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Technology Behaviors of Generation Z Learners

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Abstract

Students entering college today are part of Generation Z born in the late 90's through 2016. Known for their short attention spans and heightened ability to multi-task, they outnumber millennials and are the first true digital natives born during the age of smart phone. As Generation Z continues to dominate college campuses, with their technology governed backgrounds and different communications, learning, and social preferences, it is important to better understand this generation whose needs and expectations are shaping the present and future of higher education. A study was conducted at three institutions located in the Mid-Atlantic region of the United States. The institutional types represented in the study include a mid-sized majority serving or otherwise referred to as a traditionally white institution (TWI) located in a small coastal city on the Atlantic Ocean, a small Historically Black University (HBCU) located in a rural area, and a large community college located in a county that is a mixture of rural and suburban and which sits on the border of Maryland and Pennsylvania. According to the findings, participants consider themselves familiar with most common technologies, enjoy learning about technology and want to further develop their knowledge, and want to see digital learning technologies integrated in their higher education courses.

Keywords: Generation Z, learning technologies, HBCU

Literature Review

Over 74 million strong, Gen Z makes up almost one-quarter of the United States population Buzzetto-Hollywood and Alade, 2018). Born after 1996 and through 2012, they are known for their short attention spans and heightened ability to multi-task (Buzzetto-Hollywood &Alade, 2018; Gibson, 2016; Shatto& Erwin, 2016). Raised in the age of the smart phone, they have been tethered to digital devices from a young age with most having the preponderance of their childhood milestones commemorated online (Claveria, 2017; Lenhart, 2015; Törőcsik, Szűcs, &Kehl, 2014; Williams, 2015). Often called Zoomers, they are more racially and ethnically diverse than any previous generation and are on track to be the most well-educated generation in history (O'Hare, & Mayol-Garcia, 2023).

Gen Z are the first generation that used a tablet before they could ride a bike, the first to have child-hood friends that they played with electronically, and the first to have their births and baby photos and elementary school recitals shared on social media. Their minds, relationships, learning preferences, emotional health, sense of self, have all been inexplicably shaped by constant exposure to screens (Gibson, 2016).

According to Shatto and Erwin (2016), Generation Z is incredibly savvy when it comes to mobile technologies and self-directed learning; however, they lack critical thinking skills as well as the ability to fully evaluate the validity of information. As a result, they are particularly susceptible to fake news and pseudo information, which is intensified by their exceedingly short attention spans. In addition, this generation is noted for its unprecedented awareness and acceptance for cultural, racial, and sexual diversity.

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Törőcsik et al. (2014) conducted a study of Generation Z teenagers in Hungary. They found that this generation's outlook has been totally framed by networked digital technologies so that they prefer short bites of real time information with pictures, prefer simplification, and spend copious amounts of their free time using mobile devices and social media.

A comparison was done by Claveria (2017) of millennials verses Generation Z and claimed that where millennials have never seen a floppy disc, most of Generation Z is unfamiliar with a flip phone, and that Generation Z has a 30% shorter attention span than millennials, spends less time watching television, and makes more online purchases. Further, where choice overload has been found to be a leading stressor of millennials, phone separation anxiety is found to be the biggest stressor of Generation Z.

According to the theory of generations, a person's values are shaped by the major events witnessed while coming of age (Azimi et al., 2022). Ranging from middle school students to early professionals, Gen Z has been raised during a time of economic, social, and political uncertainty (Annie E. Casey, 2021). School shootings and domestic terrorism have played a prominent role in their lives in the United States (Rue, 2018) and an unprecedent global pandemic uprooted their young lives and is noted by researchers as being the most formative generation defining moment that has impacted Gen Z (Center for Generational Kinetics, 2020). Sakdiyakorn et. al. (2021) explain that the combination of national and global events combined with their connectedness via social media, has shaped the collective consciousness of Gen Z making them value universalism, benevolence, self-direction, achievement and security.

A 2018 study by Buzzetto-Hollywood and Alade found that Generation Z learners enrolled in a minority-serving institution enjoy computer classes, feel that using computers comes easy to them; and perceive themselves as experts in the use of social media, mobile operating systems, using a smart phone, searching the Web, and email. Participants also reported that they want to be more technologically literate, want to be more skilled in computer software applications, and are interested in learning about cyber security. In terms of the future, most respondents also believe that their career will require them to analyze information to inform decision making. Additionally, most stated that information security will be important to their future career.

Powell, Jenkins, Gulledge, and Sun (2021) who explored the teaching and learning experiences of Gen Z students at a historically Black college or university (HBCU) found that Gen Z learners attending an HBCU have been impacted by social justice movements. Accordingly, they explain that to teach Gen-Z students, faculty should create courses that fit their needs via culturally responsive practice and consider innovative teaching strategies to engage them in meaningful discourse.

The and Baskaran (2022) found that Gen Z exhibits a preference for e-assessments and hybrid learning environments. They attributed their findings to the diversified needs and experiences of these learners who as a result of a global pandemic were forced to experience multiple learning modalities.

Mihelič, Lim, and Culiberg (2022) collected data from 254 students at a large state university in Europe in order to explore Gen Z students tendency to engage in cyber loafing- web and social media browsing that is not done for a professional or academic purpose. They found that moral disengagement and psychological detachment are positively correlated to cyber loafing while cognitive engagement is negatively related.

Buzzetto-Hollywood, Hill, and Banks (2021) found that Gen Z learners want course announcements and reminders sent to their phones, expect their courses to incorporate the use of technology, want their courses to have course websites, and would rather watch a video than read a book chapter. Most participants considered themselves "informed" or "well informed" about current events although few considered themselves "very informed" or "well in-formed" about politics. When asked how they get their news, the most common forum reported for getting news and information about current events and politics was social media. The study concluded that Gen Z was an engaged generation that cares about social justice issues with racial justice, human trafficking, women's rights, immigration reform, and climate change being significant.

2. Methodology

An electronic survey was administered to students from 2019 through 2022 attending a minority serving institution, a majority serving institution, and a community college all located within the mid-Atlantic United States. The survey included a combination of multiple response, Likert scaled, dichotomous, open ended, and ordinal questions. It was developed in the Survey Monkey system and reviewed by several content and methodological experts in order to examine bias, vagueness, or potential semantic problems. Finally, the survey was pilot tested in 2018 prior to implementation in order to explore the efficacy of the research methodology. It was then modified accordingly prior to widespread distribution to potential participants. The surveys were

administered to students enrolled in classes taught by the authors all of whom are educators. Participation was voluntary, optional, and anonymous. Over 1100 individuals completed the survey with just over 700 usable results, after partial completes and the responses of individuals outside of the 18-24 age range were removed.

After data collection was concluded, the data was imported to SPSS, where descriptive statistical analyses including mean, standard deviation, and skewness were calculated. During the analyses, the following research questions were explored.

R1 GenZ consider themselves familiar with most common technologies.
R2 GenZ enjoy learning about technologies
R3 GenZ prefer learning technologies

All three research questions are influenced by the preponderance of existing research literature and considers student responses to a series of Likert-scaled questions included in the survey whereas if a mean of >3.0 achieved, then the threshold for answering in the affirmative is viewed as having been met.

3. Findings

Over 1100 individuals completed the survey. The respondents were 55% female, 41.5% male, and 3% no binary or gender non-conforming. Over half the respondents (51%) were enrolled at the HBCU, 28.5% were enrolled at the community college, and 20% were attending the traditionally white institution (TWI),

R1 GenZ consider themselves familiar with most common technologies.

Participants were asked to reflect on their familiarity with a number of technologies using a five-point scale where 1 equaled totally unfamiliar and five equaled very familiar. Mean, standard deviation, and skewness were calculated and are presented in Table 1:Technology Familiarity. The overall mean for the nine-item set is a 4.208 with a standard deviation of 1.082 and a negative skewness of -1.838 with a standard error of .096.

Table 1:Technology Familiarity

	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Std. Error
Using a Smart Phone	4.68	.938	-3.110	.096
Searching the Web	4.67	.924	-3.059	.096
Social Networking Services (like Facebook, Twitter, Instagram, or SnapChat)	4.59	1.002	-2.638	.096
Email	4.57	.951	-2.664	.096
The Microsoft Office Suite (MS Word, PowerPoint, Excel, Outlook)	4.33	1.023	-1.725	.095
The G Suite (Google Docs, Sheets, Slides, etc)	4.14	1.125	-1.345	.096
Learning Management Systems (Blackboard, Course Sites, Edmodo, Canvas, Google Classroom)	3.98	1.207	-1.121	.096
The Windows Operating System	3.74	1.256	-.717	.096
Web Design (Google Sites, Weebly, Wix, Word Press, Squarespace, Blogger)	3.17	1.316	-.164	.096
Means	4.208	1.082	-1.838	0.096

R2 GenZ enjoy learning about technologies

Respondents were asked whether they found working with a computer easy, whether they enjoy computer classes, and their interest in further developing their computer skills. These results are depicted in Table 2: Technology Likes and Interests. A five-point Likert scale was employed where one equaled strongly disagree and five equaled strongly agree. Mean, standard deviation, and skewness were calculated. The overall mean for the

six-item set is a 3.95 with a standard deviation of 1.027 and a negative skewness of -.949 with a standard error of .096.

Table 2: Technology Likes and Interests

	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Std. Error
I would like to improve my overall technological literacy	4.15	.936	-1.222	.096
I would like to be more skilled in the use of computer software applications (Word, Excel, PowerPoint, etc)	4.12	.979	-1.191	.096
Working with computers comes easy to me	3.94	.994	-.914	.096
I would like to know more about living online (communications networks, the Internet and World Wide Web, social media, searching, research fluency, and email)	3.86	1.067	-.873	.096
I would like to know more about cybersecurity	3.82	1.060	-.688	.096
I would like to know more about computer fundamentals (hardware components; networking fundamentals; cloud computer; operating systems; and storage)	3.81	1.126	-.806	.096
Means	3.95	1.027	-0.949	0.096

R3 GenZ prefer learning technologies

A series of five-point Likert scaled agreement statements were employed to explore participants perceptions of various course technologies such as course announcements, e-assessments, e-books, and instructional videos. These results are displayed in Table 3: Learning Technologies. The overall mean for the seven-item set is a 4.033 with a standard deviation of 0.98 and a negative skewness of -.972 with a standard error of .097.

Table 3: Learning Technologies

	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Std. Error
I like having course announcements/reminders sent to my phone	4.33	.889	-1.568	.097
I prefer to submit my work online	4.04	1.023	-.976	.097
I would rather take a quiz online than in-person	4.04	1.109	-1.061	.097
I would rather watch a video than read a chapter	4.04	1.047	-.986	.097
I expect my classes to incorporate the use of technology	4.03	.887	-.856	.097
I want my courses to have course websites	3.98	.890	-.690	.097
I want my courses to include short videos	3.77	1.017	-.669	.097
Means	4.033	0.980	-0.972	0.097

4. Discussion

Research question one considered whether the Gen Z respondents included in this study were familiar with a number of technologies. Analysis of the findings concluded that participants in this study indicated strong familiarity with use of smart phones, searching the web, social media services, email, use of Microsoft Office, and the Google Suite of productivity applications. Participants also indicated familiarity, albeit less strong, with learning management systems (LMS), the Windows Operating system, and web design. It was decided that since a mean of >3.0 was achieved, then the threshold for answering the research question in the affirmative had been met. These findings are similar to what has been reported by Shatto and Erwin (2016) and Buzzetto-Hollywood and Alade (2018).

Research question two considered whether Gen Z enjoy studying with, and learning about, technologies. Participants responded that working with computers comes easy to them and most would like to further develop their skills in such areas as cyber security, information literacy, computer software fundamentals, and living online. Additionally, a mean of >3.0 was achieved meaning that the threshold for affirming the research question had been met. These findings are similar to what has been reported in the literature by Buzzetto-Hollywood, Hill, and Banks (2021); Buzzetto-Hollywood and Alade (2018); Gibson (2016); Parker and Igielnik (2020); and Shatto and Erwin (2016).

Research question three explored whether Gen Z prefer digital learning technologies. When a variety of learning technologies were explored students enjoy receiving course announcements, prefer to submit their work online, would rather take a quiz online than in person, prefer watching a video over reading a chapter, expect their classes to incorporate the use of technology, expect their courses to have course websites, and want their courses to include the use of short videos. Since a mean of >3.0 was achieved, then the threshold for answering the research question in the affirmative had been met. These findings are similar to what has been reported by The and Baskaran (2022) and Buzzetto-Hollywood and Alade (2018).

5. Limitations

The most notable limitation of this study is that is focused on just three institutions located in the Mid-Atlantic region of the United States. At the same time, the Mid-Atlantic region is one of the most socially, economically, racially, and culturally diverse parts of the United States and is often referred to as the "typically American region." Accordingly, research conducted in this area is largely representative of the larger United States Buzzetto-Hollywood, Hill, & Banks, 2021). The limitations inherent in the study presented in this paper can be addressed by future research that expands the scope of this examination so as to include additional institutions from more areas of the country.

6. Conclusion

Gen Z is the current generation enrolled in higher education, they are digital natives who are more racially and ethnically diverse than any previous generation. They have been shaped by a global pandemic, their technology dominated backgrounds and different communications, learning, and social preferences, accordingly it is important to better understand this generation whose needs and expectations will help shape the future of higher education. The findings show that Generation Z learners consider themselves familiar with most common technologies, enjoy learning about technology and want to further develop their knowledge, and want to see digital learning technologies integrated in their higher education courses. They find that using computers comes easy to them; are experts in the use of social media, mobile operating systems, using a smart phone, searching the Web, and email.; want to be more technologically literate, more skilled in computer software applications, and are interested in learning about cyber security. In terms of learning technologies, students enjoy receiving course announcements, prefer to submit their work online, would rather take a quiz online than in person, prefer watching a video over reading a chapter, expect their courses to have course websites, and want their courses to include the use of short videos.

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