

Gen Z's Digital Literacy in the Development of Proactive Personality: HR Management Perspective

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Abstract: The digital literacy is required for the efficient functioning of an individual in the digital world. Digital transformation changes people's attitudes and behaviors, strengthening or weakening some of them. The continuous research in this field is justified by the fundamental changes that digitalization is bringing about in the global labor market, professional activities, and work structures. An interesting question is whether digital skills can be helpful in shaping specific attitudes and behaviors of employees as e.g. proactivity. The concept of proactivity is an important phenomenon considered within the framework of corporate entrepreneurship. A proactive organization focuses on seizing opportunities in a competitive market, implementing innovations in practice and managing market expectations. For an organization to be proactive, it is necessary to implement proactivity at all levels of the organizational structure, which may be more effective if we employ employees with a high level of proactive personality. It remains unknown whether digitization is connected with an individual's proactivity. The current study aims to examine the dependency between elements of the digital literacy and the development of proactive personality of young individuals of Gen Z, an attitude that may to emphasize the importance of proactiveness as a desirable feature in the professional life. The research was conducted in the form of a survey using the CAWI method among 370 individuals of Gen Z in Poland in 2024. Regression analysis confirmed a statistically significant dependency between the digital literacy and the proactive personality in the studied group of respondents, however, not all predictors within the model have a positive dependency with the proactive personality. The main limitations of the study are visible in not fully representativeness of the research group, and hence the inability to generalize the conclusions and make certain assumptions regarding the probable use of a proactive personality in the workplace.

Keywords: Digital Literacy, Digitization, Proactive Personality, Proactivity, Gen Z.

1. Introduction

According to Sahu et al (2018), digital transformation refers to the change of an organization's structure, functions, processes, and business models brought about by the implementation of digital technologies like augmented reality, machine learning, artificial intelligence, and in-memory computing. Because of the unique nature of digital technology, managers and decision makers face numerous problems throughout digital transformations (Abedin & Babar, 2018).

Continuous research in this field is justified by the fundamental changes that digitalization is bringing about in the global labor market, professional activities, and work structures. Many workplaces have integrated digital technologies to perform tasks such as communication, information sharing and simulation of business processes (Morgan et al, 2022). Organizations are forced to implement digital solutions, but the real challenge related to digitalization is not only technology, but employee skills (Nikou et al, 2022). This creates space for activities within human resources management. Organizations need to equip their workforce with digital skills to meet the organizational objectives if they want to benefit from their investments in technologies (Cetindamar Kozanoglu & Abedin, 2021). Digital literacy (DL) therefore refers to the ability to access, manage and integrate various aspects of the digital world (Lahiri et al, 2022). Meanwhile, managers emphasize that the literacy level of employees is insufficient to meet the DL requirements of the future workplace (Farrell et al, 2021).

DL is important for every member of society because almost everyone today uses some form of digital media in their daily activities. However, digital disparities are evident in both developed and developing countries. To promote digital inclusion for all citizens and reduce existing digital disparities, there is a need to focus on improving citizens' digital skills, especially in the education system (Reddy et al, 2023). Continuous development of digital skills for Gen Z and younger generations will be not only a natural but also a necessary process to function in the workplace.

An interesting question is whether digital skills can be helpful in shaping specific employee attitudes and behaviors. If so, it could become an element of the education system which, through appropriate development of digital skills, would additionally shape the desired features of the employee. One of such features could be proactivity, identified as a dimension of entrepreneurial orientation (Kraus et al, 2023). Thus, the main research aim of this study is to examine the dependency of elements of DL and the development of the proactive personality (PP) of the Gen Z individuals. The novelty of the study is visible in an approach used when examining

the relationship between DL and PP at the stage of education in business-related areas. Such a diagnosis allows for modifications in the education of future employees.

2. Literature Review

2.1 Digital Literacy

Digital literacy of employees refers to an individual's or a social group's knowledge, skills, and capacities when engaging with digital technologies (Stordy, 2015). DL focuses on how people interact with technology and utilize ICTs for information retrieval and utilization (Nikou et al, 2022).

According to recent surveys, the biggest obstacle to digital transformation and innovation in many firms is figuring out how to reinvent the employee experience and improve their level of DL (Kane et al, 2019). It becomes necessary to reorganize HR management principles and tools.

Despite a wide recognition of DL importance, past research has merely examined it from the individual perspective and hence discounted its organizational dimension (Wagner et al, 2014). Organizational dimension of employees' DL is important, as individuals' skills and knowledge about possibilities of digital technologies develop and shape from interactions with other employees within the organization. Eden et al (2019) stress on the organizational dimension of DL, and found that organizations need to develop an ongoing digital workforce transformation competences as well as support workforce transformation to create a proper organizational culture, which enables staff to deal with turbulence, and provide a continuous response to change.

Individuals not only can conceive possibilities arising from digital technologies but also put them into use and learn from interactions to adapt their behavior and find new ways of using technologies through their daily practices (Du et al, 2019). Employees' interactions with technology are influenced by their ongoing personal and social evaluations and perceptions of suitability for the technology, which together shape organizational skills at the group level.

As the work of Murawski and Bick (2017) highlights, the main management challenges is to adapt organizational culture, mind-set, and competences to the new, digital way of working instead of to disruptive innovations, changing customer behavior, or technology trends. The emphasis on culture, mindset, and competencies necessitates particular attention to personnel.

DL is a system of skills and strategies used by individuals in the digital environment, which is a set of three dimensions: technical, cognitive and socio-emotional. In the technical dimension, individuals should be able to use digital technologies and ICTs. The cognitive dimension includes understanding of moral and ethical dilemmas in the information domain, critical use of digital technology, and the ability to assess and manage digital information. In turn, the social-emotional dimension is the capacity to use the Internet sensibly for learning, socializing, and communication, as well as to respect others' privacy and behave ethically in a variety of settings (Neumeyer et al, 2021). An extension of this DL division is the study of (Aydinlar et al, 2024), which classifies this variable into 7 fields: software and multimedia, hardware and technical problem solving, network and communication/collaboration, ethics, security, artificial intelligence, and interest-knowledge. This division focuses on specific skills rather than their nature. Among the frameworks attempting to identify the multiple dimensions of DL, A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2, proposed by UNESCO is also very popular among scientists dealing with digitization issues (Law et al, 2018).

Companies with higher employee DL communicate and internally cooperate more efficiently, predict future business needs and innovate before their competitors (Lei et al, 2023). A successful digital transformation requires the organization to cultivate DL among employees to quickly respond to market demand (Rialti et al., 2019). The application of digital technology gives workers the chance to grow and learn, and it also motivates people to see their own worth (Urbinati et al, 2020), which, in turn, improves employees' sense of belonging to the organization and provides the conditions and motivation for employees to improve their DL (Lei et al, 2023).

People's lives are currently changing due to the rapid growth of technology, giving rise to a new generation known as "digital natives." These people are always linked to the Internet, can process information fast and easily, and are completely dependent on digital technology. The requirements and way of life of digital natives are creating a social model that calls for competency with technology and substantial contributions in a range of spheres of existence. In addition, the web is becoming a dynamic, open, connected, and flexible hub for

interaction and communication, which is causing a revolutionary change in the social communication patterns inside communities (Budiman & Syafrony, 2023).

Expanding the DL of the academic community is crucial in a digital learning setting. Universities play an essential role in helping future employees become digitally literate. Universities must offer sufficient resources, infrastructure for information and communication technology, and facilities. Information and communication technologies must be used by tutors to facilitate successful and fulfilling learning activities (Budiman & Syafrony, 2023). Generation Z was educated with widespread access to data and knowledge and has never lived without the Internet. They have excellent multitasking skills with a variety of digital devices. Education today should equip young people to be human resources that the workplace will value—people who can think critically, act creatively, take initiative, solve issues, and collaborate and interact with others more effectively than computers can. This is something that human resources can do if they are really technologically proficient. Because of this, in order to improve competencies and skills in business domains, new integrated digital literacy needs to be increased and strengthened (Dewi et al., 2021).

2.2 Proactive Personality

The concept of proactivity, which is one of the aspects of entrepreneurial attitude, is typically connected to the field of corporate entrepreneurship. It is suggested that because of its proactive approach, the enterprise is concentrated on seizing chances in an aggressive marketplace, putting innovations into practice, and managing expectations of potential demand that would transform and have an impact on the environment (Al-Mamary & Alshallaqi, 2022). For an organization to be proactive, it is necessary to implement proactiveness at all levels of the organizational structure. This will be easier if we hire employees with a high level of proactive personality (PP).

The most productive work behaviors are those that adapt quickly to the dynamic, global environment in which organizations function. Workplace proactivity grows in significance in response to this problem (Coun et al., 2021), as proactive employees take on activities on their own initiative and with a future- and change-oriented behaviors. Employee initiative, for instance, in pointing out problems or suggesting creative solutions, guarantees organizational efficacy in quickly changing marketplaces (Ontrup et al, 2022). Employees with high levels of proactivity will fit in better in innovation-based businesses than those with lower levels of proactivity because of their behavioral and cognitive abilities, such as determination and perseverance in the face of hurdles as well as active, forward-looking planning and thinking (Lasisi et al, 2020).

Along with to work design, an individual's personality influences their motivational attitudes in the workplace, and proactive personalities are in fact the ones that are studied the most when it comes to work performance. Proactive personality is a major factor in determining proactive behavior that influences creativity and innovation since it is believed that proactive personnel can recognize and solve problems as well as initiate change (Suseno et al, 2020). PP describes a person's active actions and endeavors to influence their external environment while successfully changing the current state of affairs, spotting chances, overcoming obstacles, and achieving their objectives (Shi et al., 2023). In comparison to individuals with less proactive personalities, those with greater PP are more emotionally stable, more able to handle stress in the environment, and more likely to generate opportunities to improve performance (Bateman & Crant, 1993). Individuals with high PP are more likely to take initiative, solve issues, and adjust to their interests, whereas those who have low PP are more likely to adjust to the world around them, react to it passively, and allow environmental influences to shape them (Crant, 2000).

It is possible to cultivate positive discretionary behavior through HR practices (Meijerink et al., 2020). By giving workers and teams opportunities and motivation to contribute, HR practices can "access" appropriate organizational behavior through the lens of strategic HR management (HRM) (Combs et al., 2006). Measuring the target behavior is a necessary step before providing appropriate practices and assessing their efficacy, as it is impossible to assess the need for new HR practices or the efficacy of current ones without data on proactive behavior levels or changes (King, 2016).

Research from the field of education shows that PP significantly affects the career variables of university students by raising their academic self-efficacy, boosting their confidence in making career decisions and conducting job searches, and lowering their career uncertainty (Park, 2015). Success can be attained by those who are highly proactive because research has shown that these individuals have higher levels of affective commitment, perceived autonomy, career and creative self-efficacy, and intrinsic motivation (Shi et al, 2023), and higher job and career satisfaction (Wang & Lei, 2023). Previous studies also indicate that PP plays a

significant role in moderating the relationship between proactive career planning and proactive career enacting (Presbitero, 2015), which emphasizes the role of shaping PP already at the education stage so that the individual can achieve the benefits of proactivity in professional life.

2.3 Hypothesis Development

According to other studies (Chughtai & Buckley, 2011), there is a general correlation between employees who have a strong learning goal orientation and engaging in proactive work behaviors. Employees focused strongly on learning are more likely to take the initiative and learn new skills and thus are likely to engage in proactive actions (Maden, 2015). In turn, a company's knowledge capacities may have an impact on how well it can recognize and implement new digital technologies in response to its proactive strategy. For instance, a company with high levels of digital literacy might be better able to recognize and assess emerging technologies that complement its strategic goals, as well as apply and capitalize on such technologies to effectively accomplish its objectives (Hashem et al, 2024).

Currently, the relationships between DL and many organizational variables are being studied due to the fact that digitalization is a new context of business activity. In the subject of the current research, the links between proactive attitudes and behaviors and digital skills have been studied previously. Hidiroğlu et al (2021) confirmed a statistically significant correlation between the technical skills of secondary school science teachers and proactive personality, in the context of the effectiveness of the education system. Another example was a study of students in Indonesia shows that DL can be used to predict students' level of proactivity. The results of the study clearly showed that digital skills should be promoted to enhance students' proactiveness (Siswanto et al, 2022). Therefore, DL is an element encouraging proactive action.

A slightly different approach is presented in the study that focused on e-leadership. It was recognized that e-leadership supports the free flow of information by digitizing processes and offering new ideas, which in turn promotes proactive employee behavior in the organization (Said & Kamel, 2023). In turn, Ostmeier and Strobel (2022) conducted interesting research using cognitive-affective personality system theory to test the model combining the digital maturity of the industry and proactive skill development indirectly through the interpretation of the concept of digitization by employees. The above allows for the following hypothesis:

H1: There is a dependency between digital literacy and the development of the proactive personality of Gen Z individuals.

3. Methods

To address the research goal, a survey using the CAWI method was conducted in 2024 among 370 Gen Z individuals in Poland. The respondents expressed their opinions on a 5-point Likert scale. The survey questions were prepared based on a literature review. The variable of proactive personality (PP) consists of 9 items, developed based on Crant and Kraimer (1999). The variable of DL is prepared as multidimensional variable, which consists of 7 group of items: Software and Multimedia (DL1); Hardware (DL2); Network (DL3); Ethics (DL4); Security (DL5); AI (DL6); and Interest-Knowledge (DL7). Each group of DL consist of 2-4 items, developed based on Aydinlar et al (2024).

The internal consistency of variables was investigated using Cronbach's alpha coefficient, which level seems to be satisfactory (Table 1).

Table 1: Cronbach's alpha reliability test

PP	DL1	DL2	DL3	DL4	DL5	DL6	DL7
0.896	0.783	0.731	0.750	0.772	0.882	0.807	0.857

For data analysis, the typical statistical methods for social science research were used such as descriptive statistics, correlations (Kendall Tau correlation coefficient), and multiple regression. The calculations were carried out using the Statistica 13.3 statistical software.

4. Results

The first step of the analysis was the presentation of descriptive statistics for the analyzed variables. The PP variable was rated relatively high by the respondents - the average response was 3.63 on a 5-point Likert scale.

When assessing digital skills, it can be indicated that they are high in the group of surveyed Gen Z individuals, but they are not the same in all surveyed areas. Thus, the highest average response was in the Security area (mean = 4.06) and Hardware (3.85). In turn, the lowest score is recorded in the Software and Multimedia area (3.40) and Network (3.57) (Figure 1).

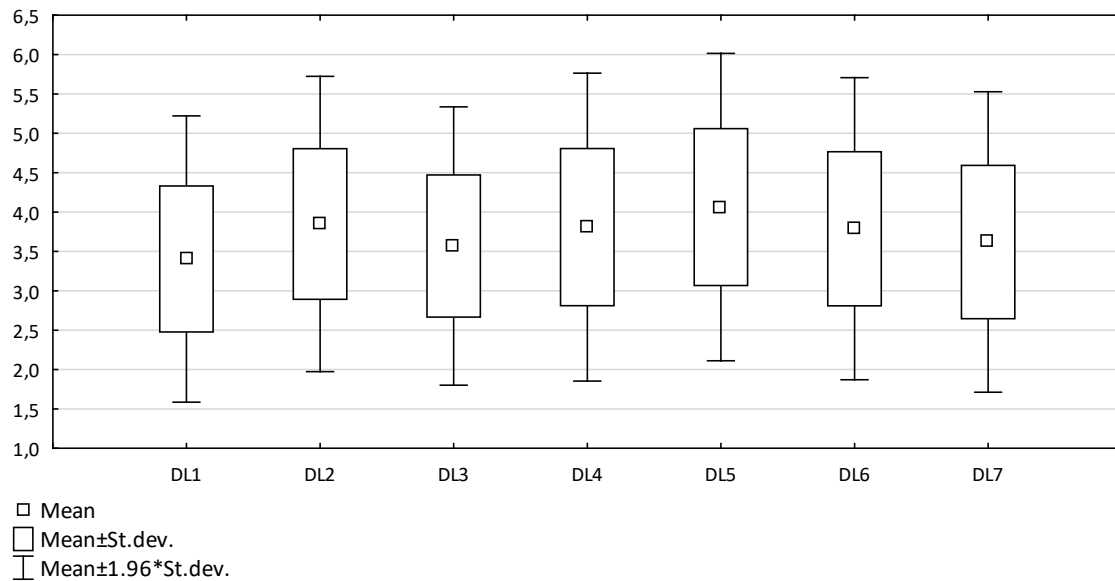


Figure 1: Elements of digital literacy (n=370)

The next research step was to determine the correlation between the variables, in particular the dependent variable and the independent variables. For this purpose, the non-parametric Kendall Tau correlation coefficient was used, due to the Likert scale used for the assessment in the survey. The results of Kendall Tau correlation show moderate positive dependency between PP and DL variables. The correlation results are very similar for all DL areas, except for the DL2 (Hardware) area (see Table 2).

Table 2: Correlation Matrix (n=370; p<0.01)

	PP	DL1	DL2	DL3	DL4	DL5	DL6	DL7
PP	1.00							
DL1	0.30	1.00						
DL2	0.24	0.61	1.00					
DL3	0.31	0.50	0.49	1.00				
DL4	0.30	0.47	0.47	0.45	1.00			
DL5	0.32	0.45	0.48	0.51	0.66	1.00		
DL6	0.32	0.45	0.41	0.50	0.54	0.59	1.00	
DL7	0.30	0.53	0.60	0.51	0.48	0.52	0.53	1.00

The analysis of the relationships between variables was deepened using the multiple regression analyses. The DL was the independent variable, and PP level of Gen Z individuals was included in the regression as a dependent variable. The summary of the multiple regression model (see Table 3) confirmed that the entire model was statistically significant ($p < 0.05$). Moreover, the entire model explained 25.3% of the response variability, which seems to be a satisfactory result. Based on this result it is possible to confirm the research hypothesis, i.e. there is a dependency between digital literacy and the development of the proactive personality of Gen Z individuals.

Table 3: Multiple Regression Model Summary

R Square	Adjusted R Square	Sum of Squares SS	df	Mean of Square MS	Change Statistics			F	p
					SS	df	MS		
0.267	0.253	59.022	7	8.43	161.748	362	0.447	18.871	0.000

When analyzing individual DL elements, it should be noted that not all predictors within the model have a positive dependency with PP. The application of all predictors in one model revealed that DL2 is the only one that has a negative dependency with the dependent variable PP.

5. Discussion and Conclusion

Since people who have greater DL have stronger technical, managerial, social and entrepreneurial skills, it can be assumed that digital skills are desirable and should be developed already at the education stage (Ip, 2024), which currently applies to Gen Z generation and younger generations. Digital technology has the potential to boost corporate entrepreneurship as well, as evidenced by signs of self-renewal, organizational innovation, responsiveness, and new business development (Sariwulan et al, 2020). Proactivity is one of the characteristics of entrepreneurial orientation, however, PP does not have to be an innate feature but can be shaped and intensified within the educational system.

Currently, research has confirmed with statistical significance the positive impact of DL on PP of generation Z in Poland. DL was analyzed in seven areas, which also positively correlated with PP. Further research is required to clearly confirm the causal relationship between DL and PP.

The research has certain limitations, which constitute a starting point for determining directions for future research. Firstly, the research conducted online did not allow us to determine whether it was fully representative, and therefore the results of these studies cannot be generalized and constitute guidelines for more advanced research. Second, the research made certain assumptions that would require confirmation in future research. The main goal is to diagnose whether there is a cause-and-effect relationship between variables, which would provide an impetus for creating managerial tools to intensify the desired attitudes and skills, but also to direct educational activities towards managerial fields. Since this has not been clearly diagnosed, it seems that this is a research gap for the future. Another limitation is the fact that the research was conducted on of Gen Z individuals, i.e. on the group with relatively high DL, which we confirmed in the research itself. However, it seems advisable to conduct analogous research on a less digitally advanced group to assess the impact of DL on PP.

The practical implications of the study include the fact that managers who wish to enhance employee PP should consider digital tools in this process due to their interconnectedness.

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