Digital literacy and engagement of Generation Z: links between motivation, information sciences and the digital work environment

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Abstract

Generation Z, the most digitally literate generation to date, exhibits strong motivation within technologically advanced work environments. In modern society, digital literacy extends beyond technical skills to encompass the ability to use digital tools critically, confidently, and purposefully, communicate effectively, and adapt to a dynamic information environment. In this paper, digital literacy is viewed as a psychological and organizational resource that influences engagement, a sense of purpose, and a sense of belonging within the work organization. A quantitative survey was conducted among 360 Croatian students to examine factors related to motivation and the use of digital tools in the workplace. The results show that the majority of respondents feel highly motivated to work in a digitally equipped environment, with modern digital tools encouraging a sense of autonomy, efficiency, and professional relevance. The hypothesis (H) that Digital literacy is a strong predictor of engagement and motivation of Generation Z in a digital work environment was confirmed by the analysis of the responses, including the research questions. The scientific contribution of the paper is reflected in the connection of information sciences, motivation psychology, and organizational development. The insights gained provide a foundation for future research on the digital adaptation of different generations, also the development of effective digital work environments that support employee engagement, learning, and satisfaction.

1. Introduction

The digital transformation of work environments presents a new challenge for employees of all generations, requiring them to develop digital competencies and adapt to evolving technological trends continually. Generation Z born between 1995 and 2012, is the first generation to grow up in a highly digitalized environment, characterized by an intuitive use of technology, strong independence, and a preference for flexible work arrangements.

This paper examines the relationship digital literacy and professional engagement among Generation Z with focus on motivational factors and perceptions of contemporary digital tools.

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While growing up, this generation has developed a high level of digital literacy, including multitasking, rapid information retrieval, and real-time digital communication [1, 2]. In addition to being regular users of technology, Generation Z is also an innovator who expects a high level of digital literacy and sophistication in their professional environment. For this generation, digital communication has become the dominant form of business interaction in the business environment, and the use of artificial intelligence tools, as well as collaboration platforms and performance management tools, is becoming increasingly standard [3, 4].

Work roles are no longer defined solely by physical location, but by technological readiness, ability to communicate effectively through various digital channels. The hybrid work model is no longer a trend, but a standard. Digital literacy, therefore, takes on a new meaning and is no longer limited to basic computer or internet competence, but is defined as the ability to critically, safely, effectively, and creatively use digital technologies for work, communication, collaboration, and problem solving [5, 6]. Additionally, digital literacy as a competence of the information society encompasses an understanding of digital tools, information and management skills, also psychological aspects such as adaptability, motivation, and engagement in a technologically mediated environment [7, 8].

This paper aims to examine how digital literacy affects the engagement and motivation of members of Generation Z. Also, how this connection is reflected in the perception of the modern digital work environment. The paper combines theoretical reflection with an empirical approach, with an emphasis on the connection between information sciences, psychology, and organizational behavior.

The paper is divided into five basic chapters. Following the introduction, a theoretical framework is presented that connects digital literacy, motivation, and information sciences within the context of Generation Z. The third chapter outlines the research methodology presents the analysis of the results. The fourth chapter provides a discussion, while the conclusion summarizes the key findings and scientific contribution of the research.

2. Theoretical framework

Digital literacy encompasses not only technical skills is the ability to adapt to the information environment, critical thinking, and social skills in a digital context [9, 7]. It is associated with higher levels of intrinsic motivation and a sense of autonomy, which aligns with the self-determination theory [10]. Given the accelerated digitalization of the work environment, employers expect a high level of digital competence in young employees, and digital literacy is seen in this paper as a fundamental prerequisite for engagement, productivity, and organizational loyalty.

The theoretical framework is based on an approach to connects digital adaptation, motivational psychology, digital literacy, information sciences, and organizational behavior, with a focus on Generation Z. Therefore, the following research questions were asked:

- **RQ1:** To what extent do members of Generation Z possess the digital literacy necessary to work in a modern digital environment?
- **RQ2:** How does digital literacy affect the intrinsic motivation and engagement of Generation Z?

- **RQ3:** What digital competencies and tools do Generation Z consider essential for effective and motivating work?

The basic hypothesis is: *Digital literacy is a strong predictor of Generation Z engagement and motivation in a digital work environment.*

In motivation theories, self-determination theory emphasize the importance of intrinsic motivation, a sense of competence, autonomy also purpose as key elements of engagement. In the digital context, this approach becomes even more crucial, as the work environment demands independence, adaptability, and initiative [7, 3]. The concept of digital engagement is also applied, which includes the emotional and cognitive presence of an individual in the digital workspace. Linked to self-determination theory, autonomy and competencies contribute to intrinsic motivation. It is precisely digital literacy that enables employees to have greater autonomy, faster knowledge exchange also more precise control over their tasks, which in turn increases their sense of purpose and engagement. This suggests that digital literacy enhances autonomy and a sense of competence, thereby increasing motivation and engagement [9]. Research from Hong Kong has shown that technology support for learning fostered the development of digital literacy, and self-determination needs for autonomy. Competence acted as mediators in this process [9].

Information science provides an understanding of how individuals manage, transfer, and evaluate information in a digital context. In the work environment, information systems extend beyond the technical dimension. They are utilized for decision-making, collaboration, and personal development, which in turn directly impact the level of work engagement [4, 7].

Generational differences further shape attitudes towards digital technology. While older generations often developed digital skills throughout their careers, Generation Z enters the job market already formed in a digital environment. This generation thus demonstrates a higher level of digital flexibility, but also different expectations regarding work culture, communication, and motivation [1, 11, 2].

2.1. The role of digital technologies in the development of digital literacy and motivation

The theoretical perspective within the theoretical framework seen through the contemporary educational and working environment where digital technology becomes an important factor for the development of digital literacy, but also the engagement and professional readiness of members of Generation Z. These insights are presented in the review paper Understanding the role of digital technologies in education: A review where the integration of digital technologies in education leads to more inclusive, engaged and skills-based learning environments [12].

The focus is on tools such as e-learning, mobile learning, artificial intelligence systems, virtual classrooms, and gamification that enable personalization of the learning process, greater flexibility, and a higher level of engagement. Theoretical perspective within the theoretical framework viewed through the contemporary educational and work environment where digital technology is becoming an important factor for the development of digital literacy, but also engagement and professional readiness of members of Generation Z. These insights are presented

in the review paper Understanding the role of digital technologies in education: A review where the integration of digital technologies into education leads to more inclusive, engaged.

This theoretical perspective enables a deeper understanding of digital literacy as the foundation of intrinsic motivation, a sense of competence, and autonomy in a professional context. Digital literacy is thus directly linked to the key principles of self-determination theory, according to which the satisfaction of psychological needs for autonomy, competence, and purpose leads to a higher level of engagement and satisfaction in the workplace [12]. Insights confirm, digital literacy goes beyond the framework of technical skills, representing a complex and multidimensional construct that encompasses the functional, emotional, and social components of engagement in a digital environment. In the context of Generation Z, which forms its professional identity in a digitally rich environment, new expectations are simultaneously emerging regarding work culture, communication patterns, and knowledge management [12].

Digital technologies, therefore, not only shape educational experiences but also have a significant impact on professional motivation, engagement, and organizational dynamics. Accordingly, digital literacy is not only an indicator of efficiency, but also a strategic factor for the development of an engaged and satisfaction-oriented digital workforce.

2.2. Digital adaptation and communication skills of Generation Z in a hybrid environment

In the context of generational differences in the hybrid work model, Brkljača and Šajn (2025) point out that younger employees (including part of Generation Z) more often show difficulties with engagement, motivation, and self-management in the digital environment. Although Generation Z exhibits a high level of digital competence, they do not appear to experience the so-called Zoom fatigue, unlike Generation X, which tends to experience cognitive fatigue from video calls more pronouncedly. Insights confirm that Generation Z exhibits greater resilience in the digital environment and a higher level of adaptation to virtual communication tools which aligns with their developmental and educational experiences in a digitally structured society. All of the above supports the thesis of this paper that digital literacy is not only a technical competence, but also a psychological and communication ability that, if adequately supported, can result in a high level of engagement, efficiency and a sense of purpose among members of Generation Z. Such a combination of technical and socio-psychological skills makes digital literacy a key factor in the success of Generation Z in the modern work environment.

3. Research methodology and sample

3.1. Sample and approach

The research employed a quantitative approach to investigate the relationship between digital literacy, motivation, and engagement among members of Generation Z in the contemporary digital work environment.

The data were collected through an online questionnaire titled "Motivational Factors at the Workplace," which was completed by 360 students from the Republic of Croatia. The distribution of the questionnaire was carried out through higher education institutions via

official communication with personnel in direct contact with students. This ensured that the questionnaire reached the target population, specifically students transitioning from education to the workforce who already had some work experience through internships, student jobs, or other forms of employment.

The questions related to topics such as the use of technology, flexibility in the workplace, digital literacy, and expectations for future jobs. Regarding the topic of the survey questionnaire, which investigated the motivational factors of Generation Z in the workplace, 37 questions were asked. Five of these questions were identified to further analyze the digital literacy and engagement of Generation Z, as a link between motivation, information sciences, and the digital work environment.

The data obtained form the basis for further analysis of the relationship between work engagement and digital literacy. Although the questions are simple and understandable to the target group, their psychometric potential requires further validation.

Table 1
Questionnaire questions, theoretical background and links to RQs

Question from Questionnaire	Theoretical Concept	Related RQ	Connection with Hypothesis
How motivated are you by the use of modern digital tools in your work?	Intrinsic motivation, technological autonomy	RQ2, RQ3	High motivation indicates the influence of digital literacy on engagement
How important is flexible working time to you?	Autonomy, modern working conditions	RQ2	Flexibility is a component of the modern digital environment that enhances motivation
To what extent are you motivated to participate in training?	Professional development, sense of competence	RQ1, RQ2	Training enhances digital skills and increases engagement
How do you rate the importance of digital communication in the workplace?	Digital literacy, social skills	RQ1	Communication is a fundamental component of digital literacy
How important is it to you to work in an organization that uses innovative technologies?	Digital culture, belonging, identity	RQ3	Positive perception of technology is related to motivation and engagement

The research employed a 5-point Likert scale. The SPSS program was used to analyze the collected data, which allows for easier viewing and comparison of responses. Given this, the results provide indicative insights. For a deeper scientific analysis in the future, it is proposed to expand the questionnaire to include a larger number of variables and conduct a factor analysis.

3.2. Research questions and hypotheses

Three research questions and hypotheses were posed:

- **RQ1:** To what extent do members of Generation Z possess the digital literacy necessary to work in a modern digital environment?
- **RQ2:** How does digital literacy affect the intrinsic motivation and engagement of Generation Z?
- **RQ3:** Which digital competencies and tools do Generation Z consider essential for effective and motivating work?

Hypothesis (H): Digital literacy is a strong predictor of Generation Z's engagement and motivation in a digital work environment.

According to the hypothesis H1 and the research questions, there is room for a more in-depth analysis of the relationship between digital literacy and engagement at work. These results open up opportunities for future research that will provide a more in-depth analysis of the connection between digital competence and the psychological and organizational aspects of engagement at work.

3.3. Interpretation of research results

A total of 360 respondents participated in the study with the majority being women (75.83%), followed by men (23.61%), and the remaining 0.56% belonging to the "other" category. This distribution may indicate the gender structure of the higher education population in a particular area or the greater willingness of women to participate in this type of research.

The most represented age groups are those between 20 and 22 years (30.83%) and 23 and 25 years (30.56%), which correspond to the expected age range of undergraduate and graduate students. A total of 17.78% of respondents are older than 29 years, indicating the presence of postgraduate students or those who have subsequently started higher education. Regarding the year of study, the most significant number of respondents comes from the 1st year (27.5%) and the 5th year (25.28%), while other years are also represented, including 6.11% of postgraduate students. This structure provides insight into the thoughts and habits of students at different stages of the educational process.

When it comes to work experience, the largest share, at 27.5%, is comprised of students with 1–3 years of experience, and 25% of them have no work experience at all. Around 20.83% of respondents have less than one year of experience. In comparison, 19.17% of the sample have seven or more years of work experience, which further confirms the heterogeneity of the sample and the inclusion of older, more experienced students.

The issue of employment reveals that the sample is almost equally divided between employed and unemployed students: 51.11% of students are currently employed, while 48.89% are not. This fact indicates the significant presence of student work and the importance of balancing academic and work obligations. students.

Analyzing the results of the survey questionnaire, which were grouped into several thematic units (flexibility of work, education and development, digital communication, and the role of technology in work), valuable insights were obtained into the expectations, values, and motivational factors of Generation Z.

The results of the question related to flexible working hours show that as many as 68.61% of respondents rate flexible working hours as very important, 36.39% as extremely important,

Table 2
Research results with data on respondents

Category	Most common answers	Percentage (%)
Gender	Women	75.83
	Men	23.61
	Other	0.56
Age	20–22 years	30.83
	23–25 years	30.56
	29+ years	17.78
Year of Study	1st year	27.50
	5th year	25.28
	3rd year	16.67
Work Experience	1–3 years	27.50
	No experience	25.00
	< 1 year	20.83
	7+ years	19.17
Employment	Student – Employed	51.11
	Student – Unemployed	48.89

and 32.22% as important. 25.56% of participants consider it moderately important, while only 5.83% rate flexibility as not or not at all important. This distribution of responses confirms the existence of a pronounced need for a balance between private and professional life, as well as for greater autonomy in organizing one's own time, which is a key characteristic of Generation Z in the work context.

The motivation to participate in training and seminars is high among the respondents, with 38.61% stating that such activities motivate them very much, and 26.67% stating that they motivate them extremely. Moderate motivation is expressed by 28.33%, while only 6.39% stated that such activities motivate them little or not at all. The results suggest that Generation Z values opportunities for personal and professional development, and they are open to lifelong learning, which is important to consider when designing development programs in education and business.

Digital communication in the work environment is perceived as moderately important by 47.22% of participants. At the same time, 24.17% rate it as very important, and 7.78% as extremely important. On the other hand, 20.83% of participants consider it to be of little or no importance. The data indicate the need for a balanced approach - digital tools should be accessible and efficient, but not replace human interaction altogether. More than 63% of respondents feel highly motivated to use digital tools at work, with 35% feeling very motivated and 28.33% extremely motivated, while 30.83% report moderate motivation. Only 5.83% report weak or no motivation. This confirms that technological literacy is not only an expected but also a desirable feature of the workplace from the perspective of young people, and that digitalization and automation can have a positive effect on engagement.

When asked about the importance of working in organizations that use innovative technologies, 56.67% of respondents answered that it is essential to them. An additional 34.44% consider it moderately important. Only 8.89% state that they give little or no importance to that factor.

This fact highlights that young people seek to work in a dynamic and innovative environment, which contributes to their perception of a desirable employer.

Table 3
Results of the survey on the perception of the importance of working conditions, flexibility, education and technology

Question	Most Common Answers	Percentage (%)
Flexible working hours	Very / Extremely	68.61
Motivation for education	Very / Extremely	65.28
Digital communication	Moderately	47.22
Use of digital tools	Very / Extremely	63.33
Innovative technologies in the organization	Very / Extremely	56.67

3.4. Conclusions on the particular issue

All five questions confirm the basic hypothesis of the work, which is that digital literacy is a key predictor of motivation and engagement among Generation Z in contemporary digital work contexts.

Question 1: Modern digital tools and motivation
The vast majority of respondents state that the use of modern digital tools motivates them. This confirms the thesis that digital literacy and access to technology increase feelings of control, efficiency, and professional value. This confirms the hypothesis and RQ2.

Question 2: Flexible working hours
The answers suggest that Generation Z places a high value on flexibility. The importance of organizational conditions confirms that they are compatible with the digital work style and highlighting the need for flexible management. This supports RQ2.

Question 3: Education and motivation
Respondents perceive participation in education as motivating, indicating the importance of continually developing digital skills. Education increases the sense of competence and professional relevance, confirming RQ1 and RQ2 and strengthening the hypothesis.

Question 4: Digital Communication
Digital communication in the workplace is recognized as an essential component, which confirms the presence of a basic level of digital literacy and sensitivity to the quality of the internal digital environment. Confirms RQ1.

Question 5: Innovative technologies and organizational culture
Respondents want to work in organizations that use advanced technologies. This preference for modern tools indicates identification with the digital values of the organization, which supports RQ3 and confirms the connection between digital literacy and engagement.

3.5. Conclusion of the research results

The survey results indicate that members of Generation Z highly value the technological aspects of the work environment. More than 60% of respondents emphasized that the use of modern

digital tools at work motivates them greatly, which reflects a high level of technological literacy and the expectation that employers apply modern tools in everyday business processes. In addition to increasing productivity and efficiency, it also contributes to a greater sense of belonging in digitally aware organizations.

Working in organizations that use innovative technologies is highly rated by respondents, with more than half considering such an environment to be very important. This indicates that young employees are not only seeking a job, but also a work environment that inspires them, enables them to develop, and keeps pace with technological progress.

When it comes to digital communication, the majority of respondents express a moderate to high degree of preference. Although digital channels represent a desirable form of business communication, the results also indicate a certain threshold of tolerance, suggesting the need for a balance between digital efficiency and face-to-face interpersonal communication.

Overall, these findings confirm that technological infrastructure and digital competence also a culture of innovation are key factors in shaping an attractive work environment for Generation Z. Employers who want to attract and retain young talent should invest in digital tools, innovative processes, and flexible forms of communication that match the habits and expectations of new generations of employees. Innovative processes and tools, balanced communication, and organizations can attract and retain technologically competent and motivated members of Generation Z in the long term.

4. Discussion

The research results indicate a clear connection between digital literacy and engagement among members of Generation Z. The obtained data suggest theoretical assumptions about the importance of a sense of competence, autonomy, and purpose in the digital environment. The connection between a high level of digital literacy and expressed motivation further indicates the importance of implementing innovative technologies in work processes.

The use of digital tools is perceived not only as a technical tool, but also as a symbol of modernity and professional affiliation. Although the results are positive, a limitation is the small number of research questions on this topic, which makes it challenging to connect the theoretical framework with empirical data in greater depth. It is necessary to expand the measurement instrument in future research to cover all dimensions of digital literacy and engagement in more detail.

Given the expressed motivation for using digital technologies and the importance of an innovative environment in professional development, digital literacy among members of Generation Z extends beyond the technical level and encompasses personal values and engagement. Future research should consider a broader range of variables, including emotional, social, and organizational factors related to the digital work context.

5. Conclusion

In the era of rapid technological change, digital literacy extends beyond technical competence to become a fundamental factor in adaptation, professional relevance, and a sense of purpose

within the organization.

The analysis of five key questions from the survey questionnaire confirmed the basic hypothesis that digital literacy is a strong predictor of engagement and motivation of Generation Z in the digital work environment. A high motivation to work with modern digital tools, a preference for flexible working conditions, an interest in continuing education, and a strong desire to work in organizations that utilize innovative technologies.

The contributions are to the scientific understanding and the connection between information science, motivational psychology, and organizational behavior, especially in the context of younger generations of employees. It also provides guidance to managers, educators, and policymakers in designing digital strategies that encourage employee engagement and satisfaction.

Limitations of this research include a relatively small sample and the lack of validation of the questionnaire using psychometric tools. Future research should include a larger number of variables, an analysis of differences between subgroups and qualitative methods to a deeper understanding of the digital experiences of Generation Z.

The development of digitally competent, motivated and engaged young professionals should be a strategic priority for educational institutions and organizations that want to successfully manage the dynamics of digital transformation in the long term. These findings serve as a call to all stakeholders in the work and education system to actively shape the conditions that empower the potential of Generation Z, because this generation does not know a world without technology. It is a generation that expects the work environment to keep pace with it.

Declaration on Generative AI

The authors have not employed any Generative AI tools.

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