

Unravelling Generational Learning Styles: Millennials vs. Gen Z

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Abstract

The learning approaches of Generation Z (Gen Z) and Millennials are examined in this study, emphasising the variations in their traits and preferences. With the rapid advancement of technology and society, educators must be aware of the diverse learning styles of each generation. This research uses quantitative data that shows trends and differences in their use of technology and other learning styles. The findings underscore that the Millennials are more likely to seek structured, face-to-face instruction, while Gen Z students are increasingly interested in technology-based, interactive learning experiences. The study also investigates how socio-cultural factors affect their learning styles. These findings allow educators to modify their teaching methods and technological tools to enhance student engagement and information retention across generations.

Keywords: Felders soloman learning style, millennials, gen z, generation, artificial intelligence

Introduction

“Everybody is a genius. But if you judge a fish by its ability to climb a ladder, it will live its whole life believing it stupid”—Albert Einstein.

Albert Einstein’s insights underscore the importance of recognising people’s unique abilities and methods for learning. The subjects of the study are Millennials and Gen Z individuals who have been exposed to digital resources for education. It is important to value and embrace learning preferences, particularly in learning English.

Felder and Silverman (1988) have shown that if teaching methods align with students' learning styles, it can enhance knowledge retention. The rationale for this research is to emphasise the necessity to select appropriate teaching styles and methods to accommodate diverse learning styles. This boosts student satisfaction and improves academic achievement in English language learning (Pintrich, 2003).

By using the Felder and Soloman learning style model, the primary goal of this study is to discover the preferred learning methods of Millennials and Gen Z (Felder & Soloman, 2007). This research aims to equip educators with the knowledge to craft more effective and engaging learning environments tailored to these generations. Learning styles may vary in the same class (such as high school or university) and the type of course they are taking. The lack of recognition of these distinctions by educators can hinder their students' academic success (Cassidy, 2004).

Studies have shown that knowledge retention increases when teaching methods are adjusted to students' learning styles (Felder & Silverman, 1988). This research aims to choose suitable teaching methods and approaches catering to different learning styles. Not only does this boost student happiness, but it also enhances academic success in learning English (Pintrich, 2003).

Using the Felder and Soloman learning style model, this study seeks to understand and identify the preferred learning methods of Millennials and Gen Z. Finally, the research is designed to give teachers the skills to create better and more engaging learning environments with age-appropriate cohorts.

Theoretical Framework

Learning Style Definitions

A person's approach to learning is often called as the way they process and understand information. Mok (2003) defines learning style as students' conceptualisation of learning. Among other definitions, learning style, as defined by Jantan and Razali (2002), is determined by how students concentrate and process information according to their individual processing and acquisition strategies. Drago and Wagner (2004) state that learning style refers to the different approaches people take to learn. It consists of the various ways of perceiving, processing,

and creating information to develop concepts and principles (Fleming & Baume, 2006).

Yaakub and Hashim (2004) describe learning style as a mental, physical, and spiritual activity that continuously alters an individual's behaviour, enabling them to use their perceived knowledge and skills for success. It is seen as a way people can use and harness their skills. The term "learning style" is a topic of debate regarding its origin, but some consider Thelen (1954) to be the first researcher to use it. Thronson (1984), citing the works of researchers like Dunn and Dund (1978), Gregorc (1982), Keefe (1979), Kolb (1979), and McCarthy (1984 (all cited in Thronson, 1984), notes that the term became popular later.

Millennials and Gen Z

Millennials (born 1980-1999) and Generation Z (born 2000-2010), as defined by Cooper (2012), are two distinct generational cohorts that have different characteristics. Lancaster and Stillman (2002) suggest that Millennials are more pragmatic and globalised than previous generations. It is because they combine uninformed Gen Xers and parents from the Baby Boomer generation. Despite being raised during prosperous periods with rigorous supervision, they are known for their tech proficiency, video gaming expertise, and fondness for digital communication. They exhibit teamwork and technical skills and value autonomy. Multitasking has been a concern for individuals, leading to diminished attention span and increased capacity for critical thinking (Frاند, 2000; Murray, 2004). Even so, they possess the ability to use technology for educational purposes (Trei, 2006).

On the other hand, Generation Z has grown up in a technologically connected and tech-oriented society where technology is an important factor in their education. Teachers are adjusting their teaching approaches to meet the learning preferences of Gen Z. Current research on Gen Z's learning preferences does not account for differences between students from different programmes (Hashim et al., 2020). The study aims to fill this gap by examining the learning styles of Gen Z undergraduates, emphasising gender and programme of study.

Gen Z's traits include creativity, flexibility, and the freedom to do whatever they want. The traditional teaching methods that emphasise textbooks may not align with their values and can appear uninteresting

to some students (Pletka, 2007). To enhance learning outcomes, educators should encourage students to adopt learning activities and strategies that align with their learning styles (Popenici & Kerr, 2017).

Methodology

Research Design

This study employed a quantitative approach, using a questionnaire to collect and analyse numerical data, as Creswell (1994) outlined. Quantitative research involves explaining phenomena through statistics (MacDonald and Headlam, 2014). The questionnaire used in this research was adapted from the *Index of Learning Styles Questionnaire*, based on the Felder-Silverman Learning Style Model (FSLSM) (Creswell, 1994; MacDonald & Headlam, 2014).

Research Sample

A stratified random sampling approach was used to select participants, consisting of Millennials and Gen Z individuals from countries like India, Bangladesh, and Ethiopia with English as their second language. They encompass different professions and language proficiency levels, ranging from A1 to C2 on the Common European Framework of Reference for Languages (CEFR), 2001 (CEFR, 2001). The final sample, randomly selected, consisted of 60 Millennials and 60 Gen Z students. Google Forms were used to collect data after obtaining the students' consent.

Research Instrument

The study used the Index of Learning Styles (ILS) questionnaire from the Felder-Silverman Learning Style Model (FSLSM) by Felder and Soloman. This questionnaire is a valuable tool for identifying preferred learning styles among Millennials and Gen Z.

This questionnaire comprises 44 items, with respondents indicating their preferences for each dimension using values from +11 to -11. Each dimension includes 11 questions. Selecting a preference for one pole of the dimension (e.g., active, sensing, visual) results in an increment or decrement of 1 in the respective dimension's value (Chin et al., 2017; Graf et al., 2007). The components of the Felder learning style and the Soloman Index Learning Styles are presented in Table 1.

Table 1: Components of Felders-Soloman Index Learning Style with their Explanations

Dimensions	Sub-scales	Definitions	Item Nos.	Total No. of Items
Processing	Active	Tend to understand information by doing practical activities and learning in groups	1, 5, 9, 3, 17, 21, 25, 29, 33, 37, 41	11
	Reflective	Tend to learn by thinking about several things at once and learning on their own		
Perception	Sensing	Tend to learn concrete, practical material, enjoy detailed explanations and solve problems using predetermined methods	2, 6, 10, 14, 18, 22, 26, 30, 34, 38, 42	11
	Intuitive	Tend to learn abstract, more innovative and creative material, like global explanations and like challenges		
Input	Visual	Tend to learn with visual images such as pictures, videos, flowcharts, diagrams, and so on	3, 7, 11, 15, 19, 23, 27, 31, 35, 39, 43	11
	Verbal	Tend to learn with verbal, spoken or written words		
Comprehension	Sequential	Tend to learn linearly and explore material sequentially	4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44	11
	Global	Tend to learn randomly, and explore material, not sequentially		
Total Number of Items				44

The scores between 9 and 11 indicate that students prefer one learning style over the other. The middle score range is between 5 and 7, indicating moderate interest in one learning style and relatively low interest for the other. Students who score between 1-3 exhibit an overall balance between both learning styles but tend to gravitate more towards the learning style associated with scores ranging from 2-3. This learning style tendency is presented in Table 2.

Table 2: *Learning Style Tendency*

<i>Learning Style</i>	<i>Scores</i>
Strong	11-9
Moderate	7-5
Well balanced	3-1

Data Analysis

Microsoft Excel was used for data analysis. The analysis involved four stages: verification, editing, coding, and transcribing. Data is verified to maintain its reliability and validity. The data editing helped to weed out inconsistent and incomplete data (Chin et al., 2017). The data retrieval was transformed into a user-friendly format in Excel. The concluding step, transcription, enabled data retrieval to produce descriptive outcomes using statistics such as frequency and T-tests.

Findings and Discussion

The findings shed light on the distinctive learning style preferences of Millennials and Generation Z. These two generations have come of age in significantly different socio-cultural and technological contexts. This insight is crucial for educators and institutions aiming to adapt teaching methodologies and curricula to engage better and meet the needs of these diverse student groups.

Table 3: *Learning Style Preferences of Millennials and Gen Z*

	<i>Millennials</i>				<i>Gen Z</i>			
	<i>No. of responses</i>	<i>Percentage</i>	<i>Mean</i>	<i>STD</i>	<i>No. of Responses</i>	<i>Percentage</i>	<i>Mean</i>	<i>STD</i>
Active	23	38.3	5.0	2.4	27	45	5.18	2.09
Reflective	37	61.6	5.9	2.4	33	55	5.81	2.09
Sensing	30	50	5.72	2.23	22	36.6	4.69	1.8
Intuitive	30	50	5.27	2.23	38	63.3	6.30	1.8
Visual	49	81.6	7.27	1.92	51	85	7.27	2.06
Verbal	11	18.3	3.7	1.91	09	15	3.7	2.06
Sequential	38	63.3	5.2	5.9	30	50	5.22	1.8
Global	22	36.6	5.06	1.8	30	50	5.22	1.8

The dimensions Active, Sensing, Visual, and Sequential together are represented as 'A', and Reflective, Intuitive, Verbal, and Global are represented as 'B'.

Table 4: Learning Style Preferences Based on Learning Style Tendency in Percentages

	Measures	Strong Preference to A		Moderate Preference to A		Well-Balanced Preference for Both A and B		Moderate Preference to B		Strong Preference to B	
		M	Z	M	Z	M	Z	M	Z	M	Z
Active/ Reflective	No. of people	3	1	7	10	33	36	14	10	3	3
	Percentage	5	1.6	11.6	16.6	55	60	23.3	16.6	5	5
Sensing/ Intuitive	No. of people	4	0	12	4	32	40	12	14	0	2
	Percentage	6.6	0	20	4	53.3	40	20	14	0	2
Visual/ Verbal	No. of people	8	8	22	21	29	27	1	4	0	0
	Percentage	13.3	13.3	36.6	35	48.3	45	1.6	16.6	0	0
Sequential/ Global	No. of people	2	1	10	4	40	46	8	7	0	2
	Percentage	3.3	1.6	16.6	6.6	66.6	76.6	13.3	7	0	2

Note: The letters 'M' and 'Z' in the table represent Millennials and Gen Z respectively.

Table 5: T-Test: Two-Sample Assuming Equal Variances

Measures	Generation	Mean	SD	Df	t stat	p
Active	M	33.05	2.4	22	-0.0056	0.99
	Z	33.25	2.09	22		
Reflective	M	37.59	2.4	22	0.0223	0.98
	Z	36.69	2.09	22		

Sequencing	M	36.48	2.23	22	0.1586	0.87
	Z	30.77	1.8	22		
Intuitive	M	33.53	2.23	22	-0.1422	0.88
	Z	39.22	1.8	22		
Visual	M	44.18	1.92	22	-0.0029	0.99
	Z	44.33	2.06	22		
Verbal	M	26.10	1.92	22	0.0107	0.99
	Z	25.82	2.06	22		
Sequential	M	37.15	1.8	22	0.0966	0.92
	Z	33.43	1.8	22		
Global	M	32.40	1.8	22	-0.2929	0.97
	Z	33.43	1.8	22		

A t-test was conducted to determine the extent of differences between Millennials and Gen Z. The outcomes of the T-Test were considered for each dimension. Across all dimensions examined, the results indicate no statistically significant differences between Millennials and Gen Z. In each case, the p-values are greater than the conventional significance level of 0.05, suggesting that the two generational groups are similar regarding these dimensions.

Reflective vs. Active Learning

Tables 3 and 4 reveal that Gen Z is more inclined towards reflection (55%) than active learning with Millennials being 61.6%, and those who are actively engaged (45%) having a higher preference for reflection (33%). Millennials have an active and reflective preference, with around 5% having a strong preference for both, while 1.6% of Gen Zs tend to be active or reflective. This indicates that Millennials are more inclined to be reflective than Gen Z. These groups may exhibit dissimilarity due to their differing experiences and upbringings.

The generation of Millennials, known as the “echo boomers,” was raised in a prosperous and well-to-do environment with helicopter parents who encouraged reflective learning practices. By contrast, Gen Z may be more inclined towards active learning due to their upbringing in a rapidly changing, technology-rich society. Due to their accustomed behaviour of being constantly connected and multitasking, they may prefer learning through hands-on and interactive play.

Sensing vs. Intuitive Learning

Millennials' perception spectrum is similar in their preferences for sensing and intuitive experiences (50%). The percentages for Gen Z are 63.3% intuitive and 36.6% non-sensory. While 6.6% of Millennials preferred sensing, none were highly interested. A moderate preference for sensing and intuitiveness is shared by 20% of Millennials. Millennials do not prefer the intuitive dimension, while only 2% of Gen people favour it. This slight difference can be attributed to Gen Z's access to technology and information. Gen Z has been exposed to a world of information overload, which is why they may be so well-informed. The continuous exposure to information may have fostered their intuitive comprehension and ability to respond quickly to changing circumstances. The Millennials' ability to navigate pre-digital and digital learning may have led to a more balanced approach to sensing and intuitive learning.

Visual vs. Verbal Learning

According to Table 4, visual and verbal sub-scales fit into the Input dimension, but Millennials and Gen Z are not particularly inclined towards verballity. About 36.6% of Millennials and 35% of Gen Z prefer a visual medium. Verbal communication is preferred by just 1.6% of Millennials and 16.6% of Gen Z. The Millennials (81.6%) and Gen Z (85%) prefer visual arts, which is 18.3% or 15%, respectively. However, it is important to note that the two groups demonstrate varying levels of interest in visual learning among their respective age groups.

Visual learning preferences are prevalent among Millennials and Gen Z, possibly due to their upbringing in a multimedia environment. Visual content, from educational YouTube videos to interactive infographics, has become essential to their learning. This trend suggests that teachers should consider adding visual aids to their teaching materials to enhance comprehension and engagement.

Sequential vs. Global Learning

Strong sequentiality is favoured by 3.3% of millennials, while moderate preference is held by 16.6% of Gen Z, and Gen Z prefers a strongly or moderately sequential matrix (1.6%). The global matrix is not preferred by the Millennials, unlike 2% of Gen Z. Overall, Gen Z has roughly the same preferences for sequential as global (50%-50%). In contrast to Gen Z's tendencies, Millennials prioritise sequential learning, and Gen Z

prefers global learning. Their experience in diverse educational settings and teaching methods could account for this distinction.

The emergence of traditional classrooms has led to a preference for sequential learning among Millennials, which is structured and proceeds step-by-step. On the other hand, Gen Z's exposure to a range of learning platforms, including online courses and collaborative digital tools, may have resulted in embracing broader sequential and global approaches.

These findings highlight the importance of educators adopting a flexible pedagogical approach that accommodates both sequential and global learning preferences, making instruction adaptable to the cognitive styles of both generations.

Conclusion

In conclusion, this research paper provides valuable insights into the learning style preferences of Millennials and Gen Z. Understanding these preferences is essential for educators and institutions seeking to create effective and engaging learning environments. As these generational cohorts continue to enter educational institutions and the workforce, tailoring teaching methodologies to their distinctive learning styles is necessary. Moreover, the implications of these findings extend beyond education to workforce training and development. Understanding generational learning styles can improve training programmes and employee performance.

This research serves as a starting point for further investigations into the evolving landscape of generational learning styles, especially as Gen Z grows and shapes educational paradigms in an increasingly digital and interconnected world. Further research with larger, more diverse samples and consideration of additional variables may help refine the findings.

Limitations

This study has some limitations, including

- The equal sample size for both generational groups may not be representative of the entire population. Additionally, there may be unmeasured variables influencing these dimensions, and further research with larger and more diverse samples is recommended to validate these results.

- Though there were 60 participants from each generational group, this sample size might still be considered relatively small for detecting subtle differences, especially when examining multiple dimensions. A larger sample size would provide more statistical power.
- There is a possibility of Type II error, where the study fails to detect fundamental differences between the two groups due to the small sample size or other factors.

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