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3.4 Threats and Challenges Regarding Digital Literacy: Generation Z's Approach

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Abstract

The paper aims to investigate the constituents and levels of digital literacy along with the challenges one has to face if digitally inadept. The study was being conducted on the Generation Z (12-27 age group) population of Uttar Pradesh situated in India by means of random convenience sampling. Results of the study inferred that digital literacy is composed of digital access, usage and knowledge. SPSS 20 was employed to analyse and interpret the data using factor analysis, ANOVA to further explore correlation between constructs used. It was found that though respondents were aware about digital tools and services but due to lack of knowledge and skills often land in threat involving money and security. As the economy strives for digital revolution, the concerned participants by familiarizing the population in digital and financial literacy may help in achieving digital financial inclusion along with minimization of cybercrimes too.

Keywords

Cyber fraud, Digital literacy, Digital challenges, Generation Z, Security

Introduction

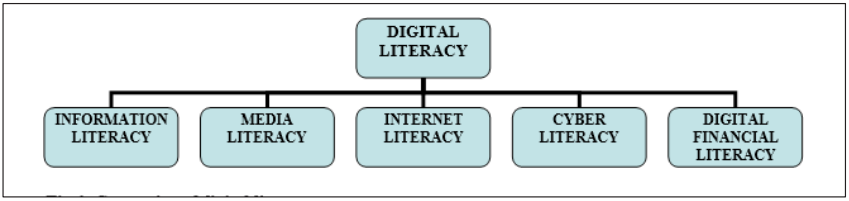
Digital literacy is the capacity to do research, evaluate, and disseminate pertinent knowledge using digital technology and information (Matt Dunne, 2021). Digital literacy, on the other hand, encompasses computer literacy as well as media literacy (print, electronic, digital, and social media). People who are digitally literate ought to be able to use digital devices effectively, safely, and with confidence. It involves using the internet and browsing as well as using office applications including word processors, email, and presentation software.

There are four essential components of digital literacy:

- Stay contemporary with present technologies.
- Effectively communicate in an online environment.
- Manage your thoughts in an online context.
- Manage teams by leveraging technology.

Categories of digital literacy (Ferrari, 2012) can be explained by pictorial representation.

Fig 1. Categories of digital literacy



Adopting different strategies through the usage of different platforms is common in the current environment, where everyone prefers digital platforms over others. Examples of these tactics include adopting a digital mode by using it hourly and going cashless, faceless, and paperless in the economy. Apart from offering guidance on internet usage and applications without getting into the intricacies of security, piracy, etc., it also helps in resolving those issues. Even though traditional media is progressively being replaced by social media and digital media, it's still critical to know the information's source, validity, and reliability. Making haphazard posts on social media without conducting any research might lead to major problems. Stakeholders are also highly concerned about digital financial literacy due to the fact that prior studies and surveys have highlighted several issues, such as fraud, money loss, and crowdsourcing, as significant worries. Because of behavioural tendencies such as empathy and the need for money, an individual may fall prey to a trap and lose all of their hard-earned money in an instant. It will be simpler to commit to lifelong learning in the digital era in order to develop essential personal and professional competencies. An educational program aimed at enhancing an individual's digital financial literacy could focus on techniques for investing, saving, and spending money in order to optimize one's financial well-being (Jhonson et al., 2023). High-tech products are being incorporated into daily life, metropolitan regions, and all public and commercial organizations, including e-government and e-commerce, with the goal of optimizing resource utilization,

boosting social welfare, sustainability, and development (Adam & Alhassan, 2021). Digital literacy enables the development of critical thinking, which requires flexible analytical skills in problem solving. Digital literacy has become a top priority for governments, organizations, and stakeholders in education. As a result, curriculum and policies that assist students have been developed. But there are a lot of challenges ahead, like the digital divide, different infrastructures in different school districts, and the requirement for coaches' and teachers' professional development (Weninger, 2022).

Literature Review

A generation is a group of individuals that share the same age range and have lived through similar historical periods (Giancola, 2006). Following World War II, four generations were born. To begin with, baby boomers were born between 1946 and 1964. The second generation of X was born in the years 1965–1976. The third generation of Y was born in the years 1977–1997. Fourth Generation Z, those born in the years 1998–2010 as stated by Tapscott (2013). The internet was accessible when Generation Z was born. They rely on digital communication technologies and are frequent users of the internet. Another name for Generation Z is Internet Generation (Turner, 2015). They are native technology enthusiast who spend lot of time in front of screens because they were raised in the era of touchscreen devices. Their awareness and acceptance of media and information literacy, as well as their patterns of media consumption, have been significantly impacted by the evolving nature of information and communication technology. Globally, ninety five percent of people own a smartphone, eighty three percent own a laptop, seventy eight percent own an advanced gaming console, and fifty seven percent own a desktop computer, their source for entertainment is the internet, which seventy two percent of them primarily use for message boards, apps, and videos. Gen Z members are truly digital natives, they are immersed in technology 24/7 (CGK Research, 2020). The concept of "digital native" was first introduced by Prensky (2001), he divided internet users in two categories namely digital immigrants and natives. The generation born after the invention of technology is known as the digital natives. Generation Z is used to engaging and communicating in a world where social media, smartphones, tablets, and flat-screen TVs are examples of technological advancements in multimedia (Panagiotou & Nikolaos, 2022). They have not encountered life beyond internet (Evans & Robertson, 2020). It is assumed that Generation Z exhibits strong digital literacy in terms of both operational and accessing skills. However, information processing is a challenge for digital natives

(Rahmawati, 2020). Generation Z's proficiency with digital technology is referred to as their level of digital literacy. It comprises skills such as information literacy, digital platform communication, and critical thinking (Khulwa & Luthfia, 2023). Although Generation Z has to be well-versed in digital literacy because they are the ones who use the internet the most and actively, digital literacy does not mean emphasizing on access and operational abilities. Their lack of digital literacy will render them vulnerable to intolerant speech, misinformation, and computational manipulation (Van Deursen & Van Dijk, 2010).

Technological advancement has increased the traffic in cyber world. Generation Z internet users engage freely online, due to low self-awareness of internet use or insufficient digital direction may result in their involvement in cybersecurity risks (Supratman & Wahyudin, 2017). Identity theft is the major concern for Generation Z as they share their personal information online spontaneously without understanding the consequences (Hewson et al., 2018).

Research Gap

After reviewing various literatures, it has been found that major studies have been on digital communication, digital skills and digital literacy among Generation Z. But the gap which was discovered is that many studies have not covered the aspect of digital knowledge and digital access of information among Generation Z. Generation Z is assumed to be proficient with digital technology. Previous researches observe that Generation Z engages heavily online hence they are more exposed to online risk. Existing literature outlines general cybersecurity risk such as identity theft and privacy. Generation Z needs to successfully navigate and protect their online presence as they are prone to financial fraud and illegal data access because of their high level of digital engagement and frequent online transaction. However, research gap exists in understanding challenges like hacking and financial fraud faced due to digital illiteracy among Generation Z even though they are considered digital natives. Based on this, the present study focused on more relevant variables related to digital literacy and digital illiteracy.

Digital literacy fosters critical thinking, source evaluation, and the ability to distinguish between reliable and unreliable information among Generation Z. Digital literacy helps to understand digital content, protect personal data, avoid online scams and safeguard against cyber threats like identity theft, hacking and financial fraud.

Research Questions

After exploring past literature about digital literacy, the paper aims to answer the following research questions-:

- What is the level of digital literacy among Generation Z?
- What are the digital threats faced by Generation Z due to digital illiteracy?
- How digital literacy helps to overcome digital challenges?

Research Methodology

Research Framework

This study systematically examines the existing literature on digital literacy to establish a conceptual framework to understand the digital literacy of the respondents. Firstly, the researchers consider three indicators to test digital literacy which were digital access, digital usage and digital knowledge. Studying these variables together can provide holistic view of digital literacy. Digital threats were identified by means of identity theft, financial frauds, and hacking. Below are the two figures representing the research framework of the study.

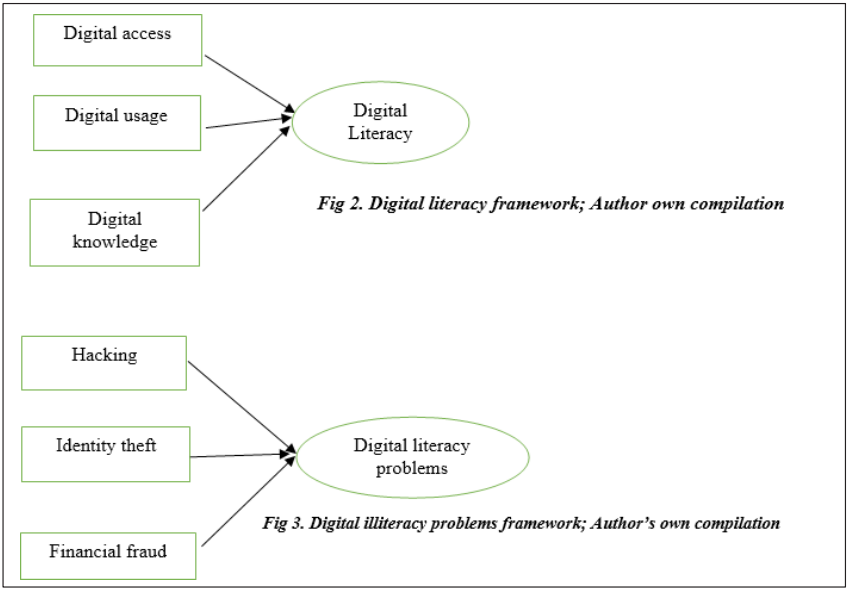


Fig 2. Digital literacy framework; Author own compilation

Fig 3. Digital illiteracy problems framework; Author's own compilation

The following hypothesis were tested in the study based on above conceptual framework

$H1_0$: There is no correlation between the variables digital access, digital usage and digital knowledge.

$H1_1$: There is a significant correlation between the variables digital access, digital usage and digital knowledge.

$H2_{0:}$ Digital Literacy does not significantly contribute in reducing digital theft and fraud

$H2_{1:}$ Digital Literacy significantly contribute in reducing digital theft and fraud.

Data Collection and Analysis

Sampling and Data Collection

The research was done on the Generation Z[1] population of Uttar Pradesh, a state in India. Data was collected by means of random cum convenience sampling technique. Questionnaire which was self-administered was sent through anonymous mails and QR code scanners to the college going students who were either receiving stipend, scholarship or some amount of money. Data was sent to four hundred respondents which was responded by three twenty-five respondents, after which in total three hundred respondents were used for the final study after removing incomplete responses. In order to test each construct, four questions were employed which ranges from strongly agree (5) to strongly disagree (1) on five-point Likert scale.

Demographic Profile of Respondents

Profile of the respondents is represented by Table 1. Three categorial variables have been utilized to segregate respondents on the basis of socio-demographic factors which were gender, education and location. Although it has been tried to distribute the sample equally yet there have been differences in the responses. In the gender category it was a greater number of females which responded as compared to males. Education wise also population was spread among graduate, post graduate and doctorate students, here also graduate students engaged in some kind of internship or apprenticeship responded with sixty percent, while rest of

[1]As per United States Gen Z population constitutes people born between 1997 to 2011.

the respondents belonged to the other two categories. Urban respondents willingly participated with a score of 62.5 percent followed by metropolitan residents. Income of the respondents ranged from fifteen thousand to thirty thousand INR p.m. by means of stipend, scholarships and apprenticeships or attached to tuitions also.

Table 2. Demographic profile

Characteristics	Details	Total number
Gender	Male	125
	Female	175
Education	Graduate	188
	Post graduate	72
	Doctorate	40
Region	Rural	80
	Urban	120
	Metro	100

Evaluation of the Constructs Used

The primary purpose of the paper was to identify the constituents of digital literacy and as well as the challenges due to digital illiteracy prevalent among the Generation Z. SPSS 20 was used to analyze and interpret the data. As the questionnaire used was self-structured, reliability and consistency were checked through Cronbach's Alpha. Alpha score was found to be .831 which is considerably accepted. Additional factor analysis was conducted to identify the most common variance among all variables and provide a single score.

Table 3. KMO and Bartlett's Testa

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.595
Bartlett's Test of Sphericity	Approx. Chi-Square	589.427
	df	91
	Sig.	.000

Table 3 shows the results of KMO Bartlett Test. According to the table, it is showing the value of which is acceptable, as it is greater than 0.5. The Bartlett Test of Sphericity showed a significant value of 0.000, indicating a strong correlation between variables due to having values less than 0.05. Principal component analysis

method was used to extract variables and to retain major information from large data sets. In total, six components were isolated bearing cumulative variance of 73.387, much higher than the sixty percent cut off. Since all the eighteen variables employed showed a total factor loading above 0.50, six factors extracted can be taken into consideration.

It shows that digital literacy is composed of digital access, digital usage, digital knowledge. It can be inferred that without access to digital tools and services one cannot be a part of digital inclusion. After having access to digital tools and services one uses digital knowledge to avail services without being duped by cyber frauds and scams. With increased usage of digital tools and services one develops confidence to be digitally aware, skilled and competent. When a population is digitally illiterate and cannot understand the usage and application of digital tools and services it becomes a major issue to protect one's privacy, financial losses and protection of confidential data. Thus, this research answers two research questions about the constituents of digital literacy and the threats due to digital illiteracy.

Fig 4: Digital access based on location

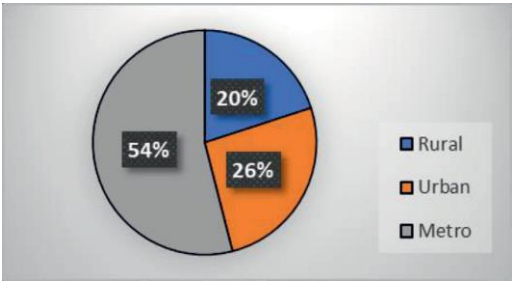


Fig 5: Digital knowledge based on education

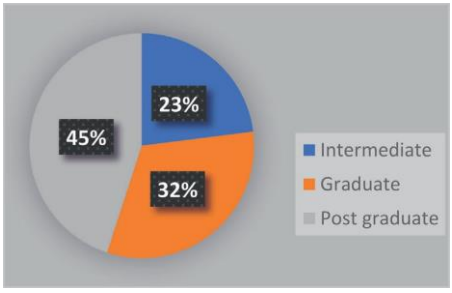
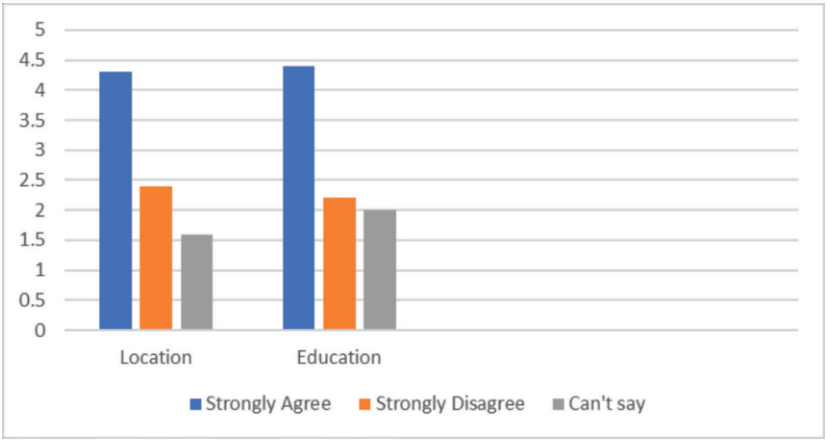


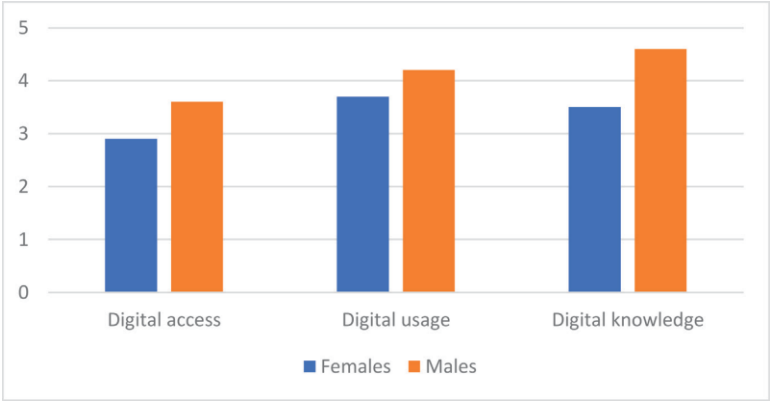
Fig 6: Digital usage as per socio-economic variables



The level of digital literacy varies as per socio-economic variables. An individual living in the rural premises could not have enough access to digital tools and services, therefore due to unavailability their usage of digital medium also remains restricted. Their urban counterparts though have access to digital medium but their digital knowledge in terms of privacy and security issues lands them in serious troubles. From the pictorial representation above it can be inferred that:

Hypothesis 1 holds true which says that there is a significant correlation between the variables digital access, digital usage and digital knowledge.

Fig 7: Digital literacy as per gender estimates



Hypothesis 2 holds true that digital Literacy significantly contribute in reducing digital theft and fraud.

Females though active on social media and prone to online shopping but generally respond to suspicious mails and links leading to identity theft. Since the respondents mostly constituted job aspirants and freshers it was obvious that lure for job opportunities was one of the reasons behind responding to suspicious mails and junk calls. As the Generation Z comprises of young respondents, updates on social media, online payments, anonymous comments on digital medium leads to financial frauds, identity thefts and security issues. Digital literacy if promoted by the concerned authorities and organizations can help in promoting digital financial inclusion and making masses digitally literate. It has also been observed that digital tools require certain parameters such as having an active bank account, enough amount of money apart from availability and knowledge of these services. Since, they do not have enough training of digital technology it makes it even more difficult for them to be digitally sound. All the stakeholders should make enough efforts to make Generation Z digitally adept only to be successful in digital financial inclusion.

Interpretation and Findings

Table 4. ANOVA with Friedman's Test and Tukey's Test for No additivity

			Sum of Squares	df	Mean Square	Friedman's Chi- Square	Sig
Between People			1711.067	299	5.723		
	Between Items		768.020	14	54.859	1.498	.000
Within People	Residual	No additivity	45.121*	1	45.121	44.783	.000
		Balance	4216.592	4185	1.008		
		Total	4261.713	4186	1.018		
	Total		5029.733	4200	1.198		
Total			6740.800	4499	1.498		
Grand Mean = 4.1600							
a. Tukey's estimate of power to which observations must be raised to achieve additivity = 2.635.							

Further ANOVA with Friedman's Test was done to find out correlation between variables. All the constructs proposed under digital literacy exhibited positive correlation with each other namely digital access, digital usage, digital knowledge. The table further stated that inter-item correlation study found that the probability

(p=0.05) and Chi-Square test statistic is 53.884. Since, value of p exhibits significance level of .000 it can be inferred that, digital literacy helps in reducing cyber frauds and thefts. It further justified that the variables are the correct model to use in testing the effective correlations between various programs. Another important indication is the standardized residual value, which is a positive value of 45.121 with a significance level of .000, suggesting that digital literacy is over-represented in the actual sample relative to expected frequency. Since, the sample targeted was mainly the urban respondents with a significant understanding of digital tools and techniques further study should target rural respondents with other constructs too. Digital financial inclusion which is the need of the hour has two important indicators; digital literacy and financial literacy. There is significant digital divide among the rural and urban respondents which should be addressed in the further studies and researches. This indicated that there were more subjects in the variables than expected. Results highlight fact that on an average, there is a considerable decrease in digital thefts and frauds due to increasing digital literacy. The study also addresses hacking, which involves unauthorized access to data in a system or computer. The study also addressed hacking, which is the illegal access of data in a system or computer. It is also a kind of digital fraud which can be minimized by avoiding network intrusions and secure and strong passwords. Awareness and knowledge are needed to secure oneself from such digital frauds. Based on the above results following results have been inferred-:

- Generation Z need to work on the digital literacy as from the study it can be inferred that although the generation is equipped to use android phones, laptops and its various apps but when it comes to online thefts and frauds they are easily deceived by scammers and fraudsters. Since, Generation Z uses digital tools more frequently, chances are that they can be conned easily. It is therefore necessary that this generation should increase its scope of digital literacy.

- When an individual becomes technologically sound, he/she can make decisions which help him/her to minimize identity threats, transaction losses and breach of information issues. Often cases are seen where people get fooled by scammers and they suffer financial losses while some also land in personal troubles. High levels of digital literacy help to avail digital finance easily and securely.

- Digital literacy helps to embrace faceless, contactless transaction making population a part of digital financial inclusion. As the economy plans for

financial inclusion and sustainable finance, digital literacy would be helpful in attaining these goals.

- Digital literacy makes a person aware of digital threats and challenges while doing any form of digital marketing on social media platforms. Engaging with anonymous audience is safe only when a person has complete knowledge about digital tools, apps and technologies. Since, all businesses are making their presence in the online platform to cater consumer attention, digital marketing knowledge is must for any online commerce and trade.

Limitations

Digital literacy refers to the abilities and information needed to use digital technology to fulfill personal goals, improve employability, and assist educational and training programs. Digital literacy improves the core skills of learning, reading, writing, oral communication, and numeracy. The current study, like previous research, has some constraints and limitations:

- While this study focuses on issues and threats, it might go further into ways of protecting the included capabilities.
- While this study focuses on the threats and issues facing Generation Z, it might be broadened to investigate the impact of digital literacy on professionals, education, communication, and personal lives.
- Since the ubiquitous effect of digital literacy in all fields, respondents from Lucknow, Uttar Pradesh, have been invited to take part in the survey.
- In the study, the Generation Z's who are aged between 12-27 years are the part of this study, it can be extended and will be more focused upon the Generation Z's who are above 27 years.
- In the study, male and female both genders are being taken as a respondent but this study can also be gender specific (either male or either female), as this would lead the researchers to identify the challenges and threats that the specific gender is facing.

Conclusion

Digital literacy is essential for Generation Z, since it helps them to successfully navigate the digital world. The study examines the digital literacy level of

Generation Z, they are highly proficient in using digital platforms or applications for communication and shopping. The study also found that Generation Z residing in rural areas face limitations in utilization of digital media due to limited access to digital tools and services whereas urban counterparts have access to digital media but they face threats due to lack of understanding about privacy and security issues. This generation, often referred to as digital natives, faces both opportunities and challenges in utilizing technology for various purposes, including job search, communication, and managing finance. Digital literacy campaigns and initiatives should concentrate on addressing a number of issues that need to be resolved, including a lack of advice, a lack of understanding about the ethical use of the internet, and difficulty navigating the abundance of information available online. Moreover, the government should encourage schools to incorporate digital literacy in curriculum especially related to certain skills like financial literacy, e-safety and privacy since currently the curriculum only focusing on technical skills.

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