

# “Artificial Intelligence, Digital Platforms, and the Future of Training and Development in Bangladesh”

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## ABSTRACT

Bangladesh's training and development scene has changed as a result of technology-driven learning, particularly in light of the country's expanding workforce development needs. Training delivery is changing due to technologies like gamification, learning management systems (LMS), augmented reality (AR), virtual reality (VR), machine learning (ML), artificial intelligence (AI), and mobile-based learning. VR and AR provide immersive, risk-free settings for hands-on learning, especially in industries like healthcare and manufacturing, while AI and ML provide personalized learning, predictive analytics, and real-time feedback through chat-bots and virtual tutors. In order to manage remote learning and provide scalable training, LMS systems are now necessary. Micro-learning, made possible by mobile devices, enables flexible, on-the-go learning, while gamification increases student motivation and engagement. But despite these developments, obstacles including low levels of digital literacy, inadequate infrastructure, and expensive implementation costs prevent these technologies from being widely used. The study examines the advantages and disadvantages of technology-driven training in Bangladesh using secondary sources, such as government publications and industry reports. In order to close these gaps, it also offers suggestions for enhancing the usability and effectiveness of digital learning resources, highlighting the necessity of cooperation between the public sector, private sector, and academic institutions. By utilizing state-of-the-art training technology, the research seeks to offer insights that can aid in the development of a competitive, future-ready workforce in Bangladesh.

## INTRODUCTION

Training and development are being revolutionized by technology-driven learning, which uses gamification, learning management systems (LMS), virtual reality (VR), and artificial intelligence (AI) to provide interactive and scalable solutions. Digital learning technologies are becoming crucial for workforce development in Bangladesh, where industries are confronted with skill gaps and antiquated training techniques. To improve training efficacy, corporate sector investments and government programs under "Digital Bangladesh" are speeding up the implementation of AI-powered platforms, virtual reality simulations, and mobile learning apps. But despite these developments, obstacles including gaps in digital literacy, high implementation costs, and limits in digital infrastructure prevent widespread use. Due to budgetary limitations and reluctance to adapt, many organizations find it difficult to integrate new technologies; therefore, cooperation between legislators, educators, and business executives is necessary to guarantee long-term adoption. The influence, advantages, and difficulties of technology-driven learning are examined in this study as it relates to Bangladesh. The study offers a thorough grasp of how emerging technologies are changing professional training by utilizing secondary data from government publications, industry case studies, and scholarly literature. In order to maximize digital learning for skill development, it also looks at upcoming trends and policy recommendations. This study adds to the conversation on digital transformation in training by bridging the gap between workforce education and technology. The results will help Bangladesh use the promise of cutting-edge training technology to develop a competitive, future-ready workforce by providing insights for researchers, educators, business executives, and policymakers.

## LITERATURE REVIEW

Especially in developing nations like Bangladesh, the use of cutting-edge technologies into training and development is revolutionizing how businesses teach staff and give students the skills they need. The field of workforce education is changing due to the usage of cutting-edge technology including mobile learning, learning management systems (LMS), augmented reality (AR), virtual reality (VR), and artificial intelligence (AI). This change is not without its difficulties, though, and there are particular opportunities and difficulties when using new technologies in Bangladesh. In order to improve individualized learning experiences and streamline learning procedures, artificial intelligence (AI) has become a vital tool. Real-time feedback, individualized learning route recommendations, and learner behavior analysis are all possible with AI-powered systems (Woolf, 2020). A number of businesses and educational institutions in Bangladesh have started implementing AI to improve training results and automate learning procedures. Although AI technologies are still in their infancy in Bangladesh, there is significant interest in using them for educational purposes, especially to enhance the development of technical skills (Karim and Hossain, 2020). The provision of online and mixed learning environments now heavily relies on learning management systems, or LMS. According to a study by Hossain and Khan (2021), Bangladeshi universities and training facilities frequently employ learning management system (LMS) platforms like Moodle and Blackboard to oversee classes, monitor student progress, and promote online cooperation. Despite the positive reception of these platforms, problems like the digital divide and poor internet connectivity still exist. Furthermore, user training and instructional content design play a major role in how effective LMSs are in Bangladesh (Rahman & Ali, 2019). It is commonly acknowledged that blended learning, which blends online and traditional classroom instruction, is a successful strategy for upgrading education in Bangladesh. According to a study by Rahman and Rahman (2020), blended learning techniques are being used more and more by Bangladeshi institutions, especially those in the public sector, to increase educational access and deal with budget limitations. Online learning systems like Shikkhok.com and 10 Minute School are becoming more and more popular in addition to traditional classroom instruction since they make educational content easily accessible to a larger audience. Particularly for young adults in rural regions, this trend is promoting skill development and vocational training (Hasan et al., 2018). Virtual reality (VR) and augmented reality (AR) are increasingly being used in training and development in Bangladesh, particularly in industrial skills development, healthcare education, and technical training. VR and AR technology replicate real-world settings, providing hands-on experience in a secure, regulated environment. For instance, surgical methods were taught using VR simulations in Bangladeshi medical institutions, allowing students to practice in a risk-free setting. AR is also used in technical sectors to enhance experiential learning in industries like engineering and manufacturing (Sarker & Islam, 2021). Gamification is a strategy that combines game mechanics and design elements into non-gaming training scenarios. In Bangladesh, corporate training programs and e-learning platforms have used gamification to boost student engagement and retention. Research by Ali and Farhana (2021) shows that adding gamified components like leader boards, badges, and rewards significantly increases motivation. However, achieving widespread use in Bangladesh requires resolving content translation issues and ensuring game features are relevant to learning objectives. In Bangladesh, mobile learning has emerged as a crucial means of providing training materials due to the sharp rise in smart phone usage. Additionally, micro learning—the delivery of material in manageable, bite-sized modules—has grown in popularity. Platforms like 10 Minute School make learning flexible and adaptive to the demands of students and working professionals by offering brief, mobile-accessible sessions. Mobile-based learning systems, which give students access to educational information whenever they choose, have proven very successful for skill development in both urban and rural populations, according to a research by Rahman et al. (2022). Nonetheless, there are still issues with mobile data cost and the requirement for improved content customization to meet a range of learning requirements (Sayeed & Rahman, 2020). The extensive use of cutting-edge training technologies in Bangladesh is hampered by a number of obstacles, despite the rising interest in and acceptance of technology-driven learning. Significant barriers still exist, especially in underprivileged and rural regions, due to a lack of digital literacy, limited digital infrastructure, and poor internet access (Islam & Hossain, 2020). According to Chowdhury et al. (2019), there is still a gap between urban and rural areas even if the government's "Digital Bangladesh" strategy has improved internet connectivity in urban areas. Furthermore, a significant obstacle still exists in the high expense of integrating these technologies in businesses and educational institutions (Karim & Hossain, 2020). Bangladesh's skill gap might be filled and the workforce could be ready for the needs of the digital economy if technology is included into training and development. The government's emphasis on enhancing ICT

infrastructure and promoting digital literacy initiatives is anticipated to propel the use of cutting-edge training technologies in the future, claim Ahmed and Sultana (2021). Additionally, expanding international cooperation and public-private partnerships will be essential to improving these technologies' long-term cost and accessibility (Hossain & Rahman, 2021).

## METHODOLOGY

Using a secondary data method, this study examines how sophisticated technologies are used in training and development in Bangladesh. Sources of the data used in this research include government records, industry white papers, academic journals, and case studies from Bangladeshi organizations, among other reliable sources. A worldwide viewpoint on the subject is also offered by reports from international organizations like the World Bank and the International Labour Organization (ILO). By combining and evaluating this wide variety of information, the research seeks to pinpoint important patterns, obstacles, and the general efficacy of technology-driven training programs in Bangladesh. This method assures an extensive knowledge of the nation's present level of workforce development technology integration and identifies the elements affecting its success or limitations.

### Analysis

Advanced technologies have significantly transformed Bangladesh's training and development landscape. Artificial Intelligence and Machine Learning are enhancing personalized learning through chat bots and virtual tutors, while Virtual Reality and Augmented Reality are gaining traction in industries like healthcare and manufacturing. Learning Management Systems (LMS) facilitate remote learning and course management, while gamification increases engagement and motivation. Micro-learning and Mobile-Based Learning are becoming essential tools for training, making it more flexible and accessible. These technologies are contributing to the country's evolving educational and workforce development landscape, transforming the way training is delivered and received.

#### 1. Artificial Intelligence (AI) and Machine Learning (ML):

Artificial Intelligence (AI) and Machine Learning (ML) are becoming increasingly integrated into training programs in Bangladesh. These technologies support personalized learning experiences, predictive analytics, and automated assessments that improve student and staff development. AI-driven chat bots and virtual tutors offer ongoing learner support and real-time feedback, boosting motivation and facilitating efficient progress tracking. Because these systems can tailor learning modules to each learner's needs and performance patterns, they are especially useful in businesses that demand ongoing skill development. By determining learners' strengths and weaknesses and modifying educational content accordingly, AI and ML also aid in the creation of adaptive learning systems. The growing relevance of automated and adaptive evaluation systems in corporate training environments is exemplified by platforms like XpertHR and Mindvalley. Similar to this, educational institutions are using AI-driven intelligent content systems that improve engagement and knowledge retention by dynamically responding to learner inputs. AI has the ability to significantly transform training and development programs, even though its use in Bangladesh is still in its early stages (Holmes et al., 2019; Luckin et al., 2016; Karim & Islam, 2023).

#### 2. Virtual Reality (VR) and Augmented Reality (AR):

In Bangladesh, augmented reality (AR) and virtual reality (VR) are becoming increasingly popular, particularly in the fields of industrial training, healthcare, and technical education. Virtual reality (VR) gives students the opportunity to immerse themselves in risk-free, virtual worlds that mimic real-world situations, offering invaluable hands-on experience without the hazards involved. With a virtual reality system, workers in sectors like manufacturing may practice operating intricate machinery or working in dangerous conditions, greatly lowering the risk of accidents. Virtual reality (VR) is also beneficial to medical education in Bangladesh, since it allows trainees to hone their abilities in a simulated environment before interacting with real patients. However, AR improves learning by superimposing digital data, such instructions or diagrams, on top of actual surroundings. This technology helps build practical skills, especially in fields like engineering, where AR may

help trainees navigate challenging tasks by adding contextual information to their surroundings. Even though VR and AR technologies are still developing in Bangladesh, the growing popularity of these immersive resources signifies a dramatic change in the way technical instruction is provided.

### **3. Learning Management Systems (LMS):**

In Bangladesh, learning management systems, or LMS, are becoming an essential part of training and development. Universities, businesses, and government programs all make extensive use of these cloud-based platforms to monitor student progress, expedite course administration, and support distance learning. With the help of LMS systems, teachers may effectively deliver information, monitor student progress, and engage students with interactive modules and tests. Famous instances of online training systems that serve a broad spectrum of learners across different industries include "Muktopaath," a government project in Bangladesh, and "Shikkhok.com," a private e-learning portal. Employees who work in remote locations or who are unable to attend in-person training because of time or location restrictions can especially benefit from these platforms. Additionally, because LMS systems can handle many students at once, they provide scalable training, guaranteeing that corporate training initiatives and educational programs are available to a wider audience. LMS's data-driven methodology also offers insightful information about learner behavior, which aids firms in improving their training strategies for optimal efficacy.

### **4. Gamification in Training:**

In Bangladesh, gamification is gaining popularity as a way to improve training programs, especially in corporate and online learning settings. To encourage a sense of rivalry, motivation, and engagement, this method incorporates game elements—such as leader boards, points, and rewards—into training procedures. Gamification promotes individuals to stick with their training goals by making learning more engaging and enjoyable. To improve employee learning, increase engagement, and guarantee information retention, a number of businesses in Bangladesh are implementing gamified training systems. To develop more effective and interesting learning environments, organizations such as "Brac University" have included gamification components into their corporate training programs. Additionally, gamification is being used by educational institutions to increase student engagement, particularly in online learning environments. Because employees and students are more motivated when they receive recognition for their accomplishments and growth, the findings have demonstrated increased learner engagement. To guarantee that they satisfy the unique requirements of many learners and are in line with educational goals, gamified systems still require improvement in their design.

### **5. Micro-learning and Mobile-Based Learning:**

Mobile-based learning and micro-learning approaches have become increasingly popular in Bangladesh as a result of the country's growing smart phone penetration rate. Mobile learning is a vital tool for learning while on the go because it provides the flexibility that employees and students need to access educational information at any time and from any location. In addition to mobile learning, micro-learning which entails presenting knowledge in manageable chunks allows students to participate in quick classes while going about their everyday lives. Platforms such as "10 Minute School" and "Bondi-Pathsala" etc provide micro-learning experiences that are suitable for a broad range of learners, including students pursuing academic knowledge and professionals looking to enhance their abilities. Micro-learning is especially helpful in Bangladesh's fast-paced, technologically advanced environment, where traditional, lengthier training programs are sometimes limited by time and budget restrictions. Because these platforms offer easily accessible, bite-sized material that appeal to learners with limited time, they have successfully closed the educational gap. Additionally, by ensuring that people in remote locations can still access high-quality educational materials, mobile-based learning helps the nation's human capital to increase overall.

These technologies are revolutionizing Bangladesh's training and development environment by providing creative answers to the nation's workforce and educational issues and encouraging skill development in a range of industries.

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## Findings:

1. **Personalized Learning:** In Bangladesh, AI and ML technologies are greatly improving customized learning by offering predictive analytics and automated assessments that take into account each learner's unique requirements and development.
2. **Real-Time Feedback:** Chat-bots and virtual instructors driven by AI are efficiently providing real-time feedback, keeping staff and students involved, and monitoring their progress, all of which increase motivation and memory retention.
3. **Immersive Learning:** Industrial, technical, and healthcare training are being revolutionized by virtual reality (VR) and augmented reality (AR), which offer risk-free, immersive environments that replicate real-world situations and drastically lower training-related hazards.
4. **Remote Learning Support:** Organizations and educational institutions may now provide scalable, interactive, and data-driven training programs thanks to Learning administration Systems (LMS), which facilitate remote learning and course administration.
5. **Increased Engagement:** By including game features like leader boards, points, and incentives, gamification is proven to be an excellent way to increase motivation and participation in training programs, especially in corporate settings and online learning environments.
6. **Accessibility of Training:** Because smart phones are so widely used in Bangladesh, micro-learning and mobile-based learning are becoming indispensable. These methods provide flexible, on-the-go teaching options that are particularly helpful for students in distant locations.
7. **Scalability and Flexibility:** Scalable and adaptable training is made possible by LMS systems, which provide businesses the ability to reach a bigger audience and teach distant workers or students, increasing accessibility and participation.

## RECOMMENDATIONS

1. **Promote AI Adoption:** Businesses and academic institutions should keep researching and funding AI and ML technologies to improve learning outcomes, automate evaluations, and increase personalized learning.
2. **Expand VR and AR Use:** In industries like healthcare and manufacturing, VR and AR should be used more extensively to offer hands-on training in a safe, regulated setting.
3. **Integrate Gamification into More Sectors:** Gamification should be used into training programs by more companies and educational institutions to improve student engagement and retention, especially in corporate and e-learning settings.
4. **Invest in Scalable LMS:** Strong LMS systems that can develop with the increasing demand for digital and remote learning should be purchased by the public and commercial sectors to guarantee training accessibility for a wider variety of students.
5. **Enhance Micro-learning Content:** Organizations have to provide more micro-learning materials that complement students' everyday schedules and offer useful, bite-sized information.
6. **Improve Mobile Learning Infrastructure:** Better infrastructure and content creation are required as mobile-based learning expands to guarantee that all students, particularly those in remote locations, have access to high-quality course materials.
7. **Focus on Skill Development for Remote Learners:** Both the public and commercial sectors should concentrate on developing training programs that are easily accessible, reasonably priced, and efficient for those living in distant areas so that technology improvements may benefit a larger population.

8. Continuous Evaluation and Feedback: Organizations must use AI and LMS to develop continuous assessment systems in order to collect real-time feedback and modify training approaches in response to learners' changing demands.

## CONCLUSION

Training and development in Bangladesh is undergoing a change thanks to the incorporation of cutting-edge technologies like artificial intelligence (AI), virtual reality (VR), augmented reality (AR), gamification, and mobile-based learning. By providing individualized, captivating, and immersive learning experiences, these technologies increase the effectiveness and accessibility of skill development. While VR and AR offer safe, practical training environments, especially in high-risk industries like manufacturing and healthcare, AI and ML are improving customized learning, enabling real-time feedback, and tailoring training to individual requirements. Geographical constraints to education are being overcome by LMS systems, which enable scalable and interactive learning. Additionally, micro-learning is meeting the demands of students and working professionals with flexible learning forms, and gamification is shown efficacy in increasing learner engagement. Even with these encouraging advancements, there are still major obstacles. Significant barriers include the digital divide, especially in rural regions, poor internet access, and the high implementation costs of new technologies. To guarantee that mobile-based and micro-learning platforms can be utilized efficiently throughout the country, more efficient content creation and infrastructure upgrades are also required. To guarantee the broad use of these technologies in the future, legislators, academic institutions, and corporations must work together. Bangladesh can fully realize the benefits of digital learning, improve worker competencies, and spur economic growth in the digital era by tackling these obstacles.

## REFERENCES

1. Ahmed, M., & Rahman, R. (2022). The role of Learning Management Systems in Bangladesh's education system. *Journal of Educational Technology and Innovation*, 10(2), 45–58.
2. Ahmed, N., & Sultana, N. (2021). Bridging the skills gap in Bangladesh through technology-driven education. *Asian Journal of Educational Technology*, 8(3), 45–60.
3. Akter, N., & Islam, R. (2018). Digital education and the skills gap in Bangladesh: The role of technology. *Journal of Skills Development*, 22(5), 104–112.
4. Alam, M., & Rahman, K. (2017). E-learning in Bangladesh: Overcoming barriers to the adoption of technology in education. *Journal of Educational Technology & Society*, 20(4), 139–150.
5. Ali, A., & Farhana, S. (2021). Gamification in corporate training: A case study of Bangladesh. *International Journal of Business and Management*, 16(2), 78–89.
6. Bates, A. W. (2022). *Teaching in a digital age* (3rd ed.). Tony Bates Associates Ltd.
7. Begum, A., Rahman, M., & Hasan, K. (2020). Application of virtual reality in medical education: A study on Bangladeshi medical colleges. *Bangladesh Medical Education Journal*, 6(1), 22–30.
8. Bishop, C. M. (2006). *Pattern recognition and machine learning*. Springer.
9. Biwas T. K. et al (2025). From Policy to Practice: Implementing High-Performance HRM at Gaotek Inc. *International Journal of Research and Innovation in Social Science (IJRISS)*, IX(VI), 1353-1358.
10. Chowdhury, M., & Hossain, S. (2018). Technology-enabled learning in Bangladesh: Examining challenges and opportunities. *Asian Journal of Educational Technology*, 9(3), 212–224.
11. Chowdhury, S., & Alam, K. (2019). Digital infrastructure and educational equity: The case of Bangladesh. *Asian Education Development Journal*, 14(4), 220–235.
12. Chowdhury S. et al (2024). Employee Relations Practices in Bangladesh (private sector). *International Journal of Research and Innovation in Social Science (IJRISS)*, VIII(IX), 871-879
13. Clark, R. C., & Mayer, R. E. (2023). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning* (5th ed.). Wiley.
14. Craig, A. B. (2013). *Understanding augmented reality: Concepts and applications*. Morgan Kaufmann.
15. Géron, A. (2022). *Hands-on machine learning with Scikit-Learn, Keras, and TensorFlow* (3rd ed.). O'Reilly Media.
16. Hasan, M., Ali, F., & Rahman, A. (2018). The role of online education platforms in improving vocational skills in Bangladesh. *Journal of Vocational Education and Training*, 70(2), 223–240.

17. Horton, W. (2012). *E-learning by design* (2nd ed.). Wiley.
18. Hossain, K., & Alam, F. (2020). The digital divide in Bangladesh: Implications for e-learning. *Journal of Information and Learning Science*, 41(2), 98–110.
19. Hossain, M., & Rahman, A. (2021). The future of Learning Management Systems in Bangladesh. *Journal of Educational Technology*, 15(4), 98–112.
20. Hossain, S., & Khan, M. (2021). E-learning adoption in Bangladesh: Challenges and opportunities. *International Journal of Education and Development*, 10(1), 15–27.
21. Hug, T. (Ed.). (2007). *Didactics of microlearning: Concepts, discourses and examples*. Waxmann.
22. Islam, M., & Farhana, T. (2020). The impact of mobile learning on rural education in Bangladesh. *International Journal of Mobile Learning and Organisation*, 15(1), 60–72.
23. Islam, M., & Hossain, F. (2020). ICT infrastructure and its impact on learning in Bangladesh. *Journal of Information and Education Technology*, 14(2), 45–56.
24. Jahan, M., & Rahman, M. (2021). Gamification and its impact on learning outcomes in Bangladesh. *Journal of Educational Psychology*, 18(4), 204–215.
25. Jumman Sani (2025). The Digital Revolution in Accounting: Addressing Transparency Challenges in Bangladesh, *Arch Hum Soc Sci Res*, 2(1), 1-7.
26. Kapp, K. M. (2012). *The gamification of learning and instruction: Game-based methods and strategies for training and education*. Pfeiffer.
27. Karim, R., & Hossain, A. (2020). Artificial intelligence in education in Bangladesh: Current state and future prospects. *Technology in Education Journal*, 3(1), 34–45.
28. Karim, S., & Hossain, R. (2021). A framework for digital literacy in Bangladesh: A case for public policy. *Journal of Information and Communication Technology*, 9(1), 50–62.
29. Luckin, R. (2018). *Machine learning and human intelligence: The future of education for the 21st century*. UCL Institute of Education Press.
30. Noe, R. A. (2020). *Employee training and development* (8th ed.). McGraw-Hill Education.
31. Pabel, M. A. H., Akter, R., Biswas, T. K., Kamal, M. M., Nahar, F., & Sani, J. (2025). Comparative Analysis of AI-Driven Marketing Strategies of the E-Commerce Industry in the Modern World. *American Journal of Financial Technology and Innovation*, 3(1), 73-80. <https://doi.org/10.54536/ajfti.v3i1.3789>
32. Rahman, A., & Rahman, S. (2020). Blended learning as a modern pedagogical approach: The Bangladesh experience. *Journal of Educational Technology*, 11(2), 121–130.
33. Rahman, M., & Ali, F. (2019). Virtual reality as a tool for training in the construction industry in Bangladesh. *Journal of Construction Education*, 14(2), 113–120.
34. Rahman, M., & Farhana, S. (2022). Mobile-based learning in Bangladesh: Access, challenges, and opportunities. *International Journal of Mobile Learning and Organisation*, 16(3), 150–165.
35. Rahman, S., & Ali, M. (2019). Overcoming challenges in e-learning implementation in Bangladesh: A case study. *Journal of Educational Research*, 22(3), 154–167.
36. Russell, S., & Norvig, P. (2021). *Artificial intelligence: A modern approach* (4th ed.). Pearson.
37. Sani J. et al. (2024). Technologies Used in Education, *International Journal for Multidisciplinary Research (IJFMR)*, 6(3), 1–6.
38. Sarker, M., & Rahman, S. (2019). The integration of technology into skill development programs in Bangladesh. *Journal of Vocational Education*, 21(3), 110–125.
39. Sarker, S., & Islam, M. (2021). The application of AR and VR in vocational training: Bangladesh context. *Journal of Vocational Education and Training*, 23(1), 125–138.
40. Sayeed, A., & Rahman, M. (2020). Microlearning in Bangladesh: A new frontier in workforce development. *Educational Technology Review*, 18(2), 70–85.
41. Selwyn, N. (2022). *Education and technology: Key issues and debates* (3rd ed.). Bloomsbury Academic.
42. Sherman, W. R., & Craig, A. B. (2018). *Understanding virtual reality: Interface, application, and design* (2nd ed.). Morgan Kaufmann.
43. Traxler, J. (2018). *Learning with mobiles in developing countries*. Commonwealth of Learning.
44. Woolf, B. P. (2020). Building intelligent tutoring systems for personalized learning. *Artificial Intelligence in Education*, 7(3), 44–55.
45. Woolf, B. P. (2021). Building intelligent interactive tutors: Student-centered strategies for revolutionizing e-learning. Morgan Kaufmann.