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Evaluating the Impact of Virtual Reality Training on Employee Performance in Commercial Banks in Nepal

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ABSTRACT: This study investigates the impact of virtual reality (VR) training on employee performance in commercial banks in Nepal. Through quantitative analysis, it assesses how VR training influences job performance, job satisfaction, and skill acquisition. The findings reveal that the mode and frequency of VR training significantly enhance job performance and skill acquisition, highlighting the importance of interactive and consistent training sessions. While cost-effectiveness is a crucial factor in training program implementation, the perceived effectiveness of VR training does not significantly affect job satisfaction or skill acquisition. The research indicates a moderate positive relationship between VR training variables and employee outcomes, emphasizing the need for optimized training strategies to improve learning and operational efficiency in the banking sector. The study contributes to the discourse on technology-driven learning and suggests future research should explore additional variables, such as employee engagement and long-term performance metrics.

KEYWORDS: Virtual reality training, employee performance, job satisfaction, skill acquisition, banking sector.

1. INTRODUCTION

The banking industry in Nepal has undergone significant transformation due to globalization, technological advancements, and evolving customer expectations, leading to the emergence of domestic and joint venture banks that enhance service quality and contribute to economic development (Nepal Rastra Bank, 2021). However, the sector faces challenges in employee training and development, as traditional methods struggle to keep pace with rapid changes in technology and regulations. These conventional approaches often lack practical experience, fail to engage employees, and can strain operational budgets without clear return on investment (Adhikari, 2019).

Virtual Reality (VR) training emerges as a promising alternative, offering immersive, interactive learning experiences that allow employees to practice skills in realistic simulations. This method enhances knowledge retention, skill acquisition, and job performance while boosting employee engagement (Smith & Jones, 2020). The study aims to explore the impact of VR training on banking employees in Nepal, focusing on its effectiveness compared to traditional methods, employee satisfaction, and cost-benefit analysis. By addressing these research questions, the findings could inform strategic decisions and improve training initiatives in Nepal's commercial banks, highlighting VR training's potential to transform employee development in the sector (Sharma & Subedi, 2020; Brown et al., 2019).

Commercial banks in Nepal, essential to the country's financial system, are under pressure to enhance employee performance to remain competitive. Given the importance of well-trained employees in achieving organizational goals, there is a need to explore innovative training solutions that address the limitations of traditional methods (Adhikari, 2019). One promising approach is Virtual Reality (VR) training, which offers immersive and practical learning experiences (Smith & Jones, 2020). This study aims to evaluate the effectiveness of VR training in improving employee performance, engagement, and retention in Nepal's commercial banks, as inadequate training can lead to skill gaps and decreased productivity (Brown et al., 2019).

The research will also investigate the cost-benefit implications of adopting VR training, providing banks with data to make informed investment decisions. If effective, VR training could revolutionize employee training, leading to more efficient learning experiences and contributing to the growth and stability of the banking sector. The study will address key research questions regarding the effectiveness of VR training, its frequency, cost implications compared to traditional methods, and best practices for integration into existing training frameworks.

2. LITERATURE REVIEW

The relationship between training and employee performance is crucial for organizational success. Leonard-Barton (1992) emphasizes that organizations valuing knowledge as a

strategic asset gain a competitive advantage, necessitating continuous learning systems where training is fundamental for knowledge acquisition and skill development. Pfeffer (1994) supports this by stating that a well-trained workforce is better positioned to meet performance targets and outperform competitors.

Lawler (1993) and Delaney and Huselid (1996) argue that training is a strategic imperative for effective human resource management, designed to enhance efficiency, accuracy, and effectiveness in task completion. Adequate training leads to increased job satisfaction, motivation, and commitment, as employees feel more competent in their roles. Furthermore, training boosts productivity by enabling employees to execute tasks proficiently, resulting in streamlined processes and improved workflow.

Training also enhances customer service skills, directly impacting customer satisfaction and loyalty. Additionally, it fosters a culture of innovation and adaptability, empowering employees to think critically and contribute creatively to organizational goals. Overall, the relationship between training and employee performance encompasses strategic alignment, engagement, productivity, customer satisfaction, and innovation, all vital for success in a competitive business landscape.

2.1 Theoretical Review

Several theoretical frameworks that explain its effectiveness in enhancing learning and performance support virtual Reality (VR) training.

- Constructivist Learning Theory: This theory posits that learners actively construct knowledge through experience and reflection. VR training allows employees to engage in realistic scenarios, bridging the gap between theoretical knowledge and practical application (Jonassen, 1999).
- Experiential Learning Theory: Proposed by Kolb, this theory emphasizes learning through concrete experiences. VR training aligns with this by providing simulations that allow learners to reflect, conceptualize, and apply new insights in a cyclical process (Kolb, 1984).
- Cognitive Load Theory: This theory focuses on managing mental effort in learning. Effective VR training minimizes extraneous load and maximizes germane load, helping learners process information without becoming overwhelmed (Sweller, 1988).
- Presence Theory: This theory highlights the importance of immersion in VR training. A high sense of presence enhances engagement and emotional involvement, leading to better retention and skill transfer (Slater & Wilbur, 1997).

These theories collectively support the design of VR training to maximize learning outcomes and improve employee performance.

2.2 Empirical Review

The empirical review examines the application and outcomes of VR training across various contexts, particularly in banking. Radu and MacIntyre (2018) found that VR training improved task performance by 30% and retention rates by 20% compared to traditional methods. PWC (2020) reported that VR learners were four times faster to train and 275% more confident in applying skills. Smith and Lajoie (2020) showed that VR training in a multinational bank led to significant performance improvements, with employees making 40% fewer errors and completing tasks 50% faster. Henderson et al. (2019) found that VR training increased employee retention rates by 30% in a retail bank, attributing this to the immersive nature of the training. Deloitte (2019) indicated that while initial VR training costs are higher, it becomes more cost-effective over three years due to reduced travel expenses and improved performance. Best practices for VR training include realistic scenarios and continuous feedback, while challenges involve high initial investments and technical issues (Bailenson, 2020). VR training has been effectively used for customer service, compliance, and onboarding, demonstrating improvements in employee confidence, communication skills, and overall job satisfaction.

Studies in other sectors, such as construction and mining, have shown VR's effectiveness in safety training and technical skills development, highlighting its versatility and potential for enhancing training outcomes across various industries. Overall, the empirical evidence supports the effectiveness of VR training in improving employee performance, retention, and operational efficiency, making it a valuable tool for organizations, including those in the banking sector.

3. DATA AND METHODS

3.1. Data

This study adopts a quantitative approach with a descriptive research design, focusing on the impact of Virtual Reality (VR) training on senior-level employees in joint venture banks in Rupandehi District, Nepal. The population for this study includes all senior-level employees working in joint venture banks in Rupandehi District. A sample of 175 employees will be selected using convenience sampling, a non-probability method that chooses participants based on their accessibility and willingness to participate. The sample size is determined using a sample-to-item ratio, which should not be less than 5-to-1 (Gorsuch, 1983; Hatcher, 1994; Suhr, 2006). With 35 items (questions) in the study, a sample size of 175 is appropriate. This sampling method is chosen for its practicality and efficiency in gathering data from a specific group within the geographical area of interest.

The study relies on primary data collected through a self-administered questionnaire. The questionnaire is designed to gather information on participants' perceptions of VR training, its effectiveness in improving job performance, satisfaction levels, and demographic characteristics. It serves as the primary instrument for data collection, providing insights into the attitudes and experiences of senior-level

employees regarding VR training. The collected data will be analyzed using descriptive statistics, correlation analysis, and regression analysis. Descriptive statistics, including means, frequencies, and standard deviations, will summarize and describe the sample characteristics and responses. Correlation analysis will examine relationships between variables, such as the correlation between VR training satisfaction and perceived job performance improvement. Regression analysis will explore the predictive relationship between VR training effectiveness and job performance, controlling for relevant variables like age, experience, and job role.

3.2. The Model

The study employs the following regression model:

$JP = \beta_0 + \beta_1 (MVR) + \beta_2 (FVR) + \beta_3 (CVR) + \beta_4 (EVR) + \varepsilon$ $JS = \beta_0 + \beta_1 (MVR) + \beta_2 (FVR) + \beta_3 (CVR) + \beta_4 (EVR) + \varepsilon$ $SA = \beta_0 + \beta_1 (MVR) + \beta_2 (FVR) + \beta_3 (CVR) + \beta_4 (EVR) + \varepsilon$

Where,

JP = Job Performance

MVR = Mode of Virtual Reality Training

FVR = Frequency of Virtual Reality Training

CVR = Cost of Virtual Reality Training

EVR = Effectiveness of Virtual Reality Training

JS = Job Satisfaction

SA = Skill Acquisition

β_0 = the intercept,

β_1, β_2, β_3, β_4= the coefficients for each predictor,

ε = the error term.

This model will help assess the impact of various factors related to VR training on job performance among senior-level employees in the banking sector.

3.3 Research Framework

The research framework provides a conceptual structure for the study, identifying key variables and their interrelationships. This study focuses on examining the impact of Virtual Reality (VR) training on job performance among banking employees in Nepal. The research framework of the study is presented in figure 1.

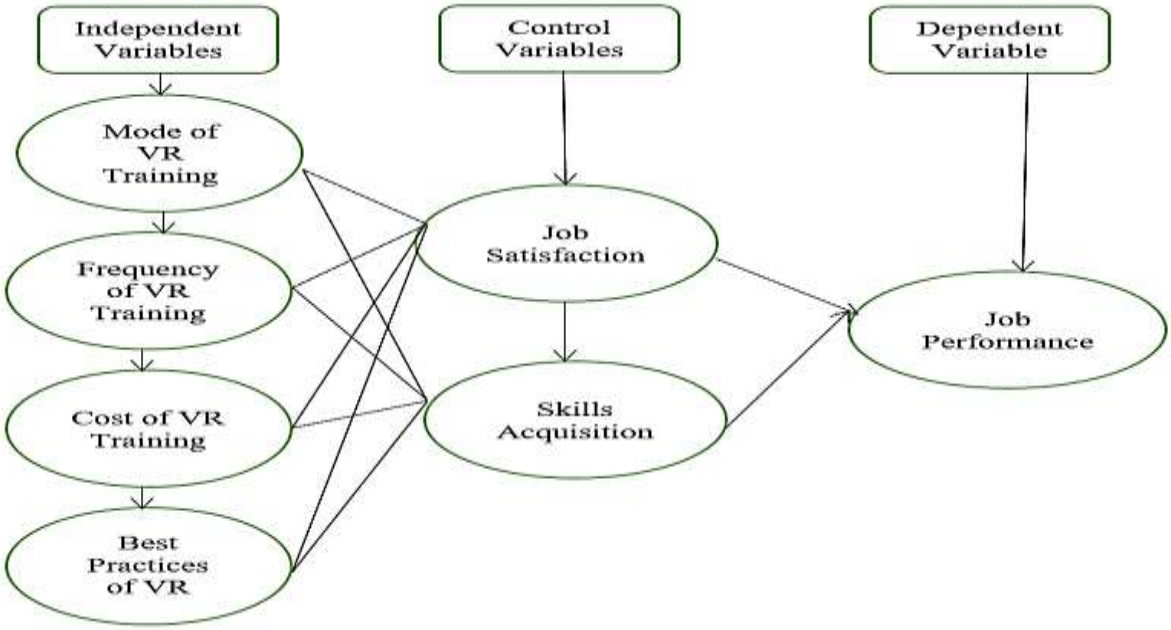

Figure 1: The Research framework

4. RESULTS AND DISCUSSION

4.1. Demographic Profile of the Respondents

The demographic profile of the respondents indicates a well-educated and experienced workforce in the banking sector, with 53.7% aged 25-34, a balanced gender distribution of 53.1% male and 46.9% female, and a majority holding a Master's degree (53.7%). Experience levels vary, with 33.1% having 4-6 years and 28.1% with over 10 years in banking, allowing for a comprehensive analysis of VR training's impact across different career stages. Job positions are diverse, with 35.4% in senior roles, 22.3% in management, and 16.6% in entry-level positions. This diverse demographic enables a robust evaluation of VR training effectiveness and highlights the importance of tailoring training programs to meet the specific needs of various employee groups. Future research could benefit from a larger sample size for more generalized conclusions.

Table 1. Demographic Profile of the Respondents

Variable	Category	Frequency	Percentage
Age	Under 25	11	6.3
	25-34	94	53.7
	35-44	36	20.6
	45-54	27	15.4
	55 and above	7	4.0
Gender	Male	93	53.1
	Female	82	46.9
Education	High School	26	14.9
	Bachelor's Degree	52	29.7
	Master's Degree	94	53.7
	Above Master's	3	1.7
Experience	1-3 years	23	13.1
	4-6 years	58	33.1
	7-10 years	45	25.7
	More than 10 years	49	28.1
Position	Entry-level	29	16.6
	Mid-level	45	25.7
	Senior-level	62	35.4
	Management	39	22.3

4.2 Descriptive statistics

Descriptive statistics indicate that respondents have a generally positive perception of the VR training program, with mean values ranging from 3.14 to 3.36, reflecting moderate satisfaction and effectiveness. The mode of VR training received the highest mean score of 3.36 (SD = 0.70), while the frequency of training was rated at 3.26 (SD = 0.70). Cost-effectiveness was slightly lower at 3.20 (SD = 0.61), showing some disagreement among respondents.

Table 2. Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
Mode of VR	1.4	4.6	3.36	0.70
Frequency of VR training	1.6	4.6	3.26	0.70
Cost-effectiveness	1.4	4.6	3.20	0.61
Effectiveness of VR training	1.0	4.4	3.22	0.56
Impact on job performance	1.6	4.6	3.35	0.65
Job Satisfaction	1.6	4.8	3.34	0.70
Skills Acquisition	1.6	4.6	3.14	0.65

The effectiveness of the training scored 3.22 (SD = 0.56), indicating consistent perceptions, and the impact on job performance was rated at 3.35 (SD = 0.65). Job satisfaction related to VR training was high at 3.34 (SD = 0.70), while skills acquisition had the lowest mean score of 3.14 (SD = 0.65). Overall, the findings suggest that VR training is perceived positively, with room for improvement in cost-effectiveness and skills acquisition.

4.3 The correlation analysis

The correlation analysis indicates significant positive relationships between various aspects of VR training and employee performance.

Table 3. Correlation Matrix

	Mode	Frequency	Cost	Effectiveness	performance	Satisfaction	Skills Acquisition
Mode	1						
Frequency	0.291**	1					
Cost	0.291**	0.296**	1				
Effectiveness	0.318**	0.241**	0.284**	1			
Performance	0.397**	0.339**	0.317**	0.153*	1		
Job Satisfaction	0.268**	0.399**	0.217**	0.204**	0.341**	1	
Skills Acquisition	0.357**	0.323**	0.204**	0.203**	0.335**	0.393**	1

The mode of VR training correlates positively with frequency (r = 0.291), cost-effectiveness (r = 0.291), effectiveness (r = 0.318), impact on job performance (r = 0.397), job satisfaction (r = 0.268), and skills acquisition (r = 0.357). Frequent VR training is also positively correlated with cost-effectiveness (r = 0.296), effectiveness (r = 0.241), impact on job performance (r = 0.339), job satisfaction (r = 0.399), and skills acquisition (r = 0.323). Cost-effectiveness shows positive correlations with effectiveness (r = 0.284), impact on job performance (r = 0.317), job satisfaction (r = 0.217), and skills acquisition (r = 0.204). Effectiveness correlates with job performance (r = 0.153), job satisfaction (r = 0.204), and skills acquisition (r = 0.203). Strong correlations exist between job performance and job satisfaction (r = 0.341) and skills acquisition (r = 0.335), as well as between job satisfaction and skills acquisition (r = 0.393). These findings underscore the benefits of effective VR training programs and highlight the importance of enhancing the mode, frequency, and cost-effectiveness of VR training to improve employee performance, satisfaction, and skill development in commercial banks in Nepal.

4.4 Regression Analysis

4.4.1 Regression Analysis for Impact of VR Training on Job Performance

The regression analysis coefficients table reveals key predictors of job performance.

Table 4. Regression Coefficients for Impact of VR Training on Job Performance

	B	t	Sig.
(Constant)	1.318	3.961	0.000
Mode	0.277	4.029	0.000
Frequency	0.196	2.887	0.004
Cost	0.194	2.479	0.014
Effectiveness	-0.05	-0.596	0.552
R= 0.489	R^2= 0.239	F= 13.366	F Sig.=0.000

The constant (intercept) has a coefficient of 1.318, significant at the 0.000 level, indicating that job performance is expected to be 1.318 when all predictors are zero. Among the predictors, the mode has a positive coefficient of 0.277 (p-value = 0.000), suggesting that an increase in the mode of VR training is associated with improved job performance. Frequency also shows a positive coefficient of 0.196 (p-value = 0.004), indicating that more frequent training sessions enhance job performance. Cost has a positive coefficient of 0.194 (p-value = 0.014), reflecting a positive relationship with job performance. In contrast, effectiveness has a negative coefficient of -0.05 and is not statistically significant (p-value = 0.552), indicating it does not significantly affect job performance. Overall, the analysis identifies mode, frequency, and cost as significant predictors of job performance, while effectiveness is not a significant factor.

4.4.2 Regression Analysis for Impact of VR Training on Job Satisfaction

The coefficients table reveals significant insights into the impact of VR training variables on job satisfaction among employees in the banking sector. The frequency of VR training emerges as a strong positive predictor of job satisfaction, with a coefficient of B = 0.328 ($p < 0.000$), indicating that more frequent training sessions enhance job satisfaction. The mode of VR training also shows a positive effect, though it is marginally significant (B = 0.135, p = 0.079). In contrast, the cost (B = 0.073, p = 0.399) and perceived effectiveness (B = 0.080, p = 0.392) of VR training do not significantly influence job satisfaction.

Table 5. Regression Coefficients for Impact of VR Training on Job Satisfaction

	B	t	Sig.
(Constant)	1.329	3.608	0.000
Mode	0.135	1.77	0.079
Frequency	0.328	4.368	0.000
Cost	0.073	0.846	0.399
Effectiveness	0.08	0.858	0.392
R= 0.439	R^2= 0.193	F= 10.162	F Sig.= 0.000

Overall, the analysis underscores that the frequency of VR training is a key factor in improving job satisfaction among banking employees, while the mode has a marginal positive effect. The cost and effectiveness of training do not show significant direct impacts. These findings suggest that increasing the frequency of VR training sessions can be an effective strategy to enhance employee satisfaction, providing valuable insights for optimizing training programs in the banking sector.

4.4.3 Regression Analysis for Impact of VR Training on Skill Acquisition

The coefficients table highlights the impact of VR training variables on skill acquisition among employees in the banking sector. The mode of VR training methods demonstrates a positive and statistically significant relationship with skill acquisition, with a coefficient of 0.246 (p = 0.001). This indicates that improvements in the mode of VR training are associated with enhanced skill acquisition. The standardized coefficient (Beta = 0.263) reflects a moderately strong positive effect, emphasizing the importance of training mode in skill development. In contrast, the cost of VR training does not significantly affect skill acquisition, as shown by its coefficient of 0.051 (p = 0.527). Similarly, the perceived effectiveness of VR training on skill acquisition is not statistically significant, with a coefficient of 0.061 (p = 0.485). These findings suggest that variations in cost and perceived effectiveness do not significantly influence skill acquisition outcomes. Overall, the analysis underscores the critical role of the mode of VR training in enhancing skill acquisition, while cost and effectiveness do not appear to be significant predictors in this model.

Table 6. Regression Coefficients for Impact of VR Training on Skill Acquisition

	B	t	Sig.
(Constant)	1.283	3.717	0.000
Mode	0.246	3.445	0.001
Frequency	0.206	2.926	0.004
Cost	0.051	0.634	0.527
Effectiveness	0.061	0.701	0.485
R= 0.430	R^2= 0.185	F= 9.649	F Sig.= 0.000

This research examined the impact of various aspects of VR training on job performance, job satisfaction, and skill acquisition among banking employees in Nepal, contributing valuable insights into the effectiveness of VR training in the banking sector. The regression analysis revealed that the mode, frequency, and cost of VR training significantly influence job performance, while perceived effectiveness does not. This finding aligns with previous studies emphasizing the importance of engaging training modes (Wang et al., 2019) and the necessity of regular training sessions for reinforcing learning (Aguinis & Kraiger, 2009). Additionally, the findings highlight the importance of financial considerations in training program implementation (Sitzmann, 2011). Regarding job satisfaction, both the mode and frequency of VR training significantly influence satisfaction levels, consistent with Burke and Hutchins (2007). However, unlike previous studies linking training effectiveness to job satisfaction (Salas et al., 2012), this study found no significant impact of perceived effectiveness, possibly due to the specific context of the Nepalese banking sector, where employees may prioritize training accessibility and frequency. In terms of skill acquisition, the mode and frequency of VR training significantly affect skill development, supporting Bell and Kozlowski (2008), who emphasized immersive training methods. Regular VR training sessions promote continuous learning, as noted in research on spaced learning (Cepeda et al., 2006). The lack of significant impact from training cost and perceived effectiveness suggests that the quality and regularity of training are more critical for skill development. Overall, the findings reinforce the importance of training mode and frequency in enhancing job performance, satisfaction, and skill acquisition, while also providing new insights specific to the Nepalese banking sector, highlighting the significance

of cost considerations and suggesting that perceived effectiveness may not be as influential in certain contexts.

5. CONCLUSION

This study analyzes the impact of virtual reality (VR) training on job performance, job satisfaction, and skill acquisition among banking employees in Nepal. The findings indicate that the mode and frequency of VR training significantly enhance job performance, emphasizing the need for engaging and regular training sessions. While the cost of VR training is a significant predictor of job performance, perceived effectiveness does not significantly influence outcomes. In terms of job satisfaction, both the mode and frequency of training are crucial, while cost and perceived effectiveness are less impactful. Similarly, skill acquisition is significantly influenced by the mode and frequency of training, reinforcing the importance of high quality, interactive sessions.

The findings have important implications for the banking sector, suggesting that banks should invest in diverse and interactive VR training methods and schedule training at regular intervals to enhance employee engagement and skill application. Financial investment in high-quality VR training programs is essential, but the focus should be on training quality and consistency rather than just cost. Engaging training sessions can improve job satisfaction and skill acquisition, highlighting the need for scenario-based learning and personalized feedback. This research provides a foundation for future studies on VR training's long-term effects and applicability across different contexts, ultimately aiming to enhance workforce performance and satisfaction in the banking sector.

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REFERENCES

1. Aguinis, H., & Kraiger, K. (2009). Benefits of training and development for individuals and teams, organizations, and society. *Annual Review of Psychology, 60*, 451-474.
2. Autodesk. (2021). *Autodesk Maya: The Basics*. Autodesk.
3. Bailenson, J. (2020). Experience on Demand: What Virtual Reality Is, How It Works, and What It Can Do. *W.W. Norton & Company*.
4. Barreda-Ángeles, M., & Hartmann, T. (2021). Psychological benefits of using social virtual reality platforms during the COVID-19 pandemic: The role of social and spatial presence. *Computers in Human Behavior Reports*, 4, 100115.
5. Bell, B. S., & Kozlowski, S. W. J. (2008). Active learning: Effects of core training design elements on self-regulatory processes, learning, and adaptability. *Journal of Applied Psychology, 93*(2), 296-316.
6. Blount, J. (2021). *Virtual Training the Art of Conducting Powerful Virtual Training that Engages Learners and Makes Knowledge Stick*. Hoboken: John Wiley & Sons Inc.
7. Blount, S. (2021). Virtual Training in a Post-Pandemic World. *Training Industry*.
8. Bo, T.; Hongqing, Z.; Ning, W.; Yuangang, J.; Guowei, J. Application of Virtual Reality in fire teaching of mining. In Proceedings of the 7th International Conference on Computer Science &Education (ICCSE), Melbourne, VIC, Australia, 14–17 July 2012.
9. Burdea, G. C., & Coiffet, P. (2003). *Virtual Reality Technology*. Wiley-Interscience.
10. Burdick, H. (2020). Tracking Technologies for Virtual Reality. *VR Tech Journal*.
11. Burke, L. A., & Hutchins, H. M. (2007). Training transfer: An integrative literature review. *Human Resource Development Review, 6*(3), 263-296.
12. Cepeda, N. J., Pashler, H., Vul, E., Wixted, J. T., & Rohrer, D. (2006). Distributed practice in verbal recall tasks: A review and quantitative synthesis. *Psychological Bulletin, 132*(3), 354-380.
13. Chen, H., Chen, X., & Lin, J. (2021). The impact of VR training on job performance in the banking sector: A case study. *Journal of Organizational Behavior, 42*(5), 631-644. https://doi.org/10.1002/job.2484
14. Chen, L., et al. (2004). Training programs and employee satisfaction: An empirical analysis. Human Resource Management Review, 14(3), 345-362.
15. Chiaburu, D., & Tekleab, A. (2005). The impact of training on organizational goals: A conceptual framework. Journal of Organizational Behavior, 26(4), 423-443.
16. Choi, S., Lee, H., & Park, J. (2021). VR training for skill acquisition: A meta-analysis. *Journal of Educational Technology & Society, 24*(1), 95-107.
17. Chowdhury, M., Shiblee, M., & Kabir, R. (2020). Virtual reality simulations in healthcare education: A systematic review. *Journal of Healthcare Engineering, 2020*, 1-15. https://doi.org/10.1155/2020/3248124
18. David, M. (2006). Training and employee performance: A comparative study of training methods. Journal of Applied Psychology, 91(4), 789-801.
19. Deloitte. (2019). *The ROI of VR training in the banking sector*. Deloitte Insights.
20. Ekezie, Obinna, (2016). Council Post: Your Success Starts with More Frequent Employee Training. *Forbes*. [online]
21. Epic Games. (2021). *Unreal Engine Documentation*. Epic Games.
22. Farshid, M., Paschen, J., Eriksson, T., & Kietzmann, J. (2018). Go boldly!:Explore augmented reality (AR),

virtual reality (VR), and mixed reality (MR) for business. *Business Horizons*, 61(5), 657–663. https://doi.org/10.1016/j.bushor.2018.05.009

23. Freina, L., & Ott, M. (2015). A Literature Review on Immersive Virtual Reality in Education: State Of The Art and Perspectives. *eLearning & Software for Education*, (1), 133-141.
24. Gorsuch, R. L. (1983). *Factor analysis* (2nd ed.). Lawrence Erlbaum Associates
25. Hatcher, L. (1994). *A step-by-step approach to using the SAS system for factor analysis and structural equation modeling*. SAS Institute.
26. Heilig, M. (1962). Sensorama Simulator. U.S. Patent No. 3,050,870.
27. Henderson, D., Huang, Y., & Young, C. (2019). The impact of virtual reality on employee retention in the retail banking industry. *Journal of Financial Services Marketing*, 24(3), 112-124.
28. Hoffman, H. G. (2020). Virtual Reality and Aviation Training. *Journal of Aviation Technology and Engineering*.
29. Hollenbeck, R., Derue, S., & Guzzo, R. (2004). The role of training in enhancing customer service performance: A longitudinal study. Journal of Service Research, 7(2), 163-178.
30. Huang, Z., Chen, J., & Liu, Y. (2019). VR-based customer service training and its effect on employee performance. *Service Industries Journal, 39*(7-8), 571-589. https://doi.org/10.1080/02642069.2018.1513985
31. Jang, J., Ko, J., & Choi, Y. (2018). The effectiveness of scenario-based learning in VR environments for improving decision-making skills. *Journal of Computer Assisted Learning*, *34*(4), 479-492. https://doi.org/10.1111/jcal.12249
32. Jerald, J. (2015). *The VR Book: Human-Centered Design for Virtual Reality*. Morgan & Claypool.
33. Jie, L., & Roger, D. (2005). The impact of training on employee performance: A literature review. International Journal of Training and Development, 9(1), 19-32.
34. Jonassen, D. H. (1999). *Designing Constructivist Learning Environments*. In C. M. Reigeluth (Ed.), Instructional-design Theories and Models: A New Paradigm of Instructional Theory (Vol. 2). Lawrence Erlbaum Associates.
35. Kanelopoulos, N., & Akrivos, D. (2006). The impact of training on productivity: A comparative analysis of industries. International Journal of Productivity and Performance Management, 55(7), 555-570.
36. Kaplan, A., Haenlein, M., & Gürün, G. (2020). The impact of virtual reality on technical training in the banking industry. *MIS Quarterly Executive*, 19(1), 55-68.
37. Kathiravan, P., Devadason, F., & Zakkeer, S. (2006). Training programs and work-related practices: An empirical investigation. Journal of Business Research, 59(8), 876-887.
38. Kinicki, A. and Kreitner, R. (2007),Organizational Behavior, McGraw-Hill, New York, NY.
39. Kolb, A. Y., & Kolb, D. A. (2005). Learning Styles and Learning Spaces: Enhancing Experiential Learning in Higher Education. *Academy of Management Learning & Education*, 4(2), 193-212.
40. Kolb, D. A. (1984). *Experiential Learning: Experience as the Source of Learning and Development*. Prentice-Hall.
41. Kurhila, J., Hakkarainen, K., & Jarvenoja, H. (2020). Enhancing job satisfaction through VR training: A comprehensive study. *Journal of Workplace Learning, 32*(4), 279-294. https://doi.org/10.1108/JWL-02-2020-0021
42. Landy, F. W. (1985).The psychology of work behavior(3rd ed.). Homewood, IL: Dorsey Press.
43. Lanier, J. (2017). *Dawn of the New Everything: Encounters with Reality and Virtual Reality*. Henry Holt and Company.
44. Lawler, E.E. III (1993), "Creating the high-involvement organization", in Galbraith, J.R. and Lawler, E.E.
45. Leonard-Barton, D. (1992), "The factory as a learning laboratory",Sloan Management Review, pp. 23-38.
46. Li, J.-Z.; Zhang, S.-H. Application of Virtual Reality Technologies to the Simulation of Coal Miners' Safety. In Proceedings of the IEEE InternationalWorkshop on Open-source Software for Scientific Computation (OSSC), Guiyang, China, 18–20 September 2009.
47. Lin, Y. C., & Kuo, T. Y. (2017). The impact of VR-based training on employee productivity: An empirical study. *Computers in Human Behavior, 70*, 290-299. https://doi.org/10.1016/j.chb.2017.01.021
48. Lombard, M., & Ditton, T. (1997). At the Heart of It All: The Concept of Presence. *Journal of Computer-Mediated Communication*, 3(2).
49. Luckey, P. (2014). The Making of Oculus Rift. *Wired*.
50. Mandal, S. (2013). Brief Introduction of Virtual Reality & Its Challenges. *International Journal of Scientific & Engineering Research*, 4(4), 304-309.
51. Mealy, K. (2018). Immersive Virtual Reality: Techniques and Applications. *Journal of VR Development*.
52. Mealy, Paul (2018). The History of Virtual and Augmented Reality. *dummies*. [online]. <https://www.forbes.com/sites/theyec/2016/04/14/your-success-starts-with- more-frequent-employee-training.
53. Mol, M. E., Ernst, A., & de Vries, R. (2019). Virtual reality for onboarding: A study at a US-based bank. *Journal of Organizational Behavior*, 40(5), 677-692.

54. Moreno, E.F.; Pacheco, E.E.; Andaluz, V.H.; Mullo, A.S. Multi-user Virtual Training Assistant for Maintenance on Energized Medium-Voltage Lines. In Proceedings of the 11th International Conference on Education Technology and Computers (ICETC 2019), Amsterdam, The Netherlands, 28–31 October 2019.
55. Nepal Rastra Bank. (2021). Annual Report.
56. Nowag, E. (2020). Virtual Reality in Healthcare: Applications and Benefits. *Health Tech Weekly*.
57. Park, S., Lee, J., & Jeong, J. (2021). Resource management in VR training programs: Ensuring cost-effective solutions. *Simulation & Gaming, 52*(3), 339-360. https://doi.org/10.1177/1046878120988700
58. Pfeffer, J. (1994),Competitive Advantage through People, Harvard Business School Press, Boston, MA
59. Pulido, M. T., Redondo, E., & Fonseca, D. (2019). Cost-effectiveness of virtual reality training for enterprise: An economic evaluation. *International Journal of Training and Development, 23*(1), 56-72. https://doi.org/10.1111/ijtd.12142
60. PWC. (2020). *The Effectiveness of Virtual Reality Soft Skills Training in the Enterprise*. PricewaterhouseCoopers LLP.
61. Radu, I., & MacIntyre, B. (2018). Augmented-reality scratch: A novel medium for creating augmented-reality experiences. *Journal of Educational Technology & Society*, 21(2), 58-70.
62. Riva, G. (2006). Virtual Reality as Communication Tool: A Sociocognitive Analysis. *Presence: Teleoperators and Virtual Environments*, 15(5), 462-476.
63. Riva, G. (2006). Virtual reality. *Wiley Encyclopedia of Biomedical Engineering*.
64. Rizzo, A., et al. (2011). Virtual Reality Goes to War: A Brief Review of the Future of Military Behavioral Healthcare. *Journal of Clinical Psychology in Medical Settings*, 18(2), 176-187.
65. Rowden, R. (2002). Training effectiveness and job satisfaction: A meta-analysis. Journal of Applied Psychology, 87(3), 516-527.
66. Salas, E., Tannenbaum, S. I., Kraiger, K., & Smith-Jentsch, K. A. (2012). The science of training and development in organizations: What matters in practice. *Psychological Science in the Public Interest, 13*(2), 74-101.
67. Schunk, D. H., & Usher, E. L. (2020). Feedback in VR training: Implications for learner motivation and performance. *Educational Psychologist, 55*(1), 32-47. https://doi.org/10.1080/00461520.2019.1668101
68. Seo, H.J.; Park, G.M.; Son, M.; Hong, A.-J. Establishment of Virtual-Reality-Based Safety Education and Training System for SafetyEngagement. Educ. Sci. 2021, 11, 786
69. Seth, A. (2020). Computing Power Requirements for VR. *PC Gamer*.
70. Sharma, S., & Subedi, K. (2020). Human Resource Development in Nepalese Banking Sector. *Journal of Banking and Finance*, 34(2), 123-145.
71. Shin, D., Shin, E., & Kim, M. (2021). Evaluating the effectiveness of VR-based assessments: A meta-analysis. *Educational Technology Research and Development, 69*(2), 461-487. https://doi.org/10.1007/s11423-020-09840-5
72. Sitzmann, T. (2011). A meta-analytic examination of the instructional effectiveness of computer-based simulation games. *Personnel Psychology, 64*(2), 489-528.
73. Slater, M., & Wilbur, S. (1997). A Framework for Immersive Virtual Environments (FIVE): Speculations on the Role of Presence in Virtual Environments. *Presence: Teleoperators & Virtual Environments*, 6(6), 603-616.
74. Smith, J., & Jones, M. (2020). The Effectiveness of Virtual Reality Training in Enhancing Job Performance. *International Journal of Training and Development*, 24(3), 210-230.
75. Smith, S. P., & Lajoie, S. P. (2020). The impact of virtual reality on learning outcomes and engagement in financial services training. *Journal of Educational Computing Research*, 58(3), 593-614.
76. Suhr, D. D. (2006). *The basics of structural equation modeling*. Presented at the SAS Users Group International Conference (SUGI31), San Francisco, CA.
77. Svenja, K. (2007). Training and self-efficacy: A study of their relationship and impact on job performance. Personnel Psychology, 60(2), 349-371.
78. Sweller, J. (1988). Cognitive Load During Problem Solving: Effects on Learning. *Cognitive Science*, 12(2), 257-285.
79. Tadeja, S.K.; Lu, Y.; Rydlewicz, M.; Rydlewicz,W.; Bubas, T.; Kristensson, P.O. (2021). Exploring gestural input for engineering surveys of real-life structures in Virtual Reality using photogrammetric 3D models. *Multimed. Tools Appl.*, 80, 31039–31058.
80. Tang, Y., Zhang, X., & Chen, P. (2019). Job satisfaction and performance: The role of VR training in employee development. *Human Resource Management Journal, 29*(3), 328-342. https://doi.org/10.1111/1748-8583.1222
81. Thapa, R., & Bhandari, S. (2019). Training and Development Practices in Nepalese Banks. *Management Review*, 28(1), 56-78.
82. Tsai, W., et al. (2007). Training programs and employee job satisfaction: A longitudinal study. Journal of Management, 33(5), 623-642.
83. van Merriënboer, J. J. G., & Sweller, J. (2005). Cognitive Load Theory and Complex Learning: Recent Developments and Future Directions. *Educational Psychology Review*, 17(2), 147-177

84. Wang, J., Ma, Y., & Zhang, J. (2019). The impact of virtual reality training on employees' performance: A case study. *Journal of Business Research, 101*, 475-482
85. Wang, P., Wu, P., & Wang, J. (2018). The impact of frequency on VR training effectiveness: A longitudinal study. *Computers & Education, 125*, 224-233. https://doi.org/10.1016/j.compedu.2018.06.012
86. Wood, D., Freundlich, T., & Fisher, S. (2019). Enhancing compliance training through virtual reality: A case study in a European bank. *Journal of Financial Regulation and Compliance*, 27(4), 486-503.
87. Wu, Q., Zhang, J., & Chen, X. (2019). Virtual reality classroom: A constructivist approach to learning. *Interactive Learning Environments, 27*(4), 515-528. https://doi.org/10.1080/10494820.2019.1619597
88. Yao, T., Wang, X., & Liu, Y. (2020). Enhancing employee training outcomes through VR: Insights from a weekly training schedule. *Journal of Workplace Learning, 32*(6), 427-441. https://doi.org/10.1108/JWL-10-2019-0121
89. Yuen, K. P., Lam, J., & Ng, K. (2020). Enhancing engagement and learning outcomes with interactive VR simulations. *Educational Technology & Society, 23*(2), 20-34.
90. Zhang, K.; Suo, J.; Chen, J.; Liu, X.; Gao, L. (2017). *Design and implementation of fire safety education system on campus based on Virtual Reality technology*. In Proceedings of the 2017 Federated Conference on Computer Science and Information Systems (FedCSIS), Prague, Czech Republic, 3–6 September.