

## Chapter 10

# Creating Classroom Learning Environments Favorable to 21st Century Learners Using Integration of Artificial Intelligence and Gamification

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### **ABSTRACT**

*In the pre-pandemic times, the educational community's reluctance in adopting computers in the classroom hampered the ed-tech gathering data for building the artificial intelligence (AI) system. But Covid-19 gave a vision by playing the role as an accelerator for change. During the pandemic, the educational community stepped out from their dogma of teaching without technology. Data was thus gathered by the various ed-tech companies, and this data helped in coming up with many game-changing options for education.*

*Our intelligence is what makes us human, and AI is the extension of that quality.*

*-Yann LeCun*

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## INTRODUCTION

Many studies show that the present generation of learners, who are digital natives, would find it easier to learn if technology is adopted in the classrooms. However, the teachers, who are from the generation of digital immigrants, continue to teach the way they had been taught and do not integrate technology. It is the need of the hour that today's teachers should develop online teaching skills and integrate technology into their teaching.

Secondly, as engagement crises of learners is a major challenge facing every classroom it would be interesting to investigate various designs which would overcome these challenges so that students can be in a 'state of flow' and fully engaged and immersed in the classroom activities (Bittencourt et al., 2008). From e-commerce to education, technology holds the power to engage oneself. It has been shown through innumerable studies that the use of gamification in the learning process promoted student engagement, increased their attention span, and led the students into a 'state of flow'. Pappas (2016) has enlisted four key components to achieve the state of flow they are 1. **Control** to set their own performance goals, 2. **Attention** for active participation, 3. **Intrinsic interest** and 4. **Curiosity** to encourage flow. These four components can be achieved using gamification. Gamification helps students take ownership of their learning as well as promotes autonomous learning. The gamification process allows performance analysis by helping identify the weak links in a student's learning, leading them to design their individualized study plans. Thus the classroom will become more student-centered. However, digital transformation demands new skills. The World Economic Forum (2016) identified sixteen skills, referred to as twenty-first-century skills necessary for the future workforce. It can be said that AI will play a very important role in how we teach and learn these new skills (Hiran and Henten, 2020).

In the pre-pandemic times, the educational community's reluctance in adopting computers in the classroom hampered the ed-tech gathering data for building the Artificial Intelligence (AI) system. But Covid-19 gave a vision by playing the role of an accelerator for change. During the pandemic educational community stepped out from its dogma of teaching without technology. Data was thus gathered by the various ed-tech companies and this data helped come up with many game-changing options for education.

*Shock to the System: Lessons Learned from Covid-19* (Cambridge University Press and Educate Ventures, 2021) study reported that this data generated is stored electronically; many programs already exist and more are being developed to harness the power of artificial intelligence.

Though gamified tools in the classroom provide teachers with a lot of data, the scope of personalized learning is limited to the adoption of the strategies by the individual student or teacher. However, if artificial intelligence (AI) is integrated with gamification, the scope of personalized learning can be highly enhanced. Bittencourt et al. (n.d.) found AI techniques support personalized learning experiences where students can work mediated by technology and learn more effectively. Thus, the integration of gamification with Artificial Intelligence, will provide the supplementary effect and mitigate the challenges of each other and make learning a more personalized and fun-filled process. According to Koravuna & Surepally (2020) AI involving gamification would be an add-on that would lead to better user engagement and would encourage them to be continuous learners, it will also convert the conventional classroom experience into a competitive multiplayer gaming and learning platform.

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