Living the phygital era: Generation Alpha is redefining our world

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Abstract: *Generation Alpha is leading the way in an unparalleled period that began in the new millennium. These individuals are known as Screenagers, whose very being is entwined with the digital realm. Generation Alpha is raised in an environment dominated by social media, streaming and applications, they are accustomed to having information at their fingertips. Their digital worlds are shaped and reshaped by them with a fluidity that past generations could hardly understand. They do more than just consume content; every swipe, tap and click opens up a new avenue for exploration and interaction. In their universe, glass serves as a conduit for exploration, education and connection in addition to being a medium of life. Our perception of technology and its place in our lives are completely transformed by this generation. They provide a fresh vision for their inventive future, a physical world connected with their digital worlds, changing the fundamental fabric of civilization itself.*

Keywords: Generation Alpha, Phygital, AI Companions, Virtual Reality, Immersiveness.

1. Introduction

All the generations contribute their own unique melodies to the grand symphony of human existence. Generation Alpha, the first generation born wholly in the third millennium and the 21st century, is no exception. Their journey, just beginning, is poised to significantly and immediately impact our world. Raised by millennial parents, Generation Alpha is projected to be the largest and most diverse generation in history, a fact that not only piques curiosity but also invites further exploration.

The paper analyses how Generation Alpha is reshaping our interaction with the digital and physical worlds. It aims to demonstrate how this generation, deeply immersed in technology from a young age, is driving unprecedented changes in how we perceive and use technology. By examining their habits, such as the constant use of social media, streaming, and digital applications, the article seeks to illustrate how Generation Alpha is consuming and actively transforming its digital environment. This exploration offers insights into the potential future impact of their technological integration on society, education and everyday life,

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emphasizing the emergence of a blended 'phygital' world where physical and digital experiences are seamlessly interconnected and the need to understand and prepare for these changes.

The paper is organized as follows. Section 2 presents the most important characteristics of Generation Alpha. Section 3 presents the meaning of the term “phygital” and how it was born. Section 4 redefines what life means in the virtual reality era and Section 5 puts in front the AI companions such as tutors to enhance children's scholastic travels while also assisting them in becoming emotionally mature. The paper ends with a chapter of conclusions and references.

2. The rise of Generation Alpha

There is a growing buzz about Generation Alpha, and for a good reason: this generation is not only ringing the door but is ready to take over the building. In contrast to earlier generations, Generation Alpha is the largest and maybe most influential cohort in history.

This vibrant group first came to the public's attention last year through their TikTok memes and their increasing impact on consumer markets. It is becoming obvious that this is not just another generation; it is a massive wave that will drastically alter our working, cultural, and economic environments when the oldest Alphas enter their early teens.

Although some academics provide somewhat different ranges, Generation Alpha is defined as those born between 2010 and 2025. Since many Alphas are the offspring of millennials, they are sometimes called little millennials, generation glass, screenagers, digital natives, and connected or wired generation (Tootell et al., 2014; Williams, 2015).

Figure 1. McCrindle M., “Generation Alpha infographic” https://mccrindle.com.au/resource/infographic/generation-alpha-infographic/

Mark McCrindle, the creator of the Australian consulting firm McCrindle Research, has a keen interest in generational analysis and decided to name them Generation Alpha because "they represent a whole new generation, entirely born in a new century. Going back to the beginning didn't feel right for this next generation" (McCrindle & Fell, 2020). Also, McCrindle considered that it was the time to use the Greek alphabet in lieu of the Latin because Generation Alpha does not represent a return to the old, but the start of something new.

Because members of Generation Alpha are still being born, it can be challenging to characterize them demographically. They will probably make up a sizable portion of the populace. Nearly 250 children are born every minute, amounting to 2.1 million Gen Alpha born every week and more than 130 million around the globe (Lamble, 2018); by 2025, there will be more than 2 billion of them worldwide, signalling their humongous presence in future (Carter, 2016).

Because of the quick and ongoing changes the world is going through due to digital transformation, the amount of time between one generation and the next is getting shorter. So much that technological use, as opposed to historical or social events, is defining generations more and more. In this instance, new technology will enable Generation Alpha to play, learn, and engage in whole new ways.

Members of Generation Alpha are still growing up thus, their parents, who are usually millennials, have an influence on them. Due to millennials' frequent usage of social media, which includes sharing their kids photos, and videos, a large portion of Generation Alpha is online from birth. They are the first generation to grow up with streaming services that are available everywhere and remote learning environments. The growing application of artificial intelligence (AI), which includes natural language processing technologies like ChatGPT and voice assistants like Siri or Alexa, will also impact their lives.

Generation Alpha has been immersed in cutting-edge technology since its earliest days. 2010, the year of their birth, was the year the iPad was launched, Instagram was created, and the word "App" was chosen as the word of the year, underscoring the rapid integration of mobile applications into everyday life. These children possess an innate understanding of technology, having been raised in a digital age. Their comfort with touchscreens over keyboards is a testament to the digital world they are growing up in. Information flows effortlessly with the touch of a screen in this constantly connected world. Unlike paper's static, linear format, their glass interfaces provide a tactile, dynamic experience that is infinitely portable, interactive, and visually stimulating.

This generation is characterized by their seamless integration of physical and digital worlds, with a strong preference for mobile technology and digital interactions (Fadlurrohim et al., 2020). They are described as the most technologically adept generation, well-adapted to the digital age (Mamina & Tolstikova, 2020).

Technological gadgets like video games, autonomous autos, driverless trains, and smart speakers that respond to you characterize Generation Alpha. They have only ever known this technology, which has been developed within their generation. Additionally, it is being adopted more quickly than before. It took 38 years for radio to reach 50 million users, but only 13 years for television, 4 years for iPods, 3 years for the internet, 1 year for Facebook, and 19 days for the Pokémon Go mania to be fully adopted.

Generation Alpha is already pointing us in the right direction: three-year-olds are attempting to use their fingers to enlarge magazine pictures; five-year-olds give commands to Alexa to play their preferred music and climate change and the newest games are discussed in schools.

3. Phygital: what is it?

The concept of "phygital", a blend of physical and digital, is emerging as a significant trend in various sectors. It involves using technology to bridge the physical and digital worlds, creating unique interactive experiences for users (Soloviov & Danilov, 2020). The terms "physical" and "digital" are combined to form the phrase "phygital", due to the exploitation of smart technologies (Mele & Russo Spena, 2022).

The Australian agency "Momentum" came up with this neologism in 2013, and it is now widely used to characterize the omnichannel approach's breakthrough. The term "phygital" refers to the intersection of a digital and physical experience when channels like online and offline are not considered separately. The convergence, or "integral wholeness" (Yüce et al., 2021), of the digital and physical spheres, is where the idea of phygital concept arises.

Recent research explores the concept of phygital interaction, which blends physical and digital worlds, and its impact on Generation Z and beyond. Studies indicate that Gen Z, born into a digital era, is well-adapted to this phygital environment (Mamina & Tolstikova, 2020).

Digital technology and tools are integrated into physical venues to generate unique experiences. It uses the potential of technologically immersive displays while preserving the tactile and sensory elements, creating an immersive and all-encompassing experience. Comprehending the distinctions between digital and virtual experiences is essential to understanding phygital, which is a hybrid of physical and digital experiences.

A phygital strategy must be I.C.E. (instantaneous, connected, and engaging) to be effective. Several technologies, including robotics, the Internet of Things (IoT), artificial intelligence (AI), and extended reality (XR), are crucial in bridging the gap between the physical and digital worlds.

As the phygital concept continues to evolve, it presents both opportunities

and challenges for businesses and society, potentially redefining how we interact with our environment and each other in the 21st century (Soloviov & Danilov, 2020).

Once smartphones became commonplace in our daily lives, the online world's amenities moved with them. This gradually established a connection between the digital network and our physical world. For instance, we use voice commands and an internet-connected GPS to direct us while we drive. We are so accustomed to this scene that we are unaware that we live in the phygital world.

There is an increase in the number of businesses swiftly adapting their tactics to complete things that were traditionally completed in person digitally. This covers activities such as food shopping. The popularity of delivery services offered by large retailers is evidence that customers are increasingly at ease having a smartphone app "walk the aisles" for them. Other instances include paying for petrol without touching a payment terminal, viewing the menu on a phone at a restaurant, or keeping an eye on your health using a connected device. Integrating the digital and physical elements of the experience strategy is undoubtedly here to stay for our present and future generations.

4. Navigating the digital realm

The importance of artificial intelligence (AI) in creating and improving virtual reality (VR) technology becomes clear as we investigate the possibility of living in virtual worlds in the future. The convergence of AI and VR has the potential to expedite the attainment of a fully virtualized lifestyle, particularly for the younger generations, such as Gen Z, who are at the forefront of technological advancements.

The potential of future generations living in virtual worlds is becoming less of an issue of whether it will happen and more of when and how. This is because technology is always changing. Although Generation Z has grown up with virtual reality technology, Generation Alpha and Beta are the ones who might actually end up living in these virtual worlds.

Generation Z, defined as those born between the late 1990s and the early 2010s, grew up with technology at their fingertips. Being born into a digital age, they are used to technology being a part of everything, from entertainment to education. This generation has previously experienced virtual reality through gaming and educational contexts. Despite being early adopters of this technology, they are probably more likely to serve as a transitional link between fully virtual and physical lifestyles than as long-term inhabitants of virtual worlds.

Every facet of Gen Alpha's growth is impacted by the ubiquitous presence of technology. They are used to a world where digital and physical interactions are closely entwined, so they are probably more tech-savvy than Generation Z.

Generation Alpha is growing up in a world where cutting-edge technology like virtual reality is getting easier to use and more widely available. It is possible that Generation Alpha is the first to have experienced virtual reality as a standard

rather than a curiosity. Virtual environments probably will greatly impact their early career experiences, social connections, and educational institutions. It is possible that Generation Alpha may become more adept at blending their online and offline lives, making it easier for them to transition between the real and virtual worlds.

Alphas are exposed to hyper-personalized material that changes according to their moods, requirements, devices, and environments. Each alpha thus becomes the gravitational centre of its own universe. Gen Alpha considers technology and digital technologies essential to their everyday life, easily incorporating them. This generation knows the power of technology, having grown up with notions like the metaverse, cryptocurrencies, and artificial intelligence.

As we move forward, these coming generations can redefine what life means in the virtual reality era. The line separating the virtual and actual worlds will likely become increasingly blurred for Generation Alpha as virtual reality technology grows more omnipresent and immersive. This generation may decide to live a significant amount of time in virtual worlds because they see them to be more satisfying than the real world. Virtual reality is appealing because technology can create hyper-realistic yet magical landscapes, providing experiences that are impossible in the real world.

Since they are the most technologically literate generation, one characteristic that sets them apart is their natural comfort and skill with technology, which highlights the impact of their early exposure to technology on their literacy and day-to-day life. Because they are always surrounded by technology, it is likely that Alphas will have exceptional skills with digital tools. They have an innate ability to adjust to new technologies, a natural grasp of device connectivity, and an intuitive understanding of interfaces. This level of familiarity will probably produce an extremely tech-savvy generation that may even take for granted the promise of technology in ways that earlier generations may find hard to understand.

The digital age has greatly influenced their upbringing. Most Gen Alpha members engage with tablets, smartphones and voice-activated gadgets from early infancy. Their unusual early exposure to technology is expected to impact their social and cognitive development in ways not seen in prior generations. This might produce a generation that excels in multitasking and information processing. Their digital fluency will impact their communication patterns, entertainment preferences and learning approaches. Gen Alpha learners will embrace digital and interactive learning settings and integrate technology into every part of their lives because, for Alpha, technology is not just a tool but a fundamental part of their existence, shaping their cognitive frameworks in fundamentally different ways compared to previous generations.

5. AI companions: From playmates to tutors in the Phygital world

There are new technologies coming out that provide various ways to interact. Increasingly intelligent devices will be the standard for the generation that grows up with them. Artificial intelligence will broaden our conception of what technology is capable of, data-crunching algorithms will make experiences ever more tailored, and innovative interfaces will present new communication avenues.

Artificial Intelligence is considered to be a Black Swan (Chirilă, 2018) because it is an exceptional event, rare and hard to predict, but which will drastically alter the future of our planet and humanity, with completely unpredictable consequences. These developments will influence Generation Alpha's relationships with the outside world and shape their expectations of technology.

New sensory perception and AI technologies support more natural and intelligent human-computer interactions, while multimodal interaction, utilizing keyboard, mouse, voice, expressions and gestures, enhances user experience (UX) (Marinescu & Iordache, 2023).

In the table below are some of the main features of the phygital world that integrate human-computer interaction:

Table 1. The main features of the phygital world

Multimodal user experience (UX) and user interface (UI)	It is designed to accommodate many types of user input, such as touch, voice, and vision. It offers a rich interactive experience by adapting dynamically to the situation and needs of the user.
Gesture Recognition	With the use of sophisticated gesture recognition technology, users can engage more naturally and effortlessly by using their hands to make natural gestures.
Understanding human behavior	Comprehending and predicting human behaviour is crucial for crafting more personalized, engaging, and enjoyable virtual experiences for users. To achieve this feature, several technologies and methodologies are necessary: Data Analytics, Emotion Recognition, Predictive Modeling, Social Interaction Analysis, Context-Aware Experiences etc.
Intuitive Navigation	Users should be able to easily navigate the virtual environment thanks to a simple and user-friendly interface.
Connectivity and Accessibility	This feature refers to the capability of

	users to access the virtual world on any device. It includes real-time communication and the capacity to interact with items, other people, and virtual surroundings. Various technology and infrastructure elements, including fast Internet connections, low-latency network architecture, and powerful processing and storage capacities, are needed to guarantee the interconnection.

Artificial intelligence is one significant topic that is already influencing how Generation Alpha experiences technology. Some artificial intelligence products are targeted exclusively at Generation Alpha. Internet of toys refers to gadgets that use image or speech recognition. AI assistants like Google Home, Amazon Echo, and other internet-of-things gadgets are making their way into households.

Voice is becoming a major interface that rivals the screen. Voice recognition is becoming a common primary device control method; this interactive medium will change how children play in entirely new ways. More natural voice interfaces, for example, will connect children with the human side of technology and make engaging with their surroundings easier. Voice interfaces also make technology more approachable for younger kids, as you have to be mature enough to converse with a talking device, which means that three-year-olds can use it.

Voice is not the only input method that replaces the keyboard and screen. With the help of tracking sensors or wearable technology, humans can interact with digital material through gestural interfaces by moving their hands or bodies in certain ways. These devices could be used to engage with virtual and augmented reality without holding or touching a controller. With these new interfaces, using technology can be more interactive and less like passively staring at a screen. Generation Alpha is becoming increasingly demanding that their physical play experiences be more engaging, enjoyable, interactive, responsive and that they participate in the process somehow.

Future generations may find that AI friends significantly impact Generation Alpha's upbringing. AI companions will become essential to children's development in the twenty-first century as these sophisticated AI systems enhance children's scholastic travels while also assisting them in becoming emotionally mature.

Generation Alpha is starting to see less distinction between technology and friendship due to AI's pervasiveness in daily life. AI companions are becoming more than just advanced tools; they are becoming essential components of young people's social and academic environments. These artificial intelligence beings are not at all like the basic chatbots of the past. They are being created to be tutors and

companions simultaneously, which is a groundbreaking development in personalized technology. Raised in a digital age, this tech-savvy generation views AI companions as a natural extension of their everyday interactions. They use them for everything from play to education, demonstrating their comfort level and expertise with cutting-edge technology like AI. For example, Lego crafts smooth omnichannel experiences for its merchandise, retail locations, and theme parks. Sets come to life with augmented reality, and video game partnerships with Fortnite and Epic Games hint at a whole new realm of entertainment. Children can converse with Alexa, an AI-powered virtual assistant, on Amazon's Echo Dot, providing the necessary safety precautions are taken. And TeddyGPT, a real teddy bear with AI built by Toymint, is a companion and personalized learning tool.

Generation Alpha AI companions are built with sophisticated algorithms that may modify their interactions according to each child's educational and emotional requirements. This means that these AI systems can serve as playmates who can participate in sophisticated conversations and interactive activities that improve social and cognitive skills and act as tutors who can help with arithmetic homework or grammatical rules.

These AI friends may also encourage wholesome behaviours. They may assist kids in tracking their physical activity, remind them to wash their teeth, or even lead them through a stress-reduction meditation. This ongoing, individualized help aims to develop a well-rounded person with both intellectual aptitude and emotional intelligence.

Furthermore, AI buddies have the capacity to develop into more than just helpers, they might actually turn into real mentors and friends. As Artificial Intelligence develops, these friends may be able to recognize and anticipate children's needs, providing assistance before the kids even realize they need it.

The cutting-edge capabilities of augmented reality and virtual reality technology form the basis for constantly residing in a virtual environment. At the moment, virtual reality provides engrossing experiences that mostly appeal to the senses of sight and sound. However, these technologies must advance further to achieve a lifelike virtual reality. We are getting closer to a completely immersive virtual environment that can replicate the tactile experiences of the real world thanks to recent advancements in haptic technology, which have made touch and feel possible. However, to facilitate a smooth shift to a permanent virtual existence, technology should advance to encompass all human senses, including taste and smell, and accurately imitate intricate physical interactions.

6. Conclusions

Our lives are increasingly entwined with technology, and Generation Alpha will experience this to a greater extent than previous generations. They will have more access to current and emerging technology and get used to interacting with

digital content in novel ways, perhaps including many unexpected ones. This will help us comprehend how technology affects us and how we affect it.

Generation Alpha will own the future. Comprehending the characteristics of Gen Alpha is crucial since they embody the future and offer a perspective for examining the upcoming decade and beyond. Generation Alpha is leading the way toward a future where technology and mankind work together more profoundly. These young pioneers were brought up with artificial intelligence as a daily companion and are armed with curiosity. They will go into unexplored territory in their capacity as new world ambassadors.

Furthermore, there are important ramifications for both societal ideals and personal identity. How will our ideas of ourselves and society change if our virtual experiences take on the same significance as our real ones? Virtual reality has enormous potential to provide a platform for authentic, meaningful human experiences in addition to providing a means of escape. The decisions made by Generation Alpha on where and how to live will fundamentally alter what it is to be human as they mature into this technologically advanced world.

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