

# **Gamifying Higher Education for Generation Alpha: Aligning Cognitive Behavioral Needs with Business Value through a Human-Centered Approach**

By

**Yvette Man-yi Kong**

B.A Cognitive Science  
University of California, Berkeley, 2015

M.Sc. Performance Psychology  
University of Edinburgh, 2021

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Authored by: Yvette Man-yi Kong  
MIT Sloan School of Management  
May 11, 2023

Certified by: Ben R. Shields  
Senior Lecturer  
Thesis Supervisor

Accepted by: Jacob Cohen  
Senior Associate Dean for Undergraduate & Master's Program

# **Gamifying Higher Education for Generation Alpha: Aligning Cognitive Behavioral Needs with Business Value through a Human-Centered Approach**

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## **ABSTRACT**

This thesis proposes a human-centered framework for gamification in higher education that aligns cognitive behavioral needs with business value for Generation Alpha, the cohort born after 2010. By analyzing the gaps between current education practices and Generation Alpha's needs, the methodology aims to bridge the divide. The literature review underscores the importance of empathizing with Generation Alpha's cognitive behavioral needs, including socialization and communication skills, creativity and innovation, digital literacy and technology skills, emotional intelligence and resilience, and cultural competency and global awareness.

Gamification is posited as a potential strategy for engaging and motivating Generation Alpha in higher education. The benefits of gamification encompass personalization and feedback, collaborative and social learning, real-world application and problem-solving, and experiential and immersive learning. The thesis concludes by emphasizing the importance of gamification in higher education for Generation Alpha and its implications for higher education providers and policymakers.

**Thesis Supervisor:** Ben R. Shields

**Title:** Senior Lecturer

## **1. Introduction**

### **1.1. Aims and objectives**

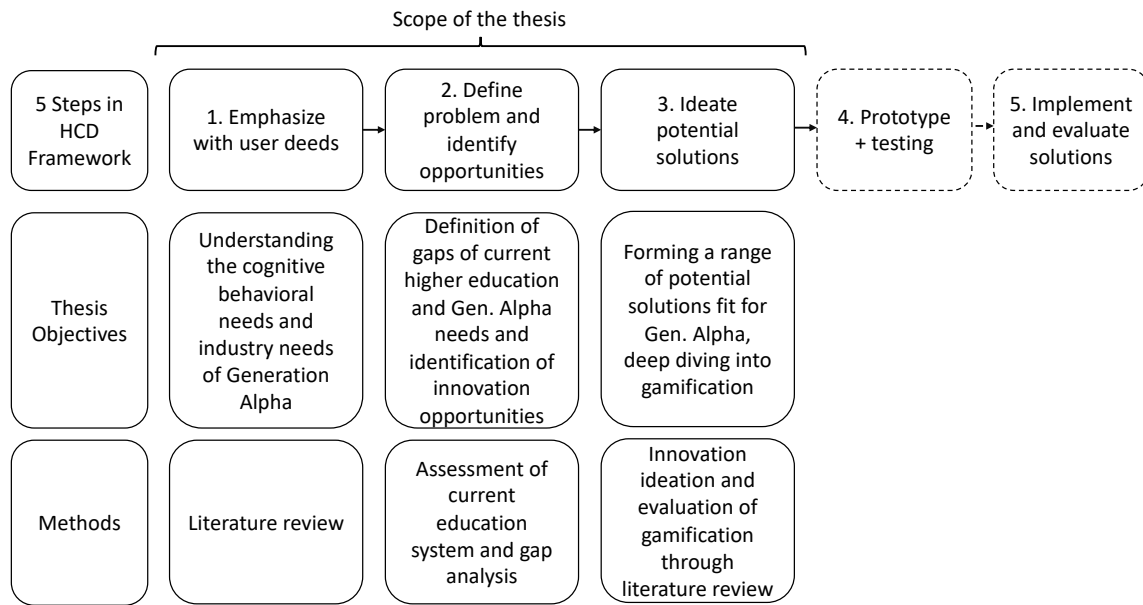
The field of education has undergone significant transformation in recent years, driven by advances in technology and the changing needs of learners in the 21st century. Generation Alpha, born between 2010 and 2025, will be the first generation to grow up fully immersed in a world dominated by technology and digital media (McCinde, 2017). As such, the cognitive needs of this generation will be different than the needs of previous generations, and higher education institutions must adapt to these changing needs to remain relevant. Furthermore, the business value of higher education is also changing, as the skills and knowledge required by industries are also evolving. In the age of artificial intelligence (AI), the skills and knowledge that were previously considered valuable may no longer hold the same weight. Therefore, the value of higher education may be at risk if institutions do not adapt and align with the needs of the industry.

To address these challenges, this thesis aims to re-evaluate the role and design of higher education through a human-centered design approach. The importance of aligning cognitive behavioral needs with business value through a human-centered approach is critical in the design of effective solutions that meet the needs of all stakeholders. By placing the needs and experiences of the learners at the center of the design process, institutions can create learning experiences that are more engaging, meaningful, and impactful. In doing so, higher education can remain relevant and valuable to students and industries alike.

### **1.2. Methodology**

The human-centered design approach emphasizes empathy, collaboration, and experimentation in the design process to create solutions that meet the needs of the end-user (IDEO, 2021). The first three steps of the human-centered design framework are emphasized in this thesis (Figure 1), which include empathizing with the learners, defining the problem, and ideating potential solutions.

**Figure 1: Methodology**



The methodology employed in this study includes a comprehensive literature review aimed at understanding the multi-dimensional needs of Generation Alpha. Through a thorough examination of the existing literature, this study first seeks to gain a nuanced understanding of the cognitive, behavioral, and socio-emotional needs of Generation Alpha learners and what skills are expected of them to stay competitive in the job market.

To further refine the research, a gap analysis will be conducted to identify the areas where the current educational system falls short in addressing the forecasted multi-dimensional higher education needs of Generation Alpha. This analysis will help to define the problem and highlight potential opportunities for improvement within the higher education system. The gap analysis will consider factors such as curriculum, pedagogy, and assessment methods that impact learning outcomes for Generation Alpha.

Subsequently, the third step of the human-centered design framework, ideating potential solutions, will be used to brainstorm and develop a range of innovative approaches to address the identified gaps. The ideation process will be informed by the needs and experiences of Generation Alpha learners to ensure that the proposed solutions are relevant, effective, and empirically supported.

One of the potential solutions to explore is gamification, which is posited to align well with the needs of Generation Alpha learners. The concept of gamification has gained considerable attention in recent years as a potential solution for enhancing learning experiences in higher education. Gamification is the use of game elements and design principles in non-game contexts, such as education, to enhance user engagement, motivation, and learning outcomes (Dicheva et al., 2015).

Research has shown that gamification can be effective in improving student engagement and motivation (Coyne et al., 2017; Gómez-Sánchez et al., 2020), which are important factors in enhancing learning outcomes (Kahu, 2013). By incorporating gamification into the design of educational programs, institutions can enhance the learning experience and engage Generation Alpha learners in a more meaningful way.

In summary, this study aims to explore innovative approaches to address the multi-dimensional needs of Generation Alpha learners in higher education. By employing a human-centered design approach, this study seeks to identify the gaps in the current education system and propose innovative solutions that align with the needs of both learners and industries. Through the literature review, gap analysis, and ideation process, this study aims to contribute to the ongoing conversation on the future of higher education and its role in shaping the next generation of learners.

## **2. Human-Centered Design Thinking in Designing Higher Education**

### **2.1. Reasoning, significance, and challenges of human-centered design thinking**

The traditional approach to designing higher education institutions and curricula has been focused on what the institutions believe students should learn, rather than what students actually need to learn. However, this approach is becoming increasingly irrelevant as the world changes at a rapid pace and the needs of learners evolve. As such, there is considerable value in utilizing human-centered design (HCD) principles to reassess the role and design of future higher education.

HCD is a design method that places the human experience at the center of the process. To design solutions that suit the needs of end users, this method prioritizes empathy,

collaboration, and experimentation. This implies putting students and their needs at the center of the design process in the context of higher education. Institutions may generate more interesting, meaningful, and effective learning experiences by doing so.

One of the key benefits of using HCD in higher education is that it helps institutions to better understand the needs of their students. Empathizing with the learners is the first step in the HCD process, which involves conducting research to understand the experiences and perspectives of the students. This research can involve various methods such as interviews, surveys, and observation. Through this process, institutions can gain a more nuanced understanding of the challenges that students face and the types of learning experiences that would be most effective for them.

Another benefit of using HCD in higher education is that it encourages collaboration and co-creation. Collaboration is an essential component of the HCD process, as it involves bringing together a diverse group of stakeholders to work together towards a common goal. In the context of higher education, this means bringing together students, faculty, and administrators to co-create learning experiences that meet the needs of all stakeholders. By involving all stakeholders in the design process, institutions can create solutions that are more inclusive and effective.

Additionally, HCD encourages experimentation and iteration, which is essential for innovation. The HCD process involves testing and refining solutions through prototyping and feedback, allowing for continuous improvement. This iterative process can help institutions to develop more innovative and effective solutions to the challenges facing higher education.

The use of HCD in higher education is not without its challenges, however. One of the main challenges is the need for institutional buy-in and a shift in mindset. The traditional approach to higher education has been focused on what the institution believes students should learn, rather than what students actually need to learn. This approach can be difficult to change, as it requires a shift in mindset and culture. However, the benefits of HCD in

higher education, such as improved student engagement and satisfaction, can make it a compelling argument for change.

In conclusion, the use of human-centered design is arguably increasingly important in reassessing the role and design of future higher education. By prioritizing empathy, collaboration, and experimentation, institutions can create learning experiences that are more engaging, relevant, and impactful for their students. The benefits of using HCD in higher education, such as improved student engagement and satisfaction, highlight the importance of designing with the user in mind. While there may be challenges in implementing HCD in higher education, the potential benefits make it a compelling argument for change.

## **2.2. Framework of human-centered design thinking in higher education**

Human-centered design thinking covers five important processes that are critical for understanding end-user wants and aspirations and providing inventive solutions to their challenges.

Empathy is essential for building effective solutions that fulfil the demands of end users. To acquire a thorough understanding of end-user opinions and experiences, multiple research methodologies such as interviews, surveys, and observations must be used. This thesis gathered user insights through literature research, which anchored on empirical evidence of cognitive behavioral and industry needs. Designers can obtain a deeper grasp of how to build solutions that fulfil the demands of end users by empathising with them and understanding their wants.

The second step is to define the problem, which needs designers to synthesise the insights gathered during the empathy stage in order to identify specific challenges that end users encounter. This entails defining the problem in a way that the design team can address while also aligning with the needs of the end-users. A clear definition of the problem is essential for developing focused and targeted solutions that suit the needs of end users.

The third step is ideation, which entails coming up with a variety of alternative solutions to the identified problem. This step can be carried out through brainstorming sessions or other ways of ideation that promote creativity and outside-the-box thinking. The purpose of this stage is to develop a broad set of alternative solutions that address the demands and preferences of the end customers. Designers can gain a more comprehensive grasp of the problem and produce better solutions by investigating multiple possibilities.

Prototyping is the fourth step, which entails creating rough models or prototypes of potential solutions produced during the ideation process. These prototypes are often low-fidelity and simplistic, but they allow for rapid iteration and refining.

The fifth and final step is testing, which entails putting the prototypes through their paces with end users in order to gather feedback and develop the solutions. This is a critical phase in ensuring that the final solutions are successful and suit the needs of the end users.

While the scope of this thesis only covers the first three steps of the design thinking process, it is important to note that the entire process is iterative and may require multiple cycles to arrive at an effective solution. This is especially true in the context of higher education, where the needs and expectations of learners and industries are constantly evolving.

In sum, human-centered design thinking is a powerful approach to re-evaluating the role and design of higher education. By placing the needs and experiences of learners at the center of the design process, higher education institutions can create learning experiences that are more engaging, meaningful, and impactful. The first three steps of the design thinking process - empathizing with the learners, defining the problem, and ideating potential solutions - are critical in ensuring that the solutions developed meet the needs of learners and industries. However, it is also important to note that the remaining steps of the design thinking process - prototyping, testing, and implementation - are equally important in ensuring that the solutions developed are effective and impactful. Higher education institutions must be willing to embrace a human-centered approach and continuously iterate on their solutions to remain relevant and valuable in the 21st century.



### **3. Empathize with Generation Alpha's Needs**

#### **3.1. The Business Value of Higher Education for Generation Alpha**

##### **3.1.1. Industry Skills Needed for Generation Alpha to Compete in the Job Market**

The job market is evolving rapidly, and with the advancement of technology and globalization, it is crucial for Generation Alpha to possess the necessary industry skills to compete in the job market. According to a report by the World Economic Forum (WEF) titled "The Future of Jobs Report 2020," some of the critical skills needed for the workforce of the future include complex problem-solving, critical thinking, creativity, people management, emotional intelligence, and cognitive flexibility (WEF, 2020).

Complex problem-solving is the ability to identify and solve problems in a systematic and creative way, using critical thinking skills (Hacker et. al., 2009). Critical thinking, on the other hand, involves the ability to analyze information, evaluate evidence, and make informed decisions (Hacker et. al., 2009). These skills are essential for individuals to navigate the complexities of the modern work environment and provide innovative solutions to business problems. Studies have also found that individuals with strong problem-solving skills are more likely to be successful in the workplace. For example, a study conducted by the Partnership for 21st Century Learning found that 89% of employers believe that problem-solving skills are essential for success in the workplace (Partnership for 21st Century Learning, 2013).

Creativity is another important skill that is in high demand. As automation and artificial intelligence become more prevalent in the workplace, the ability to think creatively and develop new ideas will be a significant differentiator for individuals in the job market. According to some experts, "the ability to think creatively and develop new ideas will be a significant differentiator for individuals in the job market" (Smith, 2021). A study found that creativity is a key predictor of success in the workplace, particularly in fields such as marketing, advertising, and design. The study found that employees who scored higher on creativity assessments were more likely to develop innovative solutions to business problems (Baer & Oldham, 2006).

People management and emotional intelligence are also critical skills for the workforce of the future. As workplaces become more diverse and complex, the ability to work effectively with others and manage teams will be essential for success. Emotional intelligence, which involves the ability to recognize and understand emotions in oneself and others, is particularly important in leadership roles, where the ability to motivate and inspire others is critical (Goleman, 2004). Emotional intelligence has also been linked to success in the workplace. A meta-analysis of emotional intelligence research found that individuals with high emotional intelligence were more likely to be successful in leadership positions and were better at managing stress and conflict (Joseph & Newman, 2010).

Finally, cognitive flexibility, or the ability to adapt to changing situations and think outside the box, is an essential skill for the workforce of the future. As industries and job roles continue to evolve, individuals who can learn new skills quickly and adapt to new environments will be in high demand. Cognitive flexibility has been found to be a critical skill for success in the workplace. A study published in the *Journal of Occupational and Organizational Psychology* found that individuals with high cognitive flexibility were more likely to adapt to new work environments and learn new skills quickly (Ritter, Anderson, & Schmidt, 2017).

Overall, there is ample evidence to support the importance of skills such as complex problem-solving, critical thinking, creativity, people management, emotional intelligence, and cognitive flexibility for success in the workforce of the future. The job market is rapidly changing, and it is crucial for Generation Alpha to possess the necessary industry skills to compete effectively. According to the World Economic Forum, skills such as complex problem-solving, critical thinking, creativity, people management, emotional intelligence, and cognitive flexibility are critical for success in the workforce of the future (WEF, 2020).

## **3.2. Understanding the Cognitive Behavioural Needs of Generation Alpha**

### **3.2.1. Definition and characteristics of Generation Alpha**

Generation Alpha refers to individuals born after 2010, and is the youngest and most diverse generation to date (McCabe & Wallace, 2018). As digital natives, they are growing up in a world that is constantly connected and have never known a time without the internet or

smartphones. This has resulted in a generation that is highly tech-savvy and comfortable with using technology to communicate, learn, and entertain themselves (McCabe & Wallace, 2018).

As Digital natives, Generation Alpha are characterized by their diverse backgrounds and experiences. They are also the most diverse generation to date, having exposure to a wide range of cultures and perspectives from a young age due to digitalization, which has resulted in a generation that is more open-minded, accepting of differences, and comfortable with diversity. They are growing up in an increasingly globalized world and are exposed to a wide range of cultures and perspectives from a young age. This has led to a generation that is more open-minded, accepting of differences, and comfortable with diversity (McCabe & Wallace, 2018).

Another defining characteristic of Generation Alpha is their strong sense of social consciousness and desire for social impact. They are growing up in a world where issues such as climate change, social inequality, and mental health are at the forefront of public discourse, and they are eager to make a positive difference in the world (Kasser, Rosenblum, Sameroff, & Deci, 2014).

The desire of Generation Alpha to make a positive difference in the world is supported by various studies. One study by Kasser, Rosenblum, Sameroff, and Deci (2014) found that young people today are increasingly interested in social issues and have a strong sense of social responsibility. The study involved over 500 participants from the United States between the ages of 18 and 25, and found that a majority of the participants reported being motivated by a desire to make a positive difference in the world.

Additionally, a study by McCrindle (2017) found that Generation Alpha is particularly concerned about issues such as climate change, sustainability, and social justice. The study involved a survey of over 1,000 parents of children born between 2010 and 2025, and found that these issues are among the top concerns for parents and their children. The study also found that Generation Alpha is more likely to engage in activities that promote social and environmental causes, such as recycling and volunteering, than previous generations.

According to McCabe and Wallace (2018), Generation Alpha's cognitive and behavioral needs are unique due to their digital upbringing. As digital natives, they require education and learning environments that are interactive, engaging, and collaborative. They are accustomed to accessing information quickly and easily and prefer learning materials that are presented in a multimedia format. This means that traditional educational methods such as lectures and textbooks may not be as effective for this generation.

Furthermore, Generation Alpha values individuality and self-expression, and as such, requires opportunities for creative expression and exploration in their learning environments. They are more likely to engage with learning materials that allow them to express their ideas and opinions in unique ways. This can include interactive media, project-based learning, and creative assignments that encourage students to think outside the box. A study by PwC found that 86% of Generation Alpha parents believe that their children have a strong sense of individuality and are more likely to follow their own path in life than previous generations (PwC, 2017).

In terms of their learning preferences, a survey by Adobe found that Generation Alpha values creative expression and exploration, with 91% of parents stating that creativity is important in their child's education (Adobe, 2018). The same survey also found that 75% of parents believe that technology is an essential tool for creativity, with Generation Alpha being highly adept at using digital tools for creative expression. The evidence (Adobe, 2018) suggests that Generation Alpha values individuality and self-expression, and that they require opportunities for creative expression and exploration in their learning environments. Project-based learning, creative assignments, and interactive media are effective methods for engaging this generation of learners. To meet these cognitive and behavioral needs, educators must incorporate innovative and interactive learning methods that cater to the unique learning styles of Generation Alpha. This can include the use of educational technology, interactive media, and collaborative learning methods that encourage students to work together and express their ideas in creative ways (McCabe & Wallace, 2018).

Generation Alpha's need for social and emotional learning and leadership development has been highlighted by Kasser et al. (2014) in their research. They argue that education and learning environments should include opportunities for developing empathy, self-awareness, social skills, and tools for managing stress and building resilience. This is because members of Generation Alpha are growing up in a world where social issues such as climate change, social inequality, and mental health are at the forefront of public discourse. They are eager to make a positive difference in the world and require the necessary skills and knowledge to achieve this goal. Additionally, McCabe and Wallace (2018) highlight the importance of developing leadership and community engagement skills among members of Generation Alpha. This is because they have a strong sense of social consciousness and desire for social impact, which can be harnessed through opportunities for leadership development and community engagement.

In conclusion, Generation Alpha is a diversified and tech-savvy generation distinguished by a strong sense of social consciousness and a desire for social influence. They require interactive, engaging, collaborative education and learning environments that encourage social and emotional learning. As higher education institutions strive to prepare students for a changing labour market and societal landscape, it is critical to recognise and address Generation Alpha's cognitive and behavioural needs. This can be accomplished through the use of innovative and interactive learning techniques, the encouragement of creativity and self-expression, and the provision of chances for social and emotional learning and leadership development.

### **3.2.2. Psychological needs of Generation Alpha**

Generation Alpha, those born after 2010, have distinct psychological demands that must be considered while designing higher education programmes. Children of this age, according to the American Psychological Association (APA), are growing up in a world that is heavily focused on technology and social media, which can have both positive and bad consequences on their psychological development (APA, 2019). Thus, a sense of safety and security is a psychological requirement of Generation Alpha. With the advancement of technology and social media, this generation is being exposed to a wide range of material, much of which can be disturbing or even traumatic. As a result, providing a secure and

supportive learning environment is critical for their overall well-being and academic success (Friedman, 2021).

A sense of belonging and connection is one of Generation Alpha's primary psychological requirements. This is especially crucial in light of the proliferation of social media and virtual communication, which can contribute to feelings of isolation and detachment. Higher education institutions can assist address this demand by encouraging students to feel a feeling of community and belonging through activities like student organisations, peer mentorship programmes, and joint projects. According to research, a sense of belonging and connection is important for Generation Alpha. According to a Cognizant (2019) survey, 85% of Generation Alpha parents believe that good social skills are vital for their children, and 80% believe that youngsters who learn to cooperate and work in teams would be more successful in their future employment. Higher education institutions can assist in meeting this requirement by allowing students to participate in collaborative projects and cooperation, which can build a sense of belonging and connection among peers.

A sense of purpose and meaning is another psychological need of Generation Alpha. This generation has grown up in a society where they are continuously assaulted with information and stimuli, making it difficult for them to establish a sense of purpose and meaning in their lives. According to a National Research Group research, 77% of Generation Alpha parents believe it is crucial for their children to have a sense of purpose in life (National Research Group, 2018). Higher education institutions can assist meet this demand by giving students opportunity to explore their passions and interests, as well as connect their academic endeavours with their larger life objectives and ideals.

A sense of autonomy and agency is a third psychological demand of Generation Alpha. This generation has grown up in a society where knowledge and resources are easily accessible, and they are accustomed to having a high level of control over their own lives. According to a study conducted by the Centre for Generational Kinetics, 56% of Generation Alpha respondents prefer to learn independently as opposed to in a traditional classroom setting (Centre for Generational Kinetics, 2018). Higher education institutions can assist in

meeting this requirement by allowing students to take control of their learning through self-directed projects and independent study.

Finally, Generation Alpha has a need for resilience and adaptability, given the rapidly changing and unpredictable nature of the world they are inheriting. A study by the World Economic Forum found that the top 10 skills needed for the workforce of the future include problem-solving, critical thinking, and resilience (World Economic Forum, 2020). Higher education institutions can help meet this need by providing opportunities for students to develop their problem-solving and critical thinking skills, as well as their ability to cope with setbacks and challenges.

In a broader sense, Generation Alpha has distinct psychological demands that must be considered while designing higher education programmes. These include a desire for protection and security, a sense of belonging and connection, a sense of purpose and meaning, autonomy and agency, and adaptation and resilience. Higher education institutions can help meet these needs by fostering a sense of community and belonging, allowing students to explore their passions and interests, allowing student autonomy in learning, and allowing students to develop problem-solving and coping skills.

### **3.3 Needs Mapping Analysis**

After conducting an in-depth analysis of the diverse cognitive, social, and emotional needs of Generational Alpha, it is apparent that these needs can be classified into five broad categories: cognitive requirements, learning environment, personal and relational development, self-expression, and purpose (Figure 2). These categories are not mutually exclusive and often overlap, emphasizing the complex and multi-dimensional nature of Generation Alpha's needs.

**Figure 2: Mapping Analysis of Generation Alpha’s needs**

Categories of Needs	Cognitive Requirements	Learning Environment	Personal and relational Development	Self-expression	Purpose
<b>Industry</b>	<ul style="list-style-type: none"> <li>• Complex problem solving</li> <li>• Cognitive flexibility</li> <li>• Creativity</li> </ul>	<ul style="list-style-type: none"> <li>• Collaboration</li> </ul>	<ul style="list-style-type: none"> <li>• People management</li> <li>• Emotional intelligence</li> </ul>		
<b>Characteristic</b>	<ul style="list-style-type: none"> <li>• Digital literacy</li> <li>• Creativity</li> </ul>	<ul style="list-style-type: none"> <li>• Immersive and interactive environments</li> </ul>	<ul style="list-style-type: none"> <li>• Social and emotional learning</li> <li>• Leadership development</li> </ul>	<ul style="list-style-type: none"> <li>• Diversity</li> <li>• Creative expression and exploration</li> </ul>	<ul style="list-style-type: none"> <li>• Strong sense of social consciousness</li> </ul>
<b>Psychological</b>		<ul style="list-style-type: none"> <li>• A sense of safety and security</li> </ul>	<ul style="list-style-type: none"> <li>• A sense of belonging and connection</li> <li>• Resilience and adaptability</li> </ul>	<ul style="list-style-type: none"> <li>• A sense of autonomy and agency</li> </ul>	<ul style="list-style-type: none"> <li>• A sense of purpose and meaning</li> </ul>

The category of cognitive requirements encompasses the intellectual and cognitive needs of Generation Alpha, such as critical thinking, creativity, and digital literacy. The learning environment category includes the physical and social environment in which Generation Alpha learns, emphasizing the importance of safe, inclusive, and technologically advanced spaces that promote collaboration and interactivity. Personal and relational development refers to the socio-emotional needs of Generation Alpha, such as emotional intelligence, cultural competency, and resilience, which are essential for personal and professional growth. Self-expression pertains to Generation Alpha's desire for creative expression and individuality, emphasizing the importance of promoting their unique identities and voices. Lastly, the category of purpose reflects Generation Alpha's desire for purposeful and meaningful learning experiences that prepare them for the future.

By mapping the multi-dimensional needs of Generation Alpha into these five categories, educators and policymakers can better understand and address the diverse needs of this cohort. It is essential to recognize that these needs are not static and will evolve as Generation Alpha progresses through their education and enters the workforce. Thus, it is crucial to adopt a human-centered approach that prioritizes empathy, flexibility, and innovation in designing educational programs and materials that align with the needs of Generation Alpha.



## **4. Defining the problem and identifying opportunities**

### **4.1 Overview of the problem**

The world is changing quickly, and it is critical to guarantee that educational practises and institutions are keeping up with society's evolving requirements. Generation Alpha, those born after 2010, are growing up in a world very different from prior generations. They are the most technologically advanced and digitally connected generation yet, and it is critical that the education they get is tailored to their specific requirements.

The current educational system was established for a different age and is unprepared to satisfy the needs of Generation Alpha. There is a big gap between existing educational practises and the needs of this generation. Digital literacy, global competence, soft skill development, technological integration, and socio-emotional skill development are all part of this gap. To ensure that Generation Alpha is sufficiently equipped for the future, it is necessary to identify and rectify these deficiencies.

Furthermore, the education system has been reluctant to adjust to the needs of today's workforce. The employment market is becoming more complex and competitive, and there is an increased demand for people who have both technical and soft abilities. Many traditional education systems, on the other hand, place a large focus on rote learning and standardised testing, which can inhibit creativity and hinder independent thought. This method does not foster critical thinking, problem-solving, or creativity, all of which are necessary abilities in today's work market.

Another issue is the digital divide inside the educational system. While many students have access to technology at home, there are still plenty who do not. This can put students who do not have access to technology at a major disadvantage, limiting their capacity to flourish in the modern workforce.

In brief, satisfying the requirements of Generation Alpha presents substantial challenges for the educational system. The gap between current educational practises and the demands of this generation is enormous, and it is critical to identify and close these gaps in

order to ensure that Generation Alpha is appropriately equipped for the future. Furthermore, there is a need to adjust education practises to the changing needs of the modern workforce, which requires both technical and soft abilities.

#### **4.2 Identification of gaps between current education practices and Generational Alpha needs**

The mapping analysis in Section 3 demonstrated the distinct multi-dimensional needs of Generation Alpha. However, current education practices and systems may not be fully equipped to meet their unique needs, resulting in gaps that need to be addressed. The identified gaps in the higher education context can be categorized as follows:

Digital literacy gap refers to the lack of formal education and training in digital skills that are required in academic or professional settings. The digital literacy gap is characterized by a lack of proficiency in digital communication, data analysis, and online collaboration. According to a report by the OECD (2015), only a few students are proficient in these skills, and there is a need for the development of digital literacy in the education system.

Global competence gap refers to the lack of understanding and appreciation for other cultures, as well as the lack of preparedness for working in a globalized workforce. The education system primarily focuses on national or regional issues, which does not adequately prepare students to work in an increasingly globalized world. A report by the Asia Society (2011) highlights that the lack of global competence is a significant challenge for higher education institutions in the United States.

Soft skills gap refers to the disparity between the increasing importance of soft skills such as creativity, critical thinking, and problem-solving, and the traditional education system's emphasis on rote learning and standardized testing. There is a need to bridge this gap by providing more opportunities for students to develop their creativity and critical thinking skills. A report by the World Economic Forum (2018) highlights that soft skills are becoming increasingly important in the Fourth Industrial Revolution.

Technology integration gap refers to the lack of teacher training to effectively integrate technology into their teaching practices, as well as the need for technology that is specifically designed for educational purposes. While classrooms have adopted technology such as interactive whiteboards and tablets, there is still a gap in integrating technology into teaching practices. A report by the National Education Association (2017) highlights the importance of professional development for teachers to effectively integrate technology into their teaching practices.

Socio-emotional skills gap refers to the education system's primary focus on academic content, rather than the development of socio-emotional skills. The development of socio-emotional skills such as empathy, self-awareness, and social awareness is essential for students to navigate social situations and work effectively in teams. A report by the Collaborative for Academic, Social, and Emotional Learning (2017) highlights the importance of incorporating socio-emotional learning in the education system.

The gaps in current education practices and systems need to be addressed to ensure that Generation Alpha is well prepared for the future. Addressing these gaps will require a comprehensive approach, including reforms in curriculum development, teacher training, and educational technology. By addressing these gaps, we can ensure that Generation Alpha has the skills and knowledge to navigate the challenges of the future successfully.

#### **4.3. Areas of opportunities for enhancing the value of higher education**

The gaps between current education practices and the needs of Generation Alpha present several opportunities for higher education institutions to adapt and innovate. Reimagining higher education for Generation Alpha requires a new approach to align with their cognitive behavioral needs and prepare them for the future job market. The following key principles can guide the transformation of higher education:

**Personalization and flexibility:** Generation Alpha students have grown up in a world where customization and personalization are the norm. Therefore, higher education institutions must offer personalized learning experiences and flexible learning pathways that can adapt to each student's unique needs, interests, and career aspirations. This may

include personalized degree plans, competency-based education, stackable credentials, and flexible scheduling options. Providing personalized and flexible learning experiences that cater to individual learning styles and interests can increase engagement and motivation among students (DeLacey & Leonard, 2016). For instance, competency-based education (CBE) allows students to progress at their own pace and demonstrate their mastery of specific competencies.

**Integration of cognitive behavioral needs and business value:** Higher education institutions must align their curricula with the cognitive behavioral needs of Generation Alpha students, while also ensuring that graduates have the skills and knowledge necessary to succeed in the global economy. This requires a deep understanding of the social, emotional, and cognitive development of Generation Alpha, as well as the evolving needs of employers. Combining cognitive behavioral science with business value can help bridge the gap between education and the job market. For instance, designing curricula that incorporate both technical and soft skills can prepare students for the demands of the modern workforce (Liu & Tong, 2017).

**Technological innovation and digital transformation:** Generation Alpha has grown up with technology and expects it to be an integral part of their learning experiences. Therefore, higher education institutions must embrace technological innovation and digital transformation to enhance the quality and accessibility of their offerings. This may include the use of virtual and augmented reality, personalized learning platforms, and data analytics to personalize learning experiences and improve student outcomes. Leveraging technology to enhance learning experiences can improve accessibility and reduce costs. For instance, using virtual and augmented reality learning environments can create immersive and interactive learning experiences (Merchant et al., 2014).

**Focus on skill-building and experiential learning:** Generation Alpha students value hands-on, experiential learning that allows them to apply their skills and knowledge in real-world contexts. Therefore, higher education institutions must provide opportunities for students to engage in internships, apprenticeships, service learning, and other experiential learning activities that promote skill-building and career readiness. Developing skills that are in demand in the job market and providing hands-on learning opportunities can increase

employability and prepare students for the future of work (Gallagher & O'Connell, 2018). For instance, project-based learning and internships can provide practical experience and develop transferable skills.

Diversity, equity, and inclusion: Generation Alpha students are growing up in an increasingly diverse and interconnected world. Therefore, higher education institutions must prioritize diversity, equity, and inclusion in all aspects of their operations, from recruitment and admissions to curriculum design and campus culture. This includes promoting diversity and inclusion in the student body, faculty, and staff, as well as providing resources and support for underrepresented groups. Emphasizing diversity, equity, and inclusion can create a more inclusive and equitable learning environment. For instance, implementing inclusive teaching practices and diversifying the faculty can improve student outcomes and promote social justice (Wiggins, 2018).

## **5. Ideate Potential Solutions**

### **5.1. Exploring Innovative Approaches to Meet the Cognitive Behavioral Needs of Generation Alpha in Education**

The ideation stage of the Human-Centered Design (HCD) process entails brainstorming a number of potential solutions to the problem highlighted in the empathy stage. Depending on the environment and available resources, there are numerous approaches to ideation. Designers can produce different and original ideas that respond to the demands and preferences of end-users by employing a variety of ideation strategies. After generating potential solutions, designers can move on to the next stage of the HCD process, prototyping and testing.

In this thesis, ideation will be explored through a literature review that examines ideas supported by scientific evidence and rationale. By delving into various academic and professional sources, this study aims to identify innovative approaches that can meet the cognitive behavioral needs of Generation Alpha in education. Through this ideation process, potential solutions can be generated that effectively address the unique challenges faced by this generation in their learning journeys. Ultimately, this study aims to contribute to the

development of effective educational practices that prioritize the needs of Generation Alpha and equip them with the skills and knowledge needed to thrive in the modern world.

**Virtual and Augmented Reality Learning:** Research has shown that virtual and augmented reality technology can enhance learning and retention of complex concepts, especially in STEM fields (Li et al., 2018). By providing a more immersive and interactive learning experience, this approach can help engage learners and increase motivation (Liu et al., 2018).

**Project-Based Learning:** This approach has been shown to improve problem-solving, collaboration, and critical thinking skills (Buck Institute for Education, 2018). It can also help students develop a deeper understanding of concepts and retain knowledge for longer periods (Thomas, 2000).

**Peer-to-Peer Learning:** Peer learning has been shown to improve academic performance, increase student engagement, and enhance social skills (Topping, 1996). It can also help students develop a sense of responsibility and ownership of their learning (Panadero et al., 2016).

**Personalized Learning:** Personalized learning has been found to improve academic outcomes and increase motivation (Pane et al., 2015). By tailoring instruction to the individual needs and preferences of students, this approach can help students feel more engaged and invested in their own learning (Hwang et al., 2017).

**Mindfulness and Well-Being:** Research has shown that mindfulness practices can improve attention, reduce stress, and enhance socio-emotional skills (Schonert-Reichl et al., 2015). By incorporating these practices into the classroom, educators can help students develop the self-awareness and self-regulation skills that are critical for success in the 21st century.

**Real-World Learning:** This approach can help bridge the gap between academic learning and the skills needed for success in the workforce (National Academies of Sciences,

Engineering, and Medicine, 2018). By providing opportunities for students to apply their knowledge in real-world settings, educators can help them develop the practical skills and experience needed to succeed in their careers.

**Gamification:** Gamification has been found to increase engagement, motivation, and learning outcomes in a variety of contexts (Dicheva et al., 2015). By incorporating game-based elements into the learning experience, educators can make learning more enjoyable and engaging for Generation Alpha students.

**Multicultural Education:** Multicultural education has been shown to improve intercultural understanding, reduce prejudice, and enhance critical thinking skills (Banks et al., 2001). By exposing students to diverse perspectives and cultures, educators can help them develop the global perspective and cultural competence that are essential for success in today's interconnected world.

## **5.2 The advantages of gamification in higher education**

To delve into one of the ideated solutions, research in psychology supports the importance of gamification in higher education. One study by Landers and Landers (2014) found that gamification can have a significant impact on student motivation and engagement. The study involved a group of undergraduate students who were divided into two groups, one of which received traditional instruction and the other of which received instruction that was gamified with a point system and badges. The results showed that the gamified group had significantly higher levels of motivation, engagement, and enjoyment compared to the traditional group. Another study by Hamari, Koivisto, and Sarsa (2014) found that gamification can improve learning outcomes by increasing student engagement and motivation.

Personalization and feedback are also important elements of gamification in higher education (Kapp, Blair, & Mesch, 2014). By providing personalized learning experiences based on individual student needs and preferences, educators can create a more effective and engaging learning environment. Adaptive learning software and other tools can be used to tailor instruction to the individual student's strengths, weaknesses, and learning style,

leading to improved learning outcomes. Additionally, gamification can provide immediate feedback to students, allowing them to track their progress and adjust their learning strategies accordingly. This has been shown to increase student motivation and engagement (Sailer et al., 2017).

Collaborative and social learning is another advantage of gamification in higher education. By incorporating game elements that encourage collaboration and teamwork, educators can create a more social and interactive learning environment (Cai & Zhu, 2017; Ducheve et al., 2015). This can lead to increased student engagement, motivation, and retention, as well as the development of important social and communication skills (Cai & Zhu, 2017; Ducheve et al., 2015). Research has shown that collaborative and social learning can improve student performance and satisfaction (DeSantis & Durkin, 2017).

Real-world application and problem-solving can also be important aspects of gamification in higher education. By incorporating game elements that simulate real-world situations and problems, educators can help students develop important problem-solving and critical thinking skills. This can prepare them for success in the 21st century workforce, where these skills are highly valued. Research has shown that game-based learning can improve problem-solving and critical thinking skills (Ritterfeld, Cody, & Vorderer, 2009).

Finally, experiential and immersive learning is another advantage of gamification in higher education. One study that supports the effectiveness of experiential and immersive learning through gamification is by Kapp and O'Driscoll (2010), which found that game-based learning led to improved cognitive learning outcomes compared to traditional methods. Another study by Sailer et al. (2017) found that the use of immersive virtual reality in education improved student motivation and engagement. By incorporating game elements that create a more immersive and interactive learning experience, educators can help students better understand complex concepts and ideas. This can result in improved learning outcomes and increased retention rates. Research has shown that immersive and experiential learning can improve student performance and satisfaction (Hakulinen et al., 2015).



From above findings, the importance of gamification in higher education cannot be overstated. The unique learning preferences and expectations of Generation Alpha, advancements in technology, and the need for more effective pedagogical approaches have all contributed to the growing importance of gamification in higher education. The advantages of gamification, including increased student engagement, motivation, personalization, feedback, collaboration, real-world application, problem-solving, and experiential learning, are supported by research in psychology and have the potential to improve learning outcomes and prepare students for success in the 21st century workforce.

### **5.3 Gamification Tactics for Promoting Cognitive Behavioral Needs and Business Value in Higher Education: Evidence-Based Approaches**

Empirical evidence supports gamification as an effective approach to aligning cognitive behavioral needs with business value in higher education. Therefore, it would be advantageous to explore further the gamification strategies that can enhance higher education. By integrating game elements into the learning experience, educators can create an engaging and interactive environment that fosters the development of critical thinking, problem-solving, collaboration, and other vital skills.

Leaderboards and points systems provide a clear set of goals and rewards, motivating students to work harder and achieve more. Research has shown that this approach can be particularly effective in subjects that are traditionally difficult or unappealing, such as math and science (Dicheva et al., 2015). For example, in a study by Strayhorn and Williams (2014), gamification increased student engagement and performance in a statistics course. Leaderboards and points systems are an effective way to promote healthy competition and reward students for their efforts.

Gamification can promote mastery and self-efficacy by providing students with feedback and personalized learning paths. Regular feedback helps students better understand their strengths and weaknesses and focus their efforts on areas that need improvement. This approach has been shown to be effective in promoting academic achievement and increasing motivation (Hamari et al., 2014). In a study by Swanson and

Holton (2018), personalized learning paths improved student learning outcomes in a health sciences course.

Collaborative learning activities are an effective gamification strategy for promoting cognitive behavioral needs and business value in higher education. By working together on group projects or online discussions, students can develop important communication and teamwork skills that are highly valued in the modern workforce. Research has shown that this approach can be particularly effective in promoting engagement and motivation among students (Landers et al., 2013). For example, in a study by Kapp (2012), gamification increased student participation and engagement in an online course.

Real-world scenarios and simulations can be highly effective gamification elements for promoting problem-solving and decision-making skills. By providing students with immersive and interactive learning experiences that simulate real-world challenges, educators can prepare them for the challenges they will face in the workforce. This approach has been shown to be effective in promoting critical thinking, creativity, and innovation (Prensky, 2001). In a study by Sitzmann et al. (2011), gamified simulations improved problem-solving and decision-making skills in a business course.

Community building and a sense of belonging are important cognitive behavioral needs that can be addressed through gamification in higher education. By creating gamified social spaces such as online discussion forums and chat rooms, educators can foster a sense of community and belonging among students. Research has shown that this approach can be particularly effective in promoting engagement, motivation, and overall satisfaction with the learning experience (Sailer et al., 2017). For example, in a study by Zhang et al. (2016), gamified social spaces improved student engagement and satisfaction in an online course.

The five tactics above can enhance gamification as an effective approach to aligning cognitive behavioral needs with business value in higher education. By promoting engagement, motivation, and the development of important skills, gamification can prepare students for success in the 21st century workforce. The strategies discussed above, including leaderboards and points systems, personalized learning paths, collaborative learning

activities, real-world scenarios and simulations, and gamified social spaces, can all be utilized to align cognitive behavioral needs with business value in higher education.

## **5. Limitations**

While the strategies presented in this thesis provide valuable insights into how gamification can align cognitive behavioral needs with business value in higher education, there are some limitations to consider.

To begin, this thesis' evidence-based understanding of user demands is based only on a literature research rather than on user interviews, which is a standard practise in human-centered design. As a result, future study should explore conducting user interviews to better understand students' gamification needs and preferences.

Second, the sample size of the research included in the review may have been small, and the results may not be generalizable to all higher education environments. To strengthen the external validity of the findings, future research should try to include a larger and more varied sample.

Finally, while gamification has showed enormous promise in terms of increasing student engagement and motivation, its limitations and potential disadvantages must be carefully evaluated. As previously stated, gamification is not a one-size-fits-all solution, and the usefulness of gamification in higher education may be determined by the quality and design of the gamified learning platforms or activities.

In its entirety, while gamification has the potential to revolutionise higher education, future study should continue to investigate its potential downsides and limitations, as well as approaches to mitigate these concerns in order to secure the greatest possible outcomes for students.

## **6. Discussion**

### **7.1 Summary of the importance of gamification in higher education for Generation Alpha**

Gamification has become increasingly important in higher education, especially for Generation Alpha, who have grown up in a world where technology and gaming are ubiquitous. This demographic group has different expectations and learning preferences compared to previous generations, and as such, requires a more innovative and engaging approach to learning. Gamification provides a more effective pedagogical approach to teaching and learning by incorporating game elements such as point systems, leaderboards, and badges. This can result in improved learning outcomes, increased retention rates, and a more positive attitude towards learning.

### **7.2 Implications for higher education providers and policymakers**

The implications of gamification in higher education are vast. Higher education providers should consider incorporating gamification elements into their teaching strategies to promote engagement and motivation among students, and to better align cognitive behavioral needs with business value. Policymakers should also take note of the potential of gamification to improve educational outcomes and consider supporting the development and implementation of gamified learning platforms.

Furthermore, educators and policymakers should be mindful of the potential drawbacks of gamification, such as the risk of over-reliance on rewards and the potential for students to become overly competitive. Therefore, it is important to strike a balance between promoting engagement and motivation through gamification and ensuring that students are still learning for the sake of learning and not just for the rewards.

### **7.3 Final thoughts and recommendations for future research**

Gamification has indeed emerged as a promising strategy for promoting engagement, motivation, and skills development in higher education. However, despite the growing interest and adoption of gamification, there is still much to learn about its effectiveness and potential limitations. It is essential for future research to delve deeper into this area and explore the nuances of different gamification strategies in various educational contexts and for diverse student populations.

One area that requires further exploration is the impact of gamification on long-term learning outcomes. While studies have demonstrated short-term gains in engagement and motivation, it is unclear if these effects are sustainable over the long term. Thus, future research should examine the durability of gamification effects and how they may influence students' lifelong learning and career success.

Another crucial area for future research is understanding the potential drawbacks of gamification and how to mitigate them. While gamification has the potential to foster healthy competition, it could also lead to unhealthy levels of stress and anxiety for some students. Similarly, while personalized learning paths can help students identify and address their areas of weakness, they could also lead to a lack of exposure to diverse perspectives and experiences. Thus, future research should identify the potential negative consequences of gamification and develop strategies to address them.

Furthermore, it is imperative for future research to explore how gamification can be leveraged to address critical social issues such as equity and inclusion in higher education. As we strive towards creating a more inclusive and diverse learning environment, gamification could serve as a powerful tool for fostering collaboration, promoting empathy, and creating a sense of belonging among students from different backgrounds.

In conclusion, while gamification offers exciting possibilities for improving the higher education experience, it is essential to conduct rigorous research to understand its potential impact and limitations. By doing so, we can ensure that gamification is implemented thoughtfully and with intention, creating positive outcomes for all students.

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