrix, crucial for formulating a comprehensive indicator of financial literacy. The analysis was conducted using the R programming language and lavaan, an SEM package, allowing confirmatory factor analysis within structural equation modeling. In SEM methodology, Maximum Likelihood Estimation (MLE) was preferred over the principal component method due to its tendency to produce inconclusive outcomes (Byrne, 2010). The analysis relies on the variance-covariance matrix of manifest variables, enabling the breakdown of each variable's variance into an explained portion attributed to observed latent variables (relation error) and the residual unexplained variance (Hair et al., 2010).

The measurement model comprises four manifest variables: *Financial knowledge*, *Financial attitudes*, *Financial behavior* and *Practical knowledge*. Prior to their use, all indicators underwent min-max normalization due to their diverse scales. The model's outcome is the latent variable of *Financial literacy*. The parameters connecting these observable and latent variables are termed factor loadings, standardized to denote the strength and direction of their relationship. Factor loadings, estimated using maximum likelihood estimation, range from 0,169 to 0,714 (see Table 1). Each manifest variable is accompanied by its squared multiple correlation coefficient value, indicating the percentage of explained variance, varying from 49% to 97%. The unexplained variance is attributed to random error components and unknown factors, known as residuals. Individual significance testing of factor loadings is possible based on their unstandardized values. Table 1 provides values obtained from the model estimation process.

Table 1

Model Estimation

|  |  |  |  |
| --- | --- | --- | --- |
| Components/Manifest variables | Standardized factor loadings | Squared values of the multiple correlation coefficients | Non-standardized values of estimated parameters |
| Financial knowledge | 0,207 | 0,957 | 0,608\*\*\* |
| Financial attitudes | 0,483 | 0,767 | 1.225\*\*\* |
| Financial behavior | 0,714 | 0,491 | 1.477\*\*\* |
| Practical knowledge | 0,169 | 0,971 | 0,549\*\*\* |

Source: authors’ calculations.

*Note: \*\*\* indicates significance at a theoretical significance level of 1%.*

The largest among the standardized coefficients is 0.714, signifying that *Financial behavior* is the most substantial component in assessing *Financial literacy*, while *Practical knowledge* accounts for 97.1% of explained variance. Similar principles of interpretation apply to the rest of the estimated coefficients (Byrne, 2010).

The adequacy of the estimated model is assessed using various fit indices, including the chi-square (χ2) test, Root Mean Square Residual (RMSR), Goodness of Fit Index (GFI), Comparative Fit Index (CFI), and Normed Fit Index (NFI). In Table 2, the model estimated 7 parameters, yielding a chi-square value of 30,184 with 3 degrees of freedom and a corresponding *p*-value higher than 1%, confirming the model's appropriateness. A non-significant χ2 suggests accurate theory, while a significant χ2 implies the model's inadequacy in explaining empirical data relationships. Confirmatory factor analysis permits inferential model testing, unlike exploratory techniques with zero degrees of freedom (df = 0) (Hair et al., 2010). Additionally, a low RMSR value and most fit indices close to or exceeding 0.9 in Table 2 indicate a well-fitting model.

Table 2

Model Fit Indices

|  |  |  |  |
| --- | --- | --- | --- |
| Number of parameters | 7 | Root Mean Square Residual | 0,041 |
| χ2 value | 30,184 | Goodness of Fit Index | 0,991 |
| Degrees of freedom | 3 | Comparative Fit Index | 0,904 |
| *p*-value | 0,000 | Normed Fit Index | 0,899 |

Source: authors’ calculations.

The confirmatory factor analysis results were used for subsequent analysis, comparing standardized factor loadings in pairs to derive weights through the Eigenvector method. This method helps decision-makers in multi-criteria decision problems. In the first step of the research, weights are assigned to four components of *Financial literacy*. Subsequently, these weights are used to compute the weighted average of normalized component values, yielding a composite indicator on a 0% to 100% scale. In the Eigenvector method, decision-makers assess relative importance by comparing all possible pairs of components, so 6 ratios must be determined for 4 *FL* components.

Based on the obtained results, a matrix of importance ratios*A* was formed, with elements representing estimated coefficients $a\_{ij}$. These estimated coefficients of matrix *A* derived from the ratios of factor loadings, are presented in Table 3. Since *A* is reciprocal ($a\_{ji}=\frac{1}{a\_{ij}}$), only the elements above the main diagonal are displayed in the table. The matrix *A* exhibits consistency with a zero degree of inconsistency, a result of deriving weight ratios from factor loadings rather than relying on subjective expert assessments.

Table 3

Matrix A Coefficients

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Financial knowledge | Financial attitudes | Financial behavior | Practical knowledge |
| Financial knowledge |  | 2,33 | 3,44 | (1,22) |
| Financial attitudes |  |  | 1,48 | (2,85) |
| Financial behavior |  |  |  | (4,22) |
| Practical knowledge |  |  |  |  |

Source: authors’ calculations.

*Note: Comparisons are made between the value in the row and the value in the column. The value in parentheses indicates that the observed component in the row is of lesser importance compared to the component in the column it is being compared with.*

Examining coefficients in Table 3, *Financial knowledge* is 2.33 times more important than *Financial attitudes* and 3.44 times more than *Financial behavior*, but 1.22 times less important than *Practical knowledge*. This reflects shifts from the Millennials’ study (Pavković, Anđelinović, & Mišević, 2018), where *Financial attitudes* previously held less importance than *Financial behavior*. *Financial knowledge* increased in significance but remains lower than *Practical knowledge*. The next step involved calculating the respective weights of the indicators by solving a system of linear equations. These weight calculations were used to construct the financial literacy indicator. The corresponding weights are depicted in Figure 1.

Figure 1

Importance of Financial Literacy Components in Calculating the Composite Indicator

Source: authors.

Compared to Millennials, a significant rise in the importance of practical knowledge over financial theory stands out as one of the most notable changes in relative significance. The growing importance of practical knowledge may signify Generation Z's desire for hands-on, applicable experiences, especially in finance, aligning with their learning preferences and perception of the world. Additionally, in today's digital age, their easy access to online resources and information might reinforce the emphasis on practical skills over theoretical understanding.

# COMPARING FINANCIAL LITERACY OF MILLENNIALS AND GENERATION Z

The comparative analysis of financial and practical knowledge between Generation Z and Millennials is outlined in Figure 2. It reveals distinct levels of understanding within different financial areas, showcasing differences in financial literacy between the two generations.

Figure 2

Contrasting Financial Knowledge and Practical Knowledge among Millennial and Generation Z Students

Source: authors’ calculations.

*Note: Percentages indicate the proportion of students who answered correctly to questions regarding Financial Knowledge and Practical Knowledge.*

Generation Z and Millennials exhibit differences in knowledge. When comparing the two groups, Generation Z shows a better understanding of concepts like risk diversification (92%) and the time value of money (87%), surpassing Millennials by a significant margin (87% and 58%, respectively). Conversely, Millennials demonstrate a stronger grasp of the relationship between risk and reward (68%) compared to Generation Z, where only 34% have a clear understanding. Both groups share similar proficiency in areas such as compound interest calculation, simple interest calculation, and managing bank accounts for student work (90% for Generation Z and 86% for Millennials). Understanding these variations can aid in targeted financial education strategies for each generation. Different generations exhibit diverse financial attitudes and behaviors, as evidenced by Table 4.

Table 4

Evolution of Financial Attitudes and Financial Behavior

|  |  |  |
| --- | --- | --- |
| Millennials | Gen Z | Statement |
| 85% | 90% | make sure to settle their debts on time |
| 90% | 88% | believe they should strive to give their families the best life possible |
| 70% | 81% | plan to save part of their income long-term once employed |
| 66% | 78% | are very interested in expanding their financial knowledge |
| 71% | 73% | carefully consider whether they can afford something before buying |
| 54% | 56% | contribute to the payment of accommodation costs |
| 38% | 56% | prefer cards as a means of payment |
| 47% | 53% | consider themselves thrifty individuals |
| 56% | 53% | consider offers from several financial institutions when choosing a product/service |
| 36% | 49% | allocate a portion of their funds for savings |
| 28% | 43% | would invest excess money in stocks or bonds |
| 17% | 19% | believe that one should live today, without worrying too much about tomorrow |

Source: authors’ calculations.

*Note: Percentages indicate the proportion of students who selected 'It mostly applies to me' or 'It applies to me completely' in the questions concerning Financial Attitudes and Financial Behavior.*

Distinct differences in financial attitudes and behaviors between Millennials and Generation Z are evident from the data. Generation Z showcases a more robust inclination toward long-term savings planning (81%) upon employment, a heightened interest in expanding financial knowledge (78%), and a preference for card-based payments (56%) compared to Millennials. Additionally, Generation Z demonstrates a higher propensity to allocate a portion of their funds for savings (49%) and expresses greater interest in investing in stocks or bonds (43%) compared to their Millennial counterparts. These variations underscore the diverse financial tendencies and interests between these generational groups.

The primary objective of this study is to assess the current level of financial literacy among Millennial and Generation Z students at the University while exploring changes over a six-year period (2016 - 2022). The study aims to identify the influencing factors contributing to progress or stagnation in financial knowledge. Initially, the study conducted a comparison between the average financial literacy measures in both years across 1,600 students using t-tests and Satterthwaite-Welch t-tests for unequal variances, as detailed in Table 5.

Table 5

Hypothesis Testing Results on Financial Literacy Equality between Generations

|  |  |  |  |
| --- | --- | --- | --- |
| Method | Degrees of freedom | Test statistic | *p*-value |
| *t*-test | 3 198 | -14,14414\*\*\* | 0,0000 |
| Satterthwaite-Welch *t*-test | 3 192,79 | -14,14414\*\*\* | 0,0000 |
|  |
| Variable | Observations | Mean | Std. deviation | Std. error |
| FL\_millennials | 1 600 | 0,594676 | 0,121995 | 0,003050 |
| FL\_generationZ | 1 600 | 0,654486 | 0,117163 | 0,002929 |
| Total | 3 200 | 0,624581 | 0,123268 | 0,002179 |

Source: authors’ calculations.

*Note: \*\*\* indicates rejection of the null hypothesis at a significance level of 1%.*

 The financial literacy of students significantly increased from 0.59 in 2016 to 0.65 in 2022, showing a 10% rise with Generation Z compared to Millennials. This confirms improved financial education over six years, aligning with the 2019 research on Croatian citizens' financial literacy (increasing from 56% to 59%). The G20 countries' average stands at 60% (OECD, 2020).

# DETERMINANTS OF FINANCIAL LITERACY OF GENERATION Z

In addition to comparing Generation Z students with Millennials, this study internally compared Generation Z students based on various factors, such as their field of study, gender, academic year, GPA, work experience, family's educational background, and engagement with business news. It aimed to analyze the determinants influencing students' financial literacy. Table 6 outlines the research findings and analysis methods used.

Regarding Generation Z determinants, *t*-test results indicate noteworthy differences in literacy measures between students who have and haven't taken relevant financial courses, affirming the study's pivotal hypothesis regarding the importance of financial education in higher education. The average *FL* measure stands at 0.67 for students who completed such courses, compared to 0,65 for those who didn't. For Millennials, these averages were 0.62 and 0.58, respectively. This study echoes the 2016 findings, emphasizing substantial literacy disparities among students across various scientific disciplines, and underscoring the significant impact of academic focus on literacy levels. However, analyzing literacy solely based on these disciplines might not provide a holistic view of financial literacy due to the diverse nature of scientific fields.

The *F*-test results clearly indicate the significance of the academic year as a determinant of literacy. Typically, grades tend to increase with each academic year, as the first year is considered the most challenging. Consequently, the assumption was that students with higher grades would exhibit better literacy due to increased interest, effort, and a desire to acquire knowledge. However, within the sample, there is not enough evidence to conclude that financial literacy significantly differs across various GPA levels. Hence, GPA cannot be considered a significant determinant of literacy. This could be attributed to a higher GPA in subjects unrelated to economics not correlating with a heightened interest in financial knowledge. Conversely, it is plausible that students recognize the importance of practical experiences and skills beyond academic achievements in developing better financial habits.

Based on the *t*-test results, there is a significant difference between male and female students, with males showing higher financial literacy. Interestingly, this differs from the results for Millennials, where gender did not influence financial literacy. Furthermore, Table 6 indicates that the financial literacy of Generation Z significantly correlates with work experience. As expected, students with work experience, particularly in student jobs, exhibit higher literacy, averaging 0.66 compared to 0.62 for those without such experience.

Table 6

Determinants of Financial Literacy among Millennials and Generation Z

|  |  |  |
| --- | --- | --- |
|   | Millennials (2016) | Generation Z (2022) |
| Variable | Method | Mean | Degrees of freedom | Test statistic | *p*-value | Mean | Degrees of freedom | Test statistic | *p*-value |
| **(1) Attended a financial course within studies** | Welch t-test |   | 1 241,687 | 6,966494\*\*\* | 0,0000  |   | 1 145,73 | 4,535236\*\*\* | 0,0000 |
| Yes | 0,621818 |   | 0,672602 |   |
| No | 0,578347 | 0,645179 |
|   |
| **(2) Scientific field** | Welch F-test |   | (5, 224,492)  | 10,93281\*\*\* | 0,0000  |   | (5, 246,25) | 4,941884\*\*\* | 0,0002 |
| Biomedicine and health sciences | 0,568056 |   | 0,655657 |   |
| Biotechnical sciences | 0,548017 | 0,651084 |
| Social sciences and humanities | 0,609224 | 0,647844 |
| Natural sciences | 0,616705 | 0,694416 |
| Technical sciences | 0,589680 | 0,660544 |
| Artistic fields | 0,509187 | 0,611689 |
|   |
| **(3) Academic year** | Welch F-test  |   | (5, 345,911)  | 10,04932\*\*\* | 0,0000  |   | (5, 144,62) | 10,25058\*\*\* | 0,0000 |
| 1 | 0,563342 |   | 0,624987 |   |
| 2 | 0,570820 | 0,626892 |
| 3 | 0,588592 | 0,658910 |
| 4 | 0,622093 | 0,668543 |
| 5 | 0,610752 | 0,679017 |
| 6 | 0,618235 | 0,683670 |
|  |
| **(4) Grade point average** | Welch F-test  |   | (5, 334,340)  | 1,255620 | 0,2829  |  | (5, 231,28) | 1,166278 | 0,3266 |
| 2,00 – 2,49 | 0,561896 |   | 0,638299 |   |
| 2,50 – 2,99 | 0,590204 | 0,662776 |
| 3,00 – 3,49 | 0,596167 | 0,652224 |
| 3,50 – 3,99 | 0,591264 | 0,652318 |
| 4,00 – 4,49 | 0,595381 | 0,649542 |
| 4,50 – 5,00 | 0,609745 | 0,670017 |
|  |
| **(5) Gender** | Welch t-test  |   | 1 106,511 | -1,427621 | 0,1537  |   | 1 246,31 | 9,053990\*\*\* | 0,0000 |
| M | 0,588693 |   | 0,688095 |   |
| F | 0,597951 | 0,634535 |
|  |
| **(6) Work experience** | Welch t-test  |  | 3 712,280 | 2,405151\*\* | 0,0167 |  | 260,71 | -4,330073\*\*\* | 0,0000 |
| Yes | 0,630190 |   | 0,659780 |   |
| No | 0,608461 | 0,619252 |
|  |
| **(7) Any family member attained higher education level** | Welch t-test  |   | 1 104,836 | 1,057751 | 0,2904 |   | 909,36 | 0,997463 | 0,3188 |
| Yes | 0,597007 |   | 0,656323 |   |
| No | 0,590201 | 0,650029 |
|  |
| **(8) Reading business news weekly** | Welch t-test  |  | 1 356,923 | 5,767789\*\*\* | 0,0000 |  | 837,86 | 6,139487\*\*\* | 0,0000 |
| Yes | 0,616144 |   | 0,682640 |   |
| No | 0,580549 | 0,643126 |

Source: authors’ calculations.

*Note: \*\* indicates rejection of the null hypothesis at a significance level of 5%, while \*\*\* indicates rejection of the null hypothesis at a significance level of 1%.*

Like Millennials, the study dismisses the notion that higher parental education significantly affects the financial literacy of the younger generation. Furthermore, it rejects the alternative hypothesis that there is no difference between students who express an interest in increasing financial knowledge through reading business news and those who do not. This pattern aligns with the findings for Millennials. In various aspects of life, showing interest and initiative leads to positive outcomes, evident in the increased financial literacy in this case.

Research findings underscore the need for greater emphasis on financial and economic topics within formal education, a conclusion echoed by the most recent studies on this topic (Lusardi & Mitchell, 2023). To address this, collaboration between financial and educational institutions could facilitate tailored financial courses specifically designed for Generation Z's preferences. Recognizing their penchant for card-based payments and interest in investing, financial entities might innovate by creating user-friendly investment platforms or embedding educational resources within mobile banking apps. Customizing marketing strategies to emphasize long-term savings benefits and delivering easily understandable financial education could attract and retain Generation Z as customers. Moreover, the correlation between work experience, especially student jobs, and heightened financial literacy suggests opportunities for corporations to offer internships or educational programs, imparting practical financial skills. Targeted initiatives to narrow the gender gap in financial literacy, such as specialized educational campaigns for female students, and policy advocacy for integrating financial education into school curricula, further highlight crucial avenues for improvement.

# CONCLUDING REMARKS

This study undertakes a quantitative assessment of the financial literacy of
1,600 Generation Z students, selected from a randomly chosen proportional stratified sample at the University of Zagreb. The aim is to compare their financial literacy with that of Millennials, pinpointing factors influencing Generation Z's financial knowledge. The survey, based on the OECD's questionnaire, encompasses financial knowledge, attitudes, behaviors, and practical financial skills. It replicates the measurement model used for Millennials in an earlier study, allowing for a direct comparison between generations and identifying areas for enhancing Generation Z's financial literacy.

The study reveals distinct disparities in financial knowledge and behaviors between Generation Z and Millennials. Generation Z demonstrates a superior understanding of concepts like risk diversification and the time value of money, while Millennials exhibit stronger comprehension of fewer concepts such as the relationship between risk and reward. Both groups show similar proficiency in certain financial areas like compound interest calculation and managing student bank accounts. Furthermore, Generation Z shows a stronger inclination toward long-term savings planning, a heightened interest in expanding financial knowledge, and a preference for card-based payments compared to Millennials. Generation Z also tends to allocate funds for savings and displays more interest in investing in stocks or bonds.

Over a six-year period, there's a noteworthy 10% increase in financial literacy among Generation Z compared to Millennials, aligning with similar upward trends observed in other studies. This highlights the increasing significance of financial education among younger demographics.

The study delves into determinants influencing financial literacy among Generation Z, emphasizing the impact of attending financial courses within studies and the effect of diverse scientific fields on financial knowledge. While GPA levels show weak correlations with financial literacy, academic year progression and work experience significantly influence it. Furthermore, male students tend to exhibit higher financial literacy, and those with work experience, particularly in student jobs, demonstrate elevated financial knowledge. Notably, the research dismisses the idea that higher parental education significantly affects the financial literacy of the younger generation. However, expressing an interest in increasing financial knowledge is positively linked with higher financial literacy.

Overall, these findings underscore the necessity of integrating financial content into formal education systems, especially through financial courses, to cultivate and enhance financial literacy among young people. Tailoring financial education strategies considering differences in financial attitudes, behaviors, and influencing factors between Generation Z and Millennials can substantially contribute to improving financial literacy among the younger generation.

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**Appendix 1**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|   | **FACULTIES** | **N\_Gen Y** | **N\_Gen Z** | **P\_Gen Y** | **P\_Gen Z** | **n\_Gen Y** | **n\_Gen Z** |
| 1 | Catholic Faculty of Theology | 679 | 407 | 1,19% | 0,77% | 19 | 12 |
| 2 | Faculty of Agriculture | 2 242 | 1 762 | 3,92% | 3,32% | 63 | 53 |
| 3 | Faculty of Architecture | 1 050 | 988 | 1,83% | 1,86% | 29 | 30 |
| 4 | Faculty of Chemical Engineering and Technology | 987 | 1 093 | 1,72% | 2,06% | 28 | 33 |
| 5 | Faculty of Civil Engineering | 1 297 | 1 226 | 2,27% | 2,31% | 36 | 37 |
| 6 | Faculty of Croatian Studies | 1 518 | 1 239 | 2,65% | 2,34% | 42 | 37 |
| 7 | Faculty of Economics and Business | 5 832 | 6 374 | 10,19% | 12,01% | 163 | 192 |
| 8 | Faculty of Education and Rehabilitation Sciences | 861 | 865 | 1,50% | 1,63% | 24 | 26 |
| 9 | Faculty of Electrical Engineering and Computing | 3 040 | 3 465 | 5,31% | 6,53% | 85 | 105 |
| 10 | Faculty of Food Technology and Biotechnology | 928 | 1 095 | 1,62% | 2,06% | 26 | 33 |
| 11 | Faculty of Forestry | 1 133 | 622 | 1,98% | 1,17% | 32 | 19 |
| 12 | Faculty of Geodesy | 528 | 528 | 0,92% | 1,00% | 15 | 16 |
| 13 | Faculty of Geotechnical Engineering | 298 | 221 | 0,52% | 0,42% | 8 | 7 |
| 14 | Faculty of Graphic Arts | 818 | 592 | 1,43% | 1,12% | 23 | 18 |
| 15 | Faculty of Humanities and Social Sciences | 6 109 | 6 105 | 10,67% | 11,51% | 171 | 184 |
| 16 | Faculty of Kinesiology | 1 355 | 1 304 | 2,37% | 2,46% | 38 | 39 |
| 17 | Faculty of Law | 6 428 | 4 966 | 11,23% | 9,36% | 180 | 150 |
| 18 | Faculty of Mechanical Engineering and Naval Architecture | 2 152 | 2 345 | 3,76% | 4,42% | 60 | 71 |
| 19 | Faculty of Metallurgy | 109 | 111 | 0,19% | 0,21% | 3 | 3 |
| 20 | Faculty of Mining. Geology and Petroleum Engineering | 853 | 665 | 1,49% | 1,25% | 24 | 20 |
| 21 | Faculty of Organization and Informatics | 1 862 | 1 701 | 3,25% | 3,21% | 52 | 51 |
| 22 | Faculty of Pharmacy and Biochemistry | 943 | 993 | 1,65% | 1,87% | 26 | 30 |
| 23 | Faculty of Philosophy and Religious Studies | - | 168 | - | 0,32% | - | 5 |
| 24 | Faculty of Political Science | 1 708 | 1 291 | 2,98% | 2,43% | 48 | 39 |
| 25 | Faculty of Science | 3 907 | 3 852 | 6,83% | 7,26% | 109 | 116 |
| 26 | Faculty of Teacher Education | 2 211 | 1 717 | 3,86% | 3,24% | 62 | 52 |
| 27 | Faculty of Textile Technology | 1 276 | 572 | 2,23% | 1,08% | 36 | 17 |
| 28 | Faculty of Transport and Traffic Sciences | 2 193 | 1 556 | 3,83% | 2,93% | 61 | 47 |
| 29 | Faculty of Veterinary Medicine | 694 | 961 | 1,21% | 1,81% | 19 | 29 |
| 30 | School of Dental Medicine | 681 | 630 | 1,19% | 1,19% | 19 | 19 |
| 31 | School of Medicine | 2 338 | 2 347 | 4,08% | 4,42% | 65 | 71 |
|  | **ACADEMIES** |
| 32 | Academy of Dramatic Arts | 287 | 346 | 0,50% | 0,65% | 8 | 11\* |
| 33 | Academy of Fine Arts | 402 | 403 | 0,70% | 0,76% | 11 | 12 |
| 34 | Academy of Music | 525 | 542 | 0,92% | 1,02% | 15 | 16 |
|   | **TOTAL** | **57 244** | **53 052** | **100%** | **100%** | **1 600** | **1 600** |

Source: author's calculation according to data from the Croatian Central Bureau of Statistics (2015, 2021.).

*Note: 'N' represents the total student population, 'P' denotes the proportion, and 'n' signifies the number of students chosen in the sample. Owing to the necessity of rounding proportions to two decimal places, the sample size may deviate from the direct sum of the products of 'N' and 'P'.*

**Appendix 2**

*Note: This study uses questionnaire from Pavković, A., Anđelinović, M., & Mišević, D. (2018). Measuring financial literacy of university students. Croatian Operational Research Review, 9(1), 87-97.* [*https://doi.org/10.17535/crorr.2018.0008*](https://doi.org/10.17535/crorr.2018.0008)

**First Component: Financial Knowledge**

*Choose one answer for each of the questions below.*

1. The amount of 1 000 kuna you get today will be less worth in 3 years.

CORRECT INCORRECT

2. Investing in one stock only is safer than investing in several different stocks.

CORRECT INCORRECT

3. Let us assume that you deposited 1 000 kuna, at 5% yearly interest rate. How much money will you have in your account the next year if you do not withdraw either the principal or the interest?

a. 1 005 kuna

b. 1 050 kuna

c. 1 500 kuna

d. 1 550 kuna

4. Under the same conditions as in the preceding question, how much money will you have in your account in 3 years if you do not withdraw either the principal or the interest?

a. Less than 1 150 kuna

b. Exactly 1 150 kuna

c. More than 1 150 kuna

5. If the EUR/HRK is losing value, this means:

a. one kuna will be able to buy more euro now

b. one euro will be able to buy more kuna now

c. one euro will be able to buy the same amount of kuna as before

6. If the price of the product is 1 000 kuna, VAT being included in this price (25%), the amount of VAT is equal to:

a. 100

b. 200

c. 250

d. 300

7. Bonds with maturity of 15 years will, as a rule, guarantee a lower return than bonds that mature in 5 years. CORRECT INCORRECT

8. If the passive interest rate on bank savings is 1%, and inflation is equal to 2%, how much will you have in your bank account next year?

a. More than the year before

b. Less than the year before

c. Exactly the same as the year before

**Second Component: Financial Attitudes**

*On a scale of 1 to 5, please evaluate how much this statement applies to you. 1 means "It does not apply to me at all" and 5 "It applies to me completely".*

1. I consider myself a frugal person.

1 2 3 4 5

2. I believe we have to live today like there is no tomorrow.

1 2 3 4 5

3. I think I need to do my best to provide myself (and my family, one day) the best life

possible.

1 2 3 4 5

**Third Component: Financial Behavior**

*On a scale of 1 to 5, please evaluate how much this statement applies to you. 1 means "It does not apply to me at all" and 5 "It applies to me completely".*

1. Before making a purchase, I carefully consider whether I can afford it.

1 2 3 4 5

2. I do not pay too much attention to settling my debts on time.

1 2 3 4 5

3. Whenever possible, I help with paying the bills in my accommodation.

1 2 3 4 5

4. Part of my income is always set aside for savings.

1 2 3 4 5

5. When I get a job, I intend to separate a certain part of my earnings for long-term savings because I find that important.

1 2 3 4 5

6. Whenever possible, I pay my expenses using a credit or debit card.

1 2 3 4 5

7. When choosing a financial product or service, I generally do not consider offers from several financial institutions.

1 2 3 4 5

8. If I had some extra money, I would invest in stocks or bonds.

1 2 3 4 5

9. I am very interested in expanding my financial knowledge.

1 2 3 4 5

**Fourth Component: Practical Knowledge**

*Choose one answer for each of the questions below.*

1. If the seller sells a personal computer for 2 400 kuna instead of an initial price of
3 000 kuna, this is a discount of?

a. 10%

b. 15%

c. 20%

d. 25%

2. Which of the following bank accounts is required when you choose to work through the Student Service?

a. a current account

b. a giro account

c. a foreign currency account

d. a savings account

3. Which of the following types of financial assets is characterized by the highest expected return?

a. bank savings

b. stocks

c. mutual funds

d. bonds

4. What amount your annual earnings should not exceed in order to prevent your parents losing the right to tax relief in the Republic of Croatia?

a. 11 000 kuna

b. 13 000 kuna

c. 20 000 kuna

d. 50 000 kuna

5. If you decide to raise a loan during your studies, on which type of loan will the bank charge the highest interest rate?

a. a non-purpose loan

b. a 10-year student loan

c. an overdraft loan

And finally, please fill out your personal information.

1. Gender: M F

2. Age: \_\_\_\_\_\_\_

3. Faculty: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. Year of study: 1 2 3 4 5 6

5. Grade Point Average:

a. 2,00 – 2,49 b. 2,50 – 2,99

c. 3,00 – 3,49 d. 3,50 – 3,99

e. 4,00 – 4,49 f. 4,50 – 5,00

6. Your accommodation in the place you study:

a. Family home

b. Student dormitory

c. Rented house or apartment

7. Do you have any work experience? YES NO

8. Has anyone in your family graduated from a higher education institution? YES NO

9. Do you have the habit of reading business news at least once a week? YES NO

10. Have you attended a course in your studies that has helped you solve this questionnaire? YES NO

***Sažetak***

***USPOREDBA FINANCIJSKE PISMENOSTI: JE LI GENERACIJA Z NADMAŠILA MILENIJALCE U FINANCIJSKIM PITANJIMA?***

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*Razumijevanje financija ključno je za donošenje informiranih odluka te za osiguranje financijske stabilnosti. Stoga je financijsko obrazovanje integrirano u većinu obrazovnih programa, a mladi danas sve više samostalno traže takav sadržaj. Naše prvo istraživanje o financijskoj pismenosti provedeno je 2016. godine na 1 600 studenata koji su bili dio generacije Y ili milenijalaca, iz različitih akademskih područja. Cilj ovog istraživanja je odrediti razine financijske pismenosti i njene determinante među 1 600 studenata generacije Z koji su ispitani u 2022. godini i usporediti te rezultate s onima dobivenim od milenijalaca 2016. godine. U tu svrhu, razvili smo jedinstvenu mjeru financijske pismenosti, temeljenu na podacima prikupljenim putem anketnog upitnika koji je korišten i u 2016. i 2022. godini. Istraživanje koristi potpuno usporedivi slučajno odabrani proporcionalno stratificirani uzorak. Rezultati ukazuju na porast razine financijske pismenosti među generacijom Z koja nadmašuje milenijalce. Istraživanje sugerira da na njihovu financijsku pismenost utječu drukčiji faktori od onih koji su utjecali na milenijalce.*

**Ključne riječi:** financijska pismenost, milenijalci, generacija Z, studenti, anketa, SEM.

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