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.

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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.

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

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%.*

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 . These estimated coefficients of matrix *A* derived from the ratios of factor loadings, are presented in Table 3. Since *A* is reciprocal (), 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
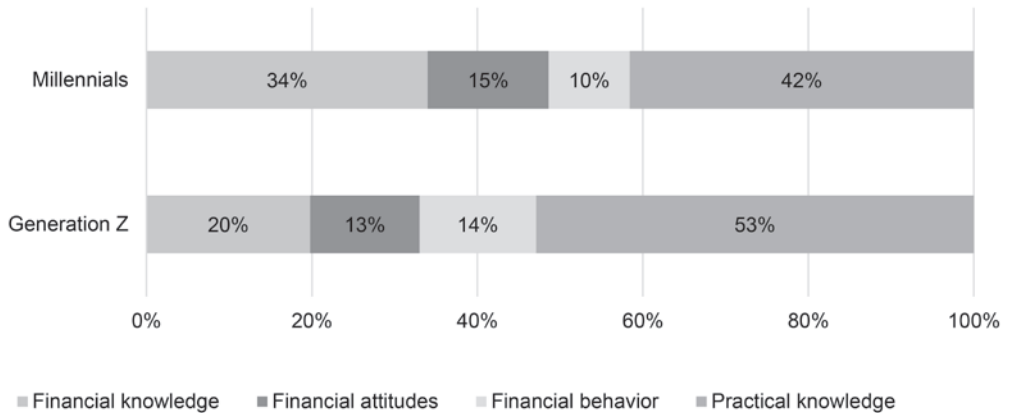
Source: authors.

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
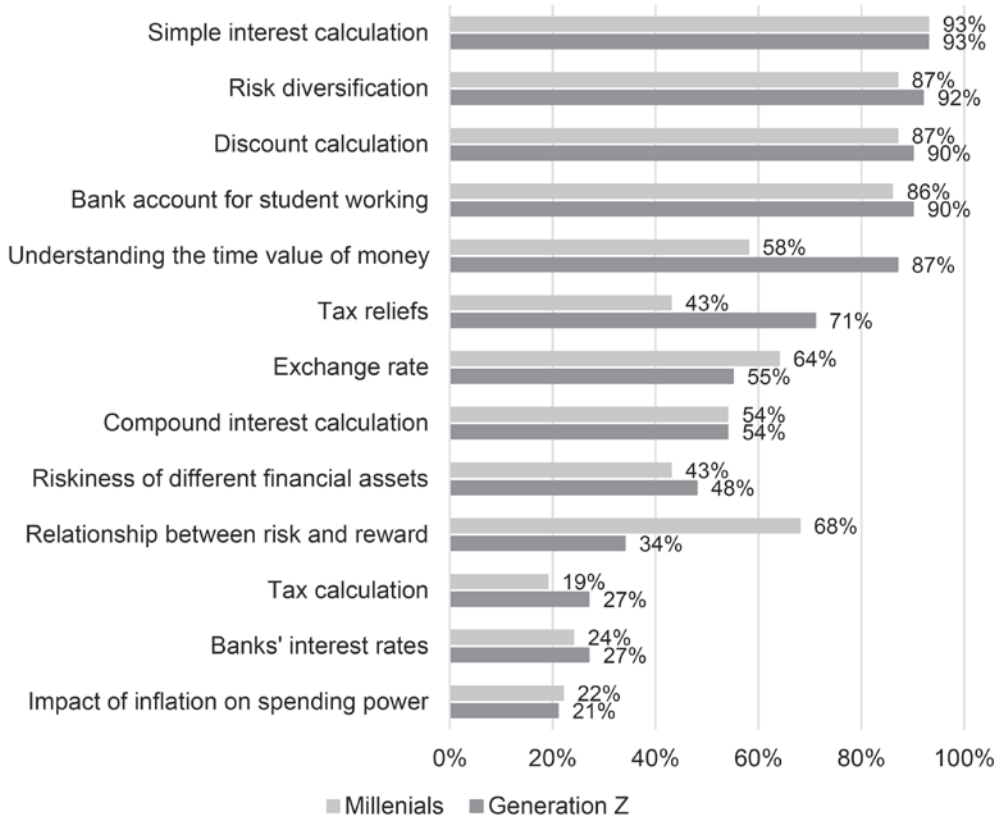
Source: authors' calculations.

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.

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.

Table 6
Determinants of Financial Literacy among Millennials and Generation Z

Variable	Method	Millennials (2016)				Generation Z (2022)			
		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)	4.94884***	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			

Variable	Method	Mean	Millennials (2016)			Mean	Generation Z (2022)		
			Degrees of freedom	Test statistic	p-value		Degrees of freedom	Test statistic	p-value
(5) Gender			1,106.511	-1.427621	0.1537		1,246.31	9.053990***	0.0000
M	Welch	0.588693				0.688095			
F	t-test	0.597951				0.634535			
(6) Work experience			3,712.280	2.405151**	0.0167		260.71	-4.330073***	0.0000
Yes	Welch	0.630190				0.659780			
No	t-test	0.608461				0.619252			
(7) Any family member attained higher education level			1,104.836	1.057751	0.2904		909.36	0.997463	0.3188
Yes	Welch	0.597007				0.656323			
No	t-test	0.590201				0.650029			
(8) Reading business news weekly			1,356.923	5.767789***	0.0000		837.86	6.139487***	0.0000
Yes	Welch	0.616144				0.682640			
No	t-test	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%.*

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.

REFERENCES

Beck, J. J., & Garris, R. O. III. (2019). Managing Personal Finance Literacy in the United States: A Case Study. *Education Sciences, 9*(2), 129. https://doi.org/10.3390/educsci9020129

Byrne, B. M. (2010). *Structural Equation Modeling with AMOS: Basic Concepts, Applications and Programming* (2nd ed.). New York: Taylor & Francis Group, LLC.

Chindemi, G. (2022). Generation Z and Financial Literacy in Japan: A Preliminary Discourse on Attitudes, Behavior, and Outlook. *Chugokugakuen Journal, 21*(9), 9-15. https://doi.org/10.24770/00001167

Elliot, J. (2000). Young and in Debt: A Focus on Prevention. *Credit World, 85*(4), 1–3.

Fessler, P., Jelovsek, M., & Silgoner, M. A. (2020). Financial literacy in Austria – focus on millennials. *Monetary Policy & the Economy, Q3/20*,

21-38. Oesterreichische Nationalbank (Austrian Central Bank).

Fox, J., Bartholomae, S., & Lee, J. (2005). Building the Case for Financial Education. *The Journal of Consumer Affairs, 39*(1), 195–214. https://doi.org/10.1111/j.1745-6606.2005.00009.x

Gok, I. Y., & Ozkale, A. (2019). Testing the influence of college education on the financial literacy level of university students in Turkey. *E-Journal of Business Education & Scholarship of Teaching, 13*(1), 46-58.

Hair, J. F., Anderson, R. E., Babin, B. J., & Black, W. C. (2010). *Multivariate Data Analysis: A Global Perspective* (7th ed.). New Jersey: Pearson Education, Inc.

Le Fur, E., & Outreville, J. (2022). Financial literacy, education and risk aversion: A survey of French students. *Managerial Finance, 48*(9/10), 1530-1543. https://doi.org/10.1108/MF-10-2021-0509

Livengood, S. P., & Venditti, K. L. (2012). Financial literacy: A Primer for Librarians, Educators and Researchers. *College & Research Libraries News, 73*(2), 88-91. https://doi.org/10.5860/crln.73.2.8707

Lusardi, A., & Mitchell, O. S. (2023). The Importance of Financial Literacy. *The Journal of Economic Perspectives, 37*(4), 137-154. https://doi.org/10.1257/jep.37.4.137

Lusardi, A., & Oggero, N. (2017). Millennials and financial literacy: A global perspective. *Global Financial Literacy Excellence Center, 5*, 17.

Lusardi, A., Mitchell, O. S., & Curto, V. (2010). Financial literacy among the young. *The Journal of Consumer Affairs, 44*(2), 358-380. https://doi.org/10.1111/j.1745-6606.2010.01173.x

Mantell, S. (2004). Making Cents of Investing. *Publishers Weekly, 251*(50), 26-30.

Miller, M., Reichelstein, J., Salas, C., & Bilal, Z. (2014). Can You Help Someone Become Financially Capable? A Meta-Analysis of the Literature. *World Bank Policy Research Working Paper, 6745*.

Mohd Padil, H., Kasim, E. S., Muda, S., Ismail, N., & Md Zin, N. (2022). Financial literacy and awareness of investment scams among university students. *Journal of Financial Crime, 29*(1), 355-367. https://doi.org/10.1108/JFC-01-2021-0012

O'Connor, L. G. (2013). Investors' Information Sharing and Use in Virtual Communities. *Journal of the American Society for Information Science and Technology, 64*(1), 36-47. https://doi.org/10.1002/asi.22791

OECD. (2020). *Financial Literacy of Adults in South East Europe*. Preuzeto 03.03.2022. s: https://www.oecd.org/daf/fin/financial-education/Financial-Literacy-of-Adults-in-South-East-Europe.pdf

OECD/INFE. (2011). *Measuring Financial Literacy: Core Questionnaire in Measuring Financial Literacy: Questionnaire and Guidance Notes for Conducting an Internationally Comparable Survey of Financial Literacy*. Preuzeto 03.03.2022. s: https://www.oecd.org/finance/financial-education/49319977.pdf

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

Peng, T.-C. M., Bartholomae, S., Fox, J. J., & Cravener, G. (2007). The Impact of Personal Finance Education Delivered in High School and College Courses. *Journal of Family and Economic Issues, 28*(2), 265–284. https://doi.org/10.1007/s10834-007-9058-7

Potrich, A. C. G., Vieira, K. M., & Mendes-Da-Silva, W. (2016). Development of a financial literacy model for university students. *Management Research Review, 39*(3), 356-376. https://doi.org/10.1108/MRR-06-2014-0143

Reifner, U., & Herwig, I. (2003). Consumer Education and Information Rights in Financial Services. *Information & Communication Technology Law, 12*(2), 125-142. https://doi.org/10.1080/1360083032000106908

Rosdiana, R. (2020). Analysis of investment interests, motivation, social environment, financial literacy (Comparative study of Generation Z and Millennial Generation). *International Journal of Business, Economics and Law, 22*(1), 1-11.

Shankar, N., Vinod, S., & Kamath, R. (2022). Financial well-being–A generation Z perspective using a structural equation modeling approach. *Investment Management and Financial Innovations, 19*(1), 32-50. http://dx.doi.org/10.21511/imfi.19(1).2022.03

Thomas, B., & Subhashree, P. (2020). Factors that influence the financial literacy among engineering students. *Procedia Computer Science, 172*, 480-487. https://doi.org/10.1016/j.procs.2020.05.161

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

	FACULTIES	N_Gen Y	N_Gen Z	P_Gen Y	P_Gen Z	n_Gen Y	n_Gen Z
	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

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.