

An Unconventional Education Landscape for Unconventional ‘Generation Alpha’

Dr. Anu Kohli¹, Sonam Arora²

¹Assistant Professor, Faculty of Management Studies, Department of Management, University of Lucknow

²Research Scholar, Faculty of Management Studies, Department of Management, University of Lucknow

Abstract

Purpose: This paper aims to understand ‘Generation Alpha’ and their specific educational needs. It intends to highlight how the education system can be altered to suit the needs of these digital natives.

Methodology: This is a descriptive paper, based on the study of existing literature derived from published journals, news clippings and expert interviews.

Findings: ‘Generation Alpha’ is the most tech-savvy generation that the world has ever seen. This generation is known for being true digital natives, with artificial intelligence intertwined into their lives. They have an international perspective, are environmentally conscious and prioritise mental health.

Implications: The study highlights the need to update pedagogy and curriculum and provide ‘Generation Alpha’ with immersive learning experiences, offering personalized education and other opportunities for co-creation. The study is relevant for educational institutions and practitioners to ensure that appropriate training is provided to the next generation to prepare them to succeed in tomorrow's world.

Keywords: Generation Alpha, Technology, Education, Teaching, Future Of Learning, Digital Learning

1. Introduction

Technology is bringing about significant alterations in the way we live. Changes in technology impact all spheres of life, set the pace of our lives and shape our personalities. The definitive expression of this change is ‘Generation Alpha’, which is the generation that succeeds ‘Generation Z’. The term ‘Generation Alpha’ was first coined by Australian Consultant, Mark Mc Crindle. This generation comprises people born between 2010 and 2024, who were introduced to technology very early in their lives. The Mc Crindle report suggests that in coming years ‘Generation Alpha’ will have a substantial economic footprint. Thus, organizations must prepare for the future consumers in ‘Generation Alpha’. Marketers in all fields must understand this generation to design their products and services to fulfil their unique needs [29,30,31].

The world today is considerably different from the world that existed before the advent of technology. And given the pace of change, the world tomorrow would be even more different and complex. Despite enormous research, it is difficult to predict what the future world would hold for us. The design of the current education system would not be relevant and applicable to the world of tomorrow [34]. If the

education system does not synchronize with the changing economic landscape, then the distinction will be even wider in the future.

'Generation Alpha' is the most tech-savvy generation that the world has ever seen. Hence, they demand a new updated approach to education. The author of 'Breakaway Learners', Karen Gross, suggests that universities must adapt as per the requirements of 'Generation Alpha', as advance planning will greatly benefit them [38]. At present, we stand at the edge of the fourth industrial revolution. The concepts of 'teaching' and 'learning' need a revolution. There is a need for an updated curriculum and pedagogy that complements 'Generation Alpha's' technology dexterity [41].

Therefore, this study intends to identify trends and the unique characteristics that define 'Generation Alpha' through the review of existing literature in this field. Besides, it also suggests an effective strategy for educating 'Generation Alpha'.

2. Literature Review

2.1 Generations

The term 'generation' was coined by French lexicographer, Emile Littré in 1863. The term 'generation' refers to "all men living at the same time". A 'generation' is defined as an identifiable group that shares birth years and is exposed to similar events [24]. As per Strauss-Howe's generational theory (1991), a generation occurs roughly every 20 years, with some sort of cyclicity [24]. Distinct generations are commonly theorized as varied groupings of birth cohorts, which are influenced by a common set of remarkable events, and who possess some common characteristics [11]. Researchers, institutions as well as laymen regard 'generations' as an important phenomenon for differences in behavior and preferences. However, some researchers suggest that these differences could be due to age or other factors and not just owing to generational membership.

2.2 THE RELEVANCE OF GENERATIONAL STUDY

Digital transformation and rapid technological change have widely shrunk the gap between generations. Previously, generations were defined by historical or social events but today the use of technology defines generations. Broadly, it has been noted that people belonging to the same generation have certain common characteristics. Understanding these characteristics is crucial for businesses to cater to their needs. Generation analysis is an important tool used by researchers. It begins with setting the boundaries of various generations. These boundaries generally include historical events, demographics, and attitudes. These boundaries should be taken as guidelines and not hard and fast rules [37].

Generations can be generally classified as:

'Greatest Generation' (1901-1927)

This generally includes people born before 1928. This was the generation who participated in World War 2. This generation is known to have a strong work ethic, along with traditional and selfless values. There is limited dialogue about this group since they now represent a negligible proportion of the adult population.

'Silent Generation' (1928-1946)

Silent generation refers to people born between 1928 and 1946. Mostly, they are children of the Great Depression and World War 2. They have been given the label 'silent' due to their image of being a conformist. Many times, people born before 1946 are also referred to as 'Builders'. They are the generation that initially built much of the infrastructure [29,30,31]. They are perceived to be

conservative, conformist and with great work ethic. They are believed to give a lot of importance to institutions of family and education.

‘Baby boomers’ (1946-1964)

‘Baby Boomers’ generation broadly includes people born between 1946 to 1964. This generation is characterized by the fertility spike that occurred after the World War 2. The label ‘Baby Boomers’ is thus given to this generation. The increase in population also led to a spurt in the economy, housing, infrastructure and construction [29,30,31]. Besides, they also brought about noteworthy changes to culture, society and economy.

‘Generation X’ (1965-1980)

‘Generation X’ comprises people born between 1965 and 1980. Mostly, this generation is characterized by relatively low birth rates, as compared to the ‘Baby Boomers’. The label for this generation became popular from the book, ‘Generation X: Tales for an Accelerated Culture’, by Douglas Coupland [12]. The label was derived from their attitude of anti-establishment and questioning authorities.

‘Millennials’ (1981-1997)

‘Millennials’ majorly include people born between 1981 and 1997. They are generally the children of the ‘Baby Boomers’ generation. They are called ‘millennials’ as they are the first generation to come into the new millennium. Sometimes, they are also called ‘Generation Y’. At present, the people of this generation are entering their family and parenting life stage as they enter their 30s and 40s [26].

‘Generation Z’ (1997-2010)

This generation comprises people born between 1997 and 2010. This generation is known as a resilient and conservative generation as they have witnessed many fluctuations in the economy and society. Broadly, they understand the importance of education and emphasize lifelong learning. They also prioritize values and fulfillment.

‘Generation Alpha’ (2010 -2025)

‘Generation Alpha’ comprises people born between 2010 and 2024 and is the main subject of our study. The term ‘Generation Alpha’ was coined by Australian social researcher Mark McCrindle in 2008. They are called so as they represent the start of something new and not a return to something old as they are born into an entirely new century. Mostly, they are the children of ‘Millennials’ and younger siblings of ‘Generation Z’. Instagram was introduced and iPad was launched in the year 2010, which marked the beginning of this generation. Thus, they are born in the lap of technology and hence their preferences and choices are shaped accordingly. Furthermore, other events such as COVID-19, globalization, and increased connectivity have also shaped this generation [15]. The people of this generation are in the middle of their school years but have already started influencing the markets [2].

‘Generation Beta’

This generation has not been born yet but Mc Crindle predicts that it will be born between 2025 to 2039. They are expected to be a technologically integrated generation [47]. However, they will also be curious, value diversity and embrace change. Table 1 highlights various details about the six generations, their time frames, main shaping events, learning styles and current age.

Table 1: Generation Chart

Generations	‘Silent Generation’	‘Baby Boomers’	‘Generation X’	‘Millennials’	‘Generation Z’	‘Generation Alpha’
Time Frame	Before 1946	(1946-1964)	(1965-1980)	(1981-1996)	(1996-2010)	(2010-2024)
Main Shaping Events	World War 1 and 2; Great depression; Invention of electric appliances	Moon Landing; cold war; invention of transistor	Stock Market Crash; First personal computer launched	9/11 Terrorist attack; Iraq war; advent of social media	Global Financial crisis; Rise of Artificial Intelligence	Launch of iPad and Instagram; COVID19
Communication Style	Letter	Telephone	Email/SMS	Instant Messaging or social media	Hand-held communication devices	Multi-channel communications
Marketing Style	Face-to-face interactions	Traditional marketing (Print)	Mass marketing (broadcast)	Direct marketing (targeted)	Online Marketing	Digital marketing (mainly social media)
Learning Style	Command and control oriented learning	Formal	Structured	Participative	Interactive	Multi-modal
Current Age	>78 years	60-78 years	59-44 years	43-28 years	28-14 years	< 14 years

Source: Collated by the authors

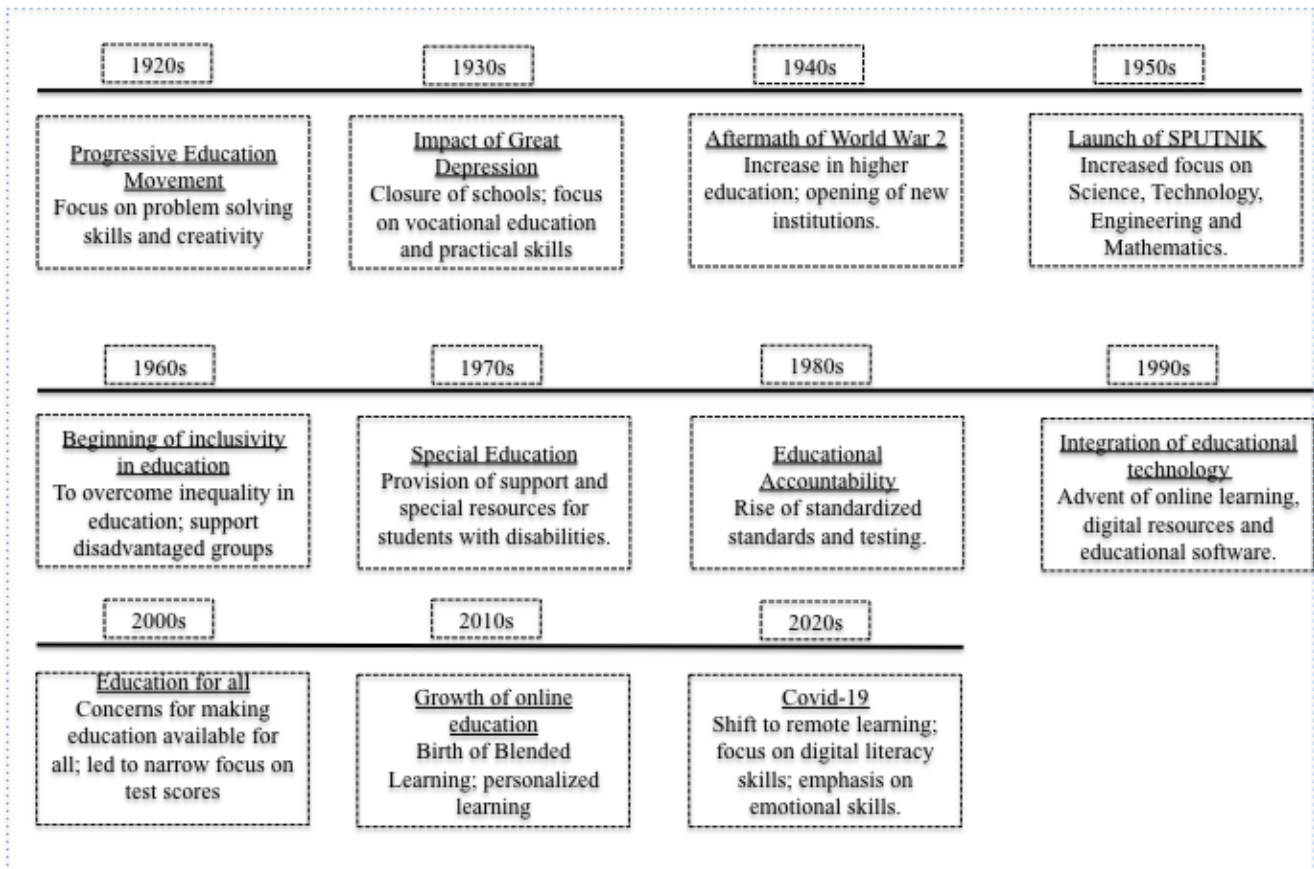
2.3 Evolution of Education

The changes in the society and economy eventually reflect on the education system. Figure 1 showcases the evolution of education over time globally. It highlights the various phases of education concerning various social markers. Traditionally, the focus has remained on ROTE learning, which means the process of memorizing information. At the global level, the basic level of education has improved but children in different parts of the world receive different types and quality of learning. The education system must respond to meet the growing needs of a transforming society. At present, education is considered as a fundamental human right. United Nations Development Programme (UNDP) adopted the Sustainable Development Goals (SDGs), also called the Global Goals in 2015, to ensure that all people live with peace and prosperity by 2030 [44]. The fourth SDG is ‘Quality Education’ with special emphasis on inclusivity. Thus, all governments are liable to ensure universal access to basic education irrespective of the children’s financial background. As a result, global literacy rates have spurred in the last two centuries [17].

The integration of technology with education has brought about a paradigm change in the education industry. It has strengthened the prospects of educational equality and made education less location-dependent. It has especially benefitted students in remote areas and third-world countries who can learn from the comfort of their homes from myriad online learning resources such as online learning portals, YouTube videos etc.

Moreover, Digital learning also made education more interactive. It allows students to choose their pace of learning, and their choice of subjects, making the whole learning process more personalized. The onset of artificial intelligence, chatbots, and augmented & virtual reality has enhanced the learning experience of students. Slowly, the focus is coming back to practical and pragmatic learning. For instance, the ‘Flipped Classroom Model’ employs technology to ensure that a student engages in passive learning at home, aided by videos and other multimedia resources. Alternatively, school time and interactions with the teacher are dedicated to hands-on activities, experiments, personalized learning and discussions. Learning through a flipped classroom model assisted students in elevating their higher-order thinking skills through more productive contributions from teachers [16].

Figure 1: Evolution of Global Education



Source: Collated by the authors

3. Methodology and Research Framework

This research primarily adopts a descriptive and analytical approach, predominantly relying on secondary data sources.

3.1 Data collection

The data for this study has been curated from secondary sources, including news articles, scholarly journals, government reports, and interviews.

3.2 Research questions

The study aims to answer the following research questions:

- What are the unique traits of the ‘Generation Alpha’ that can affect their consumption and consumer behavior?
- How can the education industry be adapted to suit their unique requirements?

3.3 Research objectives

To answer these questions, researchers have conducted this study with the subsequent research objectives:

RO1: To discover the unique consumer behavior characteristics of ‘Generation Alpha’.

RO2: To develop strategic implications for the education industry to serve ‘Generation Alpha’.

3.4 Methodology

To achieve the objectives of the study, the researchers defined the inclusion criteria and downloaded research papers with relevant keywords such as ‘Generation Alpha’, ‘education’, ‘learning’, ‘digital learning’, and ‘technology’ from online databases such as Google Scholar and Web of Science. Thereafter, we derived inferences from these studies and enlisted them. A deep dive into the literature helped us derive unique characteristics of ‘Generation Alpha’ and its relevance for the education system.

4. Findings and Discussions

The world has seen the stone age, the medieval era, the modern era and now is the time for ‘screen age’. The climate is changing, the economy is changing and the global population is growing at an unprecedented rate. Due to which, the ‘Generation Alpha’ will face unique challenges and witness novel opportunities. Numerous new fields of work and industries are emerging such as blockchain, nanotechnology, cyber security and autonomous transport. Thus, it is estimated that approximately 65% of ‘Generation Alpha’ would work in jobs that do not exist today [46]. The education landscape currently, is a mix of all generations involved at various points. While ‘Generation Z’ is now entering the teaching workforce, millennials have now been in the work phase for several years. ‘Generation X’ is near their retirement stage whereas some ‘Baby Boomers’ teachers are still serving their students every day. It is a challenge to integrate the perspectives of four distinct generations to focus on the growth of ‘Generation Alpha’ [7,18, 28].

Educating ‘Generation Alpha’ needs a thorough understanding of their characteristics and environment to nurture them effectively. Figure 2 below gives a consolidated picture of the characteristics of ‘Generation Alpha’.

Some of their distinct characteristics are discussed below:

1. Digital Natives

As the literate technology generation, ‘Generation Alpha’ rely more on technological devices. Their behaviors are deeply impacted by the technological development around them [1]. This is the generation who has never known a world without internet. From the very beginning, technology has been offered to

them as pacifiers, educational aids or entertainers [10]. They have unlimited access to information, and entertainment through mobile technology. They can deeply study any topic of their interest, connect with peers globally, and choose entertainment on demand, all at the click of a button. For them digital world is not just a tool, but also their classroom, their community hub, their rejuvenation spots as well as their playground.

Besides, they are also familiarized to the use of ‘intelligent devices’ such as mobile phones, iPads, virtual assistants and wearables. This gives them with unbounded resources but also presents them with the challenge of making the right choices and not get trapped in digital information diarrhoea. This leads to reduced attention spans and concentration [22]. The easy access to unlimited information would have a significant impact on the nature and form of higher education, as it puts different kinds of expectations on the institutions.

2. Preference to Artificial Intelligence (AI) communications and multimedia experiences

A generation ago, it was impossible to imagine the role of Alexa, Siri or any virtual assistant in our life and homes. However, for the ‘Generation Alpha’, it is the opposite. For them, it is difficult to imagine a life without the involvement of voice assistants and natural language processing tools like ChatGPT. AI is just not a tool for them but their reality. They have a natural affinity for technology and hence expect their learning to extend beyond traditional classrooms with visual and interactive mediums. For the previous generations, videos were viewed as distractions and entertainment tools. But for ‘Generation Alpha’, they are a source of education, for building visual skills and imagination. The report, ‘Understanding ‘Generation Alpha’’, by Wired Consulting suggests that with the development of technology, AI will become the preferred mode of communication between humans and machines. Gesture-based interfaces will take over keyboards and screens [20]. This generation has a natural affinity towards visual learning, with preference for multimedia content such as videos, animations, and interactive graphics [42]. They desire learning experiences which are interactive and can engage their senses and spur their creativity [35].

However, these privileges bring to the fore concerns about privacy and online bullying. Their addiction to social media puts significant social acceptance pressure on ‘Generation Alpha’. Online interactions have become a norm but they also sometimes become a source of stress. These kids spend much of the time indoors and online, denying them the benefits of physical socializing. Thus, it is very important to teach ‘Generation Alpha’ the relevance of face-to-face offline interaction. Also, it is believed that a reduction in free play time and use of physical toys will hinder the creativity and imagination of these young minds.

3. Culturally diverse with an International perspective

They are presented with an ocean of information at every step in multimedia format, whether audio, video or text. This is criticality altering their view of the world. They have received constant exposure to diverse cultures through news, social media and travel, which makes them think globally [45]. Today, the world can be explored at the click of a button. They, thus, have greater awareness of global issues and empathy for people with diverse backgrounds.

4. Environmentally conscious beings

‘Generation Alpha’ has mostly been raised by ‘Millennials’ and ‘Generation X’ who have imbibed values of being more socially and environmentally conscious [6]. They value sustainability, diversity, human rights and inclusion. They are the generation who will witness the realities of climate change [9]. As per a paper published by the American Association for the Advancement of Science, children born in

2020 would witness seven times the number of extremities in weather events as compared to children born in 1960 [48].

5. Self-directed and pragmatic

This generation is constantly analyzing the world around them, analyzing their role in it and how they can make an impact. They have heightened self-awareness and are self-directed. Furthermore, this generation has witnessed social markers such as Great Recession and COVID-19. This has helped them develop a practical and realistic outlook towards life.

Besides, they also have a high quotient of financial literacy as they have been raised and trained by ‘Generation X’ and ‘Millennials’. They have at their disposal various financial apps and educational platforms, which is expected to make them sensible investors.

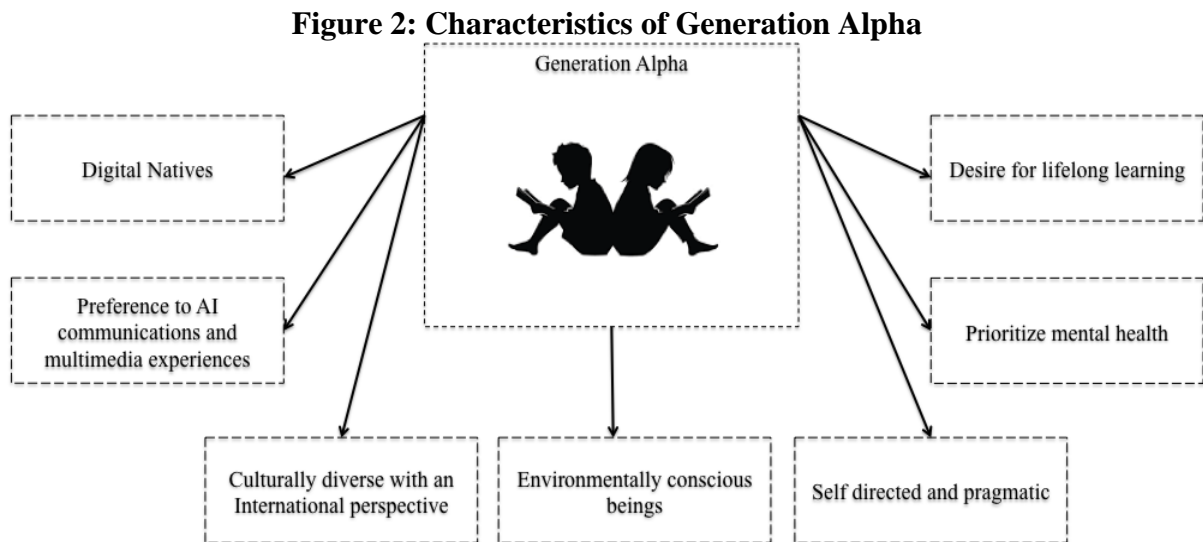
6. Prioritise mental health

‘Generation Alpha’ is growing up in the social media era and a highly competitive world. This exposes them to a lot of stress and insecurities. According to psychologist Jean M. Twenge, the increase in the use of smartphones and social media leads to a rise in feelings of loneliness, depression and anxiety [23]. Their predecessors have an awareness of mental well-being, which has transferred to ‘Generation Alpha’ as well. Majority of them believe that mental education should be prioritized over physical education in schools [50]. They are emerging as mental health champions from a very young age.

7. Desire for lifelong learning

‘Generation Alpha’ has a desire for lifelong learning and wants to acquire continuous education beyond formal education and degrees. This generation has got easy access to information from the very beginning which has instilled in them curiosity and quest for knowledge.

Figure 2 depicts the characteristics of ‘Generation Alpha’.



Source: Created by the authors

5. Implications for Educators

The early digital exposure of ‘Generation Alpha’ has shaped them very differently from their predecessors. They are to be trained for the jobs of tomorrow. Some of the skillset they would need to be successful in the future world are:

1. Engaging learning experience

Since technology is deeply intertwined in the DNA of ‘Generation Alpha’, educators must evolve to provide them with immersive digital learning experiences. ‘Generation Alpha’ is accustomed to multitasking and navigating from screens to textbooks to social interactions.

Augmented reality (AR) and virtual reality (VR) experiences can be leveraged to capture this audience. AI-driven adaptive learning systems drive tailored content for personal educational requirements, improving academic performance by increasing engagement.

Their learning can be enhanced by using gamified learning apps and interactive simulations [46]. Also, quizzes and interactive boards can be used to overcome their issues of shorter attention spans. This generation’s short attention span requires concise and visually appealing learning material [49]. ‘Generation Alpha’ also needs to be supported for developing digital literacy skills and to learn how to evaluate online sources for credibility [43]. Their deep digital exposure outside school makes them prefer digital experiences within school [5].

2. Co-creators in the educational process

This generation gives weightage to engagement over presence [33]. They have opinions and they expect to be heard. They intend not just to be listeners but also co-creators. Thus, to attract this generation, educators need to give their students platforms for co-development of knowledge. Since the young generation is presented with an ocean of knowledge, educators also need to equip them with adequate tools to utilize it effectively.

3. Fostering collaborations

This era is all about collaborations. ‘Generation Alpha’ does not prefer learning in silos. They leverage the technology for forming online study groups and collaborating with peers across borders [36]. Students can be educated with the help of global issues projects, to encourage them to develop critical thinking skills and create global awareness. Educators can fulfil their diversity needs by developing diverse content, forming linkages with top foreign universities and running student exchange programs [14]. This will enable them to live through the cultural exposure that they otherwise witness online.

4. Taking care of mental well being

‘Generation Alpha’ has learned from their previous generations and has great awareness of mental well-being. Thus, institutions need to offer solutions and programs keeping in mind this concern. There should be a greater focus on Social and Emotional Learning (SEL), which includes enhancing emotional intelligence, empathy, positive relationships and integrating mindfulness practices [13]. SEL not just prepares students to elevate their academic performance but also prepares them to function well in a fast-changing complex social world [8]. Every institute must have a psychologist to help students as and when they require it. They can also develop portals where students can seek help anonymously. Educators can enrich the curriculum by including mindfulness practices, and techniques for emotional health regulation.

In line with this, there is an increasing focus on ‘Digital Intelligence quotient (DQ)’. It refers to an aggregation of social, emotional and cognitive abilities which enable an individual to manage his emotions and behaviors to cope with digital life. Digital citizenship is a core competency for the global job market. It comprises competencies such as screen time management, privacy management, cyberbullying management, cybersecurity management, critical thinking, digital footprints, and digital empathy [21].

5. Focus on sustainability

This generation is environmentally conscious. Hence, institutions must focus on issues such as sustainability, and inclusivity, and bring about greater transparency in their operations. Institutions can organize field trips, engage kids in community service and implement the concept of outdoor classrooms [27].

6. Support entrepreneurship and implement project-based learning

This generation is known to have a high entrepreneurial spirit. Educational institutions which emphasize on developing entrepreneurship through their educational content, expert interactions, and specialised cells will gain their loyalty. Also, educators need to emphasize on experiential and project-based learning [3]. It is believed to be a future-focused methodology for nurturing skills necessary for the 21st century [19].

7. Personalized Education

The ‘one size fits all’ approach is not relevant for ‘Generation Alpha’. They want services catered to their unique needs. Educators need to use differentiated instruction strategies for different children so that they can learn at their own speed and interest. They can also make them more independent by presenting them with entrepreneurial challenges and giving them opportunities for hands-on learning. ‘Generation Alpha’ has unique needs which demand adaptive learning technologies and personalized instruction methods. This can be executed through AI-powered learning tools, and competency-based progression techniques [8].

8. Teacher Readiness for Digital Revolution

A crucial aspect in educating the ‘Generation Alpha’ is preparing the teachers and educators to educate them in their language. It is necessary to train teachers with relevant 21st-century skills to equip them to contribute in the changing landscape of education. These relevant skills include critical thinking, creativity, cultural competency, communication skills, leadership skills, digital literacy, and emotional intelligence [7]. Teaching the next generation requires translating information into knowledge [25]. Continuous learning will assist teachers in the effective use of new technologies and instructional strategies for enhancing student outcomes [39].

6. Conclusion

Today’s classrooms are occupied by ‘Generation Alpha’, the most tech-savvy generation that the world has ever seen. The current conventional educational atmosphere is not sufficient to fulfill the needs of this tech-savvy generation. There needs to be a revolutionary shift to a more thought-provoking ecosystem and an egalitarian learning environment [40].

Education approaches should be developed to fit the characteristics of this generation and suit the zeitgeist of the era [34]. The upcoming generation of students entering higher education set-up will have distinct skills and needs [41]. This would require educators to adopt innovative teaching methods to cater to their requirements and enhance their learning experience. They require an educational landscape with an amalgamation of physical and digital spaces, with a multi-modal learning experience, usage of AI, AR, VR and gamification.

Broadly, there needs to be a profound shift towards student-centered learning models, with a greater focus on skills development and practical experiential learning. The earlier models with focus on ROTE learning, content mastery, and conventional grading are now becoming irrelevant [4]. Gradually, the focus will shift from transfer of knowledge to the co-creation of knowledge [41].

Apart from skill-based and practical learning, the changed education system must give special importance to Social-emotional learning and digital intelligence. The exceedingly competitive Digital complex world requires the ability to manage emotions more than memorized content [8]. Also, change is the only constant. Thus, education methods must be constantly updated to fulfil the changing needs of the upcoming generations.

The central point of this educational revolution is the educator. He/She is going to be the main driver of a collaborative educational ecosystem that emphasizes on critical thinking, problem-solving, and creativity [32]. To execute this pedagogical odyssey, the educator must have great scholarly acumen, must be efficient in imparting disciplinary knowledge and skills, and have digital literacy [10].

However, this change in the education system will be challenged by digital divide, issues of data privacy, and constant curriculum changes. Policy efforts need to be focussed on ensuring universal access to technology, setting in place mechanisms for securing students' data and developing new wholistic approaches for performance assessment [8].

7. Limitations and Scope for Future Studies

This study is exploratory, based on secondary research of existing literature. This field of knowledge is vast and requires a detailed in-depth study with quantitative as well as qualitative analysis. In the future, researchers can conduct a quantitative survey with students in primary and middle school of their expectations from the education system. There can also be studies that gauge the perception of educators about this cohort of students and their special preferences for learning. Furthermore, this is a generic study about 'Generation Alpha' and the expected changes in the education system. In the future, researchers can explore implications for different fields of study, such as science, commerce, humanities and fine arts.

References

1. Allison Z., "Meet Generation Alpha: teaching the newest generation of students", Solution Tree Blog, August 2017, <https://www.solutiontree.com/blog/teaching-generation-alpha>
2. Amrit K.J., "Understanding generation alpha", June 2020.
3. Andy M., Dan F., "Outdoor and Experiential Learning An Holistic and Creative Approach to Programme Design", Routledge, 2017.
4. Anel v.R., Sanri V.R., "Envisioning an effective education system for Generation Alpha focused on skills development in the fashion design higher education sector", Design Education Forum of Southern Africa, 2023.
5. Anne T., Elliot S., Cathie N., Alex S.C., "Using a Next-Gen Platform and Deeply Digital Curricula to Support Alpha and iGen Learners and Their Teachers", International Journal on Engineering, Science & Technology (IJonEST), 2024, 6(1).
6. Apaydin, Ç., Kaya, F., "An Analysis of the Preschool Teachers' Views on Alpha Generation", European Journal of Education Studies, 2020, 6(11), 123-141.
7. Arunasalam M., "Reaching and Teaching Generation Alpha. Changing Landscape of Education", Shanlax Publications, 2024.
8. Bandara K.M.N.T.K., Hettiwaththege C.R., Katukurunda, K.G.W.K., "An Overview of Teaching Methods for Fostering Generation Alpha (Gen Alpha) Learning Process", International Journal of Research Publication and Reviews, 2024, 5(8), 1446-1461.

9. Christopher A.F., “What Is Generation Alpha? Meaning, Characteristics, and Future”, Investopedia, March 2024. <https://www.investopedia.com/generation-alpha-definition-8606114>
10. Dave M., “Embracing the Technological Metamorphosis: Envisioning Higher Education for Generation Alpha in a Shifting Educational Landscape”, International Journal Software Engineering and Computer Science (IJSECS), Aug 2023, 3(2), 88–96, <https://doi.org/10.35870/ijsecs.v3i2.1492>
11. David P. C., Cort W. R., Hannes Z., “Are generations a useful concept?”, Acta Psychologica, November 2023, 241, 104059.
12. Douglas C., “Generation X: Tales for an Accelerated Culture”, 1991.
13. Durlak, J. A., Domitrovich, C. E., Weissberg, R. P., & Gullotta, T. P. (Eds.), “Handbook of social and emotional learning: Research and practice”, The Guilford Press, 2015.
14. Gay, G., “Culturally responsive teaching: Theory, research, and practice”, Teachers College Press, 2018.
15. Gina D., “Forget Gen Alpha...This Is Gen Sigma”, Healthy Teen Network, July, 2024, <https://www.healthyteennetwork.org/news/forget-gen-alpha-this-is-gen-sigma/>
16. Hakan P., Songui K., “Effect of flipped classroom model on academic achievement, academic satisfaction and general belongingness”, Learning Environments Research, March 2022, 25(1), 159–182.
17. Hannah R., Veronika S., Natasha A., Esteban O.O., Max R., “Global Education”, August 2016, <https://ourworldindata.org/global-education>
18. Hirushi M., Jana C., Stanley C., “The Evolution of Education: Past, Present and the Future”, CAINZ, May 2022, <https://cainz.org/11210/>
19. Holubova, R., “What is the appropriate methodology for Generation Z (and Generation Alpha) education?”, Developing Key Competencies, Jan 2024, 65.
20. Hotwire, Wired Consulting, “Understanding Generation Alpha study by Wired Consulting”, <https://cnda.condenast.co.uk/wired/UnderstandingGenerationAlpha.pdf>
21. Hulya A., Tufan A., “Leveraging Digital Intelligence in Generation Alpha”, The Teacher of Generation Alpha, March 2020, 119-132.
22. Iberdola, “Generation Alpha will lead a 100% digital world”, September 2024, <https://www.iberdrola.com/talent/alpha-generation>
23. Jean M.T., “Igen: Why Today's Super-Connected Kids Are Growing Up Less Rebellious, More Tolerant, Less Happy--and Completely Unprepared for Adulthood--and What That Means for the Rest of Us”, 2017, Atria Books.
24. Kupperschmidt B.R., “Multigeneration employees: strategies for effective management”, National Library of Medicine, Sep 2000, 19(1):65-76, <https://pubmed.ncbi.nlm.nih.gov/11183655/>
25. Lauren T., Sherene H., “Reading in minecraft: A generation alpha case study”, TEACH Journal of Christian Education, 2019, 13(1), 29–36.
26. Maltaz S., “Generations at a Glance”, Medium, December 2017, <https://medium.com/100-days-of-writing-challenge/generations-at-a-glance-d00edbabbcf3>
27. Martin, A., & Franc, D. (2017). Outdoor and experiential learning: An holistic and creative approach to programme design. Routledge.
28. Maureen H., “The higher education workplace: Meeting the needs of multiple generations”, Research in Higher Education Journal, 2011, 10, 1
29. Mc Crindle, “Perceptions of Gen Alpha”, <https://mccrindle.com.au/article/perceptions-of-gen-alpha/>

30. Mc Crindle, “The Generations Defined”, <https://mccrindle.com.au/article/topic/demographics/the-generations-defined/>
31. Mc Crindle, “Why we named them Gen Alpha”, 2018, <https://mccrindle.com.au/article/topic/generation-alpha/why-we-named-them-gen-alpha/>
32. Melissa S., Kudzaiishe P.V., “Critical Diversity Literacy: A framework for multicultural citizenship education”, *Education, Citizenship and Social Justice*, June 2023, 379–389.
33. Michael B., “The Top 5 Gen Alpha Characteristics Every Marketer Should Know”, BritoPian, . <https://www.britopian.com/data/gen-alpha-characteristics/>
34. Mir’Atun N.A., Moch A.M., Burhan N., “Educational Design for Alpha Generation in the Industrial Age 4.0”, In 2nd Southeast Asian Academic Forum on Sustainable Development (SEA-AFSID 2018, Atlantis Press, March 2021, (pp. 137-145).
35. Muhamad K. A., Airil H. M. A., Ahmad A. Y., Muhammad A. M. K., “Using new technologies to teach English in Malaysia-issues and challenges”, In Proceedings of the International Invention, Innovative & Creative (InIIC) Conference, Series, 2019, 203- 207
36. Olena G., Andrii M.H., Valentyna I. K., Tetiana V.V., “Selection of digital tools for organizing students' group work in distance education”, *Information Technologies and Learning Tools*, 2(94), 87-101.
37. Pew Research Center, “The Whys and Hows of Generations Research”, September 2015, <https://www.pewresearch.org/politics/2015/09/03/the-whys-and-hows-of-generations-research/>
38. Rachel H., “It’s a tough transition’: why universities must plan for Generation Alpha”, *The Guardian*, 2017, <https://www.theguardian.com/higher-education-network/2017/aug/10/its-a-tough-transition-why-universities-must-plan-for-generation-alpha>
39. Radhakanta G., Sushama S., “Continuous professional development: a panacea for teachers”, *International Journal of Research Pedagogy and Technology in Education and Movement Sciences*, Jan 2013, 2(01).
40. Rose E.A., Thomas M.R., “Generation Alpha and Learning Ecosystems: Skill Competencies for the Next Generation”, IGI Global, 2024, pp. 19-46.
41. Rushan Z., Elizelle J. C., “Generation Alpha: understanding the next cohort of university students”, *European Journal of Contemporary Education*, October 2021, 10(3), 783-789.
42. SADOUNI, B. B., “Facilitating Literature Instruction through Cloud-based Animation Platforms. Case Study: Generation Z Students of EFL Literature at Chlef University’s Department of English”, Doctoral dissertation, Leila KARA MOSTEFA-BOUSSENA, 2023.
43. Samsul S., Abdulloh C., Muh H., Irfan M.I., Aniek R., “The urgency of digital literacy for generation z in improving learning of islamic religious education”, *Library Philosophy and Practice*, July 2021, 2(7), 1-15.
44. Santosh K. A. V., “The Evolution of Education: A Century of Change and Progress Globally”, *Medium*, March 2023, <https://santoshavsk.medium.com/the-evolution-of-education-a-century-of-change-and-progress-globally-b8e2f2cc9fbb>
45. Student Centered World, “Understanding Generation Alpha Characteristics -How They Are”, July 2023, <https://www.studentcenteredworld.com/generation-alpha/>
46. Vivek G., “Gen Alpha and learning in the new world”, *Entrepreneur*, July 2020, <https://www.entrepreneur.com/en-in/technology/gen-alpha-and-learning-in-the-new-world/353752>
47. Williams A., “Meet Alpha: The Next Generation”, *New York Times*, September 2015.

48. Wim T., Stefan L., Joeri R., Carl F.S., Lukas G., Sonia I.S., Marina A., Katjia F., Kerry E., Yoshihide W., “Intergenerational inequities in exposure to climate extremes”, *Science*, September 2021, 374(6564), 158-160.
49. Zeyab, A. J. , “Educational technology and visual literacy: the effect of using doodling on student learning performance”, University of Northern Colorado, 2017.
50. Zhun Y. C., “Top 9 Key Gen Alpha Characteristics Teachers & Parents Must Know!”, June 2024, <https://www.classpoint.io/blog/gen-alpha-characteristics>