# Artificial Intelligence and Training: Opportunities and Challenges in The Zimbabwean Mining Industry

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**Artificial intelligenceis Each and every aspect of our society has been changed by artificial intelligence. Artificial intelligence still a new phenomenon in Zimbabwe. The main thrust Each and every aspect of our society has been changed by artificial intelligence. Artificial intelligence is still a new phenomenon in Zimbabwe. The main thrust of this research was to understand the opportunities and challenges of artificial intelligence in training activities in the mining industry. This study was guided by understand training activities that can be transformed by artificial intelligence. The study determined the challenges of using artificial intelligence in training. The investigator obtained data through telephone interviews that were conducted with 10 participants from the Zimbabwe Mining Industry. The investigation employed judgemental, convenient and snowball sampling. The study found that there is low use of artificial intelligence in the training activities, but there are activities that can be undertaken by artificial intelligence that include induction, online training, and refresher courses. Expensiveness, lack of skills, loss of jobs, cultural and ethical implications were found to be challenges associated with the use of artificial intelligence in the employee appointment process. Efficiency, effectiveness, enhanced trainee experience, reduced costs and organisation brand were found to be benefits of employing artificial intelligence in training. The study recommends partnerships to be developed among mining organisations, higher and tertiary education, and technology enterprises to develop artificial intelligence software that can cost-effectively meet the needs of trainers.**

**Keywords: Artificial Intelligence, Training, Human Resources, Development, Mining Sector**

## Introduction

Throughout history, human resource management, or HRM, has seen substantial changes in response to shifting social, technological, and economic environments. We can better understand the current situation and recognize the influence of AI on HRM by knowing the historical development of HRM. HRM's forerunner, people management, first appeared in the late 18th century during the Industrial Revolution (Gupta & Sigh, 2022). It was mostly concerned with administrative duties like hiring, paying employees, and maintaining

compliance. Ensuring effective personnel management in the developing industrial economies was the aim (Bala et al, 2023). The human relations movement opposed the bureaucratic aspects of personnel management at the beginning of the 20th century. It was developed by experts like Elton Mayo and highlighted the significance of social interactions, motivation in the workplace. This shift marked a significant departure from the administrative focus of personnel management and laid the foundation for employee-oriented HRM practices.

Human resource management (HRM) became a strategic method to managing people in firms in the 1960s. This change was indicative of a move toward a human resources perspective that was more complete and integrated. Workforce planning, performance management, and employee engagement were all included in HRM. The focus was on acknowledging workers as important assets and coordinating HR strategies with company goals (Beer et al., 1984). Strategic HRM, which emphasizes the integration of HR strategies with overarching corporate plans, gained prominence starting in the 1980s (Mehta et al, 2023. This strategy acknowledged that human capital may be used to obtain a competitive edge. Organizations that concentrated on luring, nurturing, and keeping elite talent saw a surge in the usage of talent management. For a business to succeed, talent management and HRM must be strategically aligned (Zhang & Wang, 2019). Technological developments in the last few years have completely changed HRM procedures. The way HR departments function has changed as a result of the integration of automation and AI. AI-powered solutions make it possible to do things like scan resumes, ask questions of employees using chatbots, and organize the workforce using predictive analytics. AI also facilitates decision-making, improves worker satisfaction, and simplifies HR procedures. HRM can increase the efficacy, precision, and general efficiency of HR procedures by utilizing AI (Khanna & Sharma, 2023).

Organizations depend heavily on training, which is important for many elements of how they operate. Training helps a business succeed overall by promoting growth and development and improving employee performance and productivity (Mishra & Akman, 2010). Employees receive training to provide them the know-how, abilities, and competences needed to carry out their jobs well. It improves their job-related skills, empowering them to fulfill employment needs, overcome ob-

stacles, and accomplish performance goals (Khatri et al, 2020). Employees with proper training are more competent, self-assured, and able to produce high-caliber work. Employee productivity is increased by training, which increases workers' efficacy and efficiency in completing duties. It aids staff members in picking up new skills, best practices, and shortcuts that can improve workflows and procedures (Singh et al, 2018). Training helps staff members do jobs more quickly and precisely by providing them with the necessary information and skills, which boosts productivity within the company. In the current dynamic business landscape, enterprises need to possess the ability to adjust and react quickly to changes. Employees can better accept and manage change by receiving the skills and information that training helps them obtain (Mishra & Akman, 2010). It fosters a learning mentality in staff members, allowing them to adapt to new procedures, technology, and market conditions, preserving the organization's flexibility and competitiveness.

Artificial Intelligence (AI) is becoming more and more significant in the field of Human Resource Management (HRM) as it transforms these processes (Rehman et al, 2018). AI integration in HRM offers businesses a host of advantages and prospects. Artificial intelligence (AI) technologies, including as chatbots and virtual assistants, may respond quickly and personally to questions from employees, answering frequently asked HR-related queries and offering round-the-clock help (Mehta et al, 2023). By guaranteeing timely support, cutting down on waiting times, and freeing up HR staff to concentrate on more difficult responsibilities, this enhances the employee experience. AI-powered solutions can also let employees have self-service choices so they can get information and work on their own. Artificial intelligence (AI) technologies can offer individualized learning programs based on the requirements and preferences of each employee. Based on employees' skill gaps, career goals, and learning history, AI can suggest pertinent training

modules, courses, and resources through intelligent learning platforms (Verma & Gupta, 2020). This customisation boosts the efficacy of programs for learning and development, encouraging ongoing development and upskilling inside the company.

The mining industry is the second largest contributor to the Zimbabwean economy. It is expected to contribute US$40 billion. This is only possible if its employees are continuously trained. This can be fused with artificial intelligence making the training effective and also cost-effective. Hence, there was need to conduct an assessment on the opportunities and challenges of artificial intelligence in training in the mining sector.

## Problem Statement

Artificial intelligence have revolutionized the way things are done in human resources management. The mining sector is the second biggest sector in Zimbabwe. It is expected to contribute US$40 billion by 2030. However, this is only possible if employees are constantly trained so that they are effective and efficient in meeting vision 2030. Bigger conglomerates in the world are adopting artificial intelligence to make training effective. This study focuses on opportunities and challenges in usage of artificial intelligence in training. There has been dearth on studies on artificial intelligence and training in Zimbabwe. This study will go a long way in filling this knowledge gap. The study will inform mining companies on the viability of using artificial intelligence in the mining sector.

## Objectives of the Study

1. To identify training activities that use artificial intelligence in the Zimbabwean mining sector;

2. To examine challenges associated with the use of artificial intelligence in training activities in the Zimbabwean mining sector; and

3. To assess benefits that can be derived from the use of artificial intelligence in training activities on the Zimbabwean mining sector.

## Literature Review

### Artificial Intelligence and Training

AI is the field concerned with building machines that can emulate human thought processes and behavior. The idea is for technology to digest massive volumes of data, identify patterns, and make data-driven judgments to assist humans with challenging tasks (Singh et al, 2018). AI systems concentrate on using large amounts of data to solve specific issues, whereas human intelligence creates complex associations. Reasoning, unprogrammed learning, environment perception, and object manipulation are important AI skills. Systems don't need explicit instructions to change behaviors based on data. AI is limited, though; unlike humans, it finds it difficult to apply knowledge or think creatively (Khanna & Sharma, 2023). These days, financial trading, picture recognition for medical diagnosis, translation, and other uses are popular. AI's influence increases as computers and data get more powerful, enabling it to detect illnesses, operate vehicles, combat climate change, and so on. Simultaneously, concerns about employment losses and a lack of transparency or accountability for AI judgments also surface and must be addressed (Bala et al, 2023). The distinction between humans and artificial intelligence may become increasingly hazy in the future due to advancements in algorithms, datasets, and processing capacity. This could present both new obstacles and possibilities to enhance human capabilities and productivity. The ultimate goal is still to put intelligence into

machines to simulate human cognition.

The process of enhancing an employee's knowledge, abilities, and competences to improve their productivity and performance in a particular job or role within an organization is referred to as training. It is crucial to both corporate expansion and employee development. There are many different ways to provide workplace training, such as acquainting new hires with the company's policies, practices, and culture (Gupta & Singh, 2020). Through this training, new hires will be made aware of their expectations as well as their tasks and responsibilities. supplying workers with the information and abilities they need to carry out their particular job duties well. Technical training, software training, and training on certain tools or procedures can all fall under this category. providing chances for staff members to advance their knowledge and abilities beyond the demands of their current positions (Sharma et al, 2022). Workshops, seminars, conferences, or online courses to hone leadership, communication, or other pertinent competencies might be examples of this. ensuring that workers understand and abide by company policies, industry standards, and legal and regulatory requirements. This training is particularly important in areas such as safety, data protection, ethics, and diversity and inclusion. Focusing on developing interpersonal skills, communication skills, teamwork, problem-solving, and other non-technical skills that are valuable in the workplace.

Giving managers and supervisors the tools they need to properly lead and oversee teams. Training in decision-making, performance management, dispute resolution, and strategic thinking are a few examples of this (Verma & Sharma, 2021). A variety of techniques, such as in-person seminars, online courses, e-learning platforms, mentorship programs, coaching, and job shadowing, can be used to provide workplace training. The selection of training methods is contingent upon various aspects, including the type of content, the quantity of personnel undergoing training, the available resources, and the preferences of the company.

Programs for workplace training that are effective should be customized to meet the unique requirements of the company and its personnel (Bala & Singh, 2022). They should include assessments or evaluations to gauge the success of the training, as well as clear objectives, active participant engagement, real-world examples, and practice opportunities. Continuous evaluation and feedback are essential to ensure that training programs are meeting their intended goals and making a positive impact on employee performance and organizational success.

## Training Activities that use Artificial Intelligence

Artificial Intelligence (AI) has the potential to transform traditional training methods and improve the learning process in a number of workplace training domains. To generate personalized learning paths, AI systems may assess the talents, knowledge gaps, and learning preferences of specific personnel (Mehta et al, 2023). AI-powered systems can make individualized recommendations for training modules, courses, or resources based on an individual's skills and deficiencies. The effectiveness of training programs as a whole is increased, as is engagement and knowledge retention, thanks to this tailored approach.AI can help with content and training material production. Based on available resources or subject area expertise, Natural Language Processing (NLP) models can produce automated summaries, instructional content, and assessments (Gupta & Kumar, 2023). This guarantees consistency, expedites the material generation process, and frees up trainers to concentrate on more advanced instructional design.

Training experiences that are realistic and immersive can be obtained with AI-powered VR and AR

simulations. Workers can practice difficult jobs, safety protocols, or using equipment in a virtual setting, which lowers the possibility of mishaps and eliminates the need for real training facilities (Argawal & Sharma, 2021). AI systems are able to offer suggestions and feedback in real time, which helps with performance enhancement and skill growth. AI-driven tutoring programs can serve as virtual instructors, offering individualized instruction and support. These tools are able to evaluate students' performance, pinpoint areas that need development, and provide focused coaching and feedback. Intelligent tutoring systems maximize learning outcomes and enable self-paced training by adjusting to individual learning styles and progress.

AI-driven chatbots can function as virtual assistants, responding to inquiries from staff members, offering on-demand assistance, and distributing educational materials (Malik et al, 2019). Chatbots can comprehend natural language inquiries and respond with precision and context-specificity thanks to NLP algorithms. This boosts the learning process overall, increases accessibility, and lowers the need for human intervention. Adaptive assessments, which modify the material and difficulty level according to the learner's progress, can be created by AI algorithms (Zhang & Wang, 2019). Artificial intelligence (AI)-powered tests provide more accurate assessments of competency and pinpoint particular areas for growth by dynamically customizing questions to the individual's knowledge level. This guarantees the effective use of training resources and permits tailored training interventions.

Large volumes of training data can be analyzed by AI-powered analytics to find patterns, trends, and correlations (Bala et al, 2023). AI algorithms are able to predict future training needs, identify potential dangers, and offer insights into the effectiveness of training by integrating data from several sources, including learner performance, engagement, and

feedback. Proactive decision-making, ongoing development, and evidence-based training methods are made possible by this data-driven approach. By removing language barriers, AI-powered language translation systems can help with training in global corporations. Employees with varying linguistic backgrounds can access training materials and take part in group learning activities thanks to real-time translation capabilities (Aggarwal & Mittal, 2022). Through the provision of insights and recommendations on cultural subtleties and sensitivities, AI can also support cross-cultural training.

AI can improve training engagement by using adaptive learning algorithms and gamification strategies. AI systems are able to monitor each person's development, provide incentives, and modify the training material in response to output. Leaderboards, badges, and challenges are examples of gamified aspects that encourage healthy competition, inspire learners, and create an immersive and interesting learning environment (Sharma et al, 2022). By providing bite-sized, on-demand training material in the form of microlearning modules, AI can support continuous learning. Based on the requirements, responsibilities, and skill gaps of employees, AI algorithms can suggest pertinent microlearning materials. Employees can now access learning resources at any time and from any location, and they can incorporate learning into their regular tasks.

AI can greatly advance the research of training needs by utilizing data analysis and predictive algorithms to identify skill gaps, determine training needs, and maximize training interventions (Singh et al, 2018). AI systems are able to collect and analyze data from a variety of sources, such as feedback forms, employee performance reports, job descriptions, and skill evaluations. Through the efficient and effective analysis of massive volumes of data, artificial intelligence (AI) is able to identify patterns, trends, and areas that require training.

AI-powered technology can be used to evaluate employees' skills and competencies against the intended performance standards. These tests can be given online or through interactive simulations. AI systems are able to identify specific skill shortages that need to be filled by comparing employee performance to pre-established benchmarks.

AI has a big impact on training evaluation. It helps companies analyze learning results, evaluate training programs, and make data-driven decisions for ongoing improvement. Large amounts of training data, such as assessment outcomes, engagement indicators, and learner performance, can be analyzed by AI algorithms (Khatri et al, 2020). AI can produce insights about learners' progress, pinpoint areas for development, and offer a comprehensive evaluation of training efficacy by analyzing this data. During training, AI-powered assessment systems can offer real-time evaluation and feedback. These systems have the ability to automatically grade tests, give students immediate feedback, and change the difficulty of the questions in response to the students' performance. For efficient learning, this makes prompt intervention and tailored feedback possible. Natural Language Processing algorithms can analyze qualitative feedback from learners, such as open-ended survey responses or comments in discussion forums. AI can extract sentiments, themes, and patterns from the text data to gain insights into learners' perceptions, needs, and areas of improvement. This feedback analysis helps in identifying training gaps and improving training content and delivery.

## Challenges Associated with AI in Training

While AI has many advantages for workplace training, there are a number of drawbacks that businesses must take into account. Data is a major component of AI algorithms, and the availability and quality of training data have a big influence on how successful AI applications are (Bala et al, 2023). Incomplete, skewed, or low-quality data might result in biased results, erroneous suggestions, or inefficient training interventions when used to train AI models . To properly train AI models, organizations must make sure they have access to high-quality, diverse, and representative data (Khatri et al, 2020). AI systems may unintentionally reinforce biases found in the training set, producing suggestions or judgments that are prejudiced. AI algorithms may amplify and reinforce societal biases if the training data reflects them, which could result in training programs that have discriminatory effects. Companies need to be aware of potential biases in the data and take appropriate action to reduce them. Some strategies to do this include using inclusive and varied training data, utilizing algorithms that are sensitive to fairness, and routinely checking AI systems for bias.

Even though AI can automate some workplace training tasks, human oversight and expertise are still necessary. To guarantee that the training content is accurate and pertinent, AI models must be trained and adjusted by subject-matter experts (Bala et al, 2023). Furthermore, in order to evaluate AI-generated insights, offer context, and make defensible decisions based on the AI-driven suggestions, human trainers and instructional designers are required (Zhang & Wang, 2019). To maximize training results, organizations should find a balance between AI automation and human expertise. Access to individual employee data, like as performance metrics, learning progress, or feedback, is frequently necessary for AI-powered training systems (Khatri et al, 2020). It is vital to guarantee the confidentiality and security of sensitive data. To secure employee data from misuse, unauthorized access, and breaches, organizations must implement strong security measures and adhere to applicable data protection standards. To foster trust and uphold privacy standards, open communication with staff members about data collection, storage, and usage is vital.

There are ethical questions raised by the use of

AI in workplace training, especially in relation to accountability, transparency, and permission (Zhang & Wang, 2019). Employers need to make sure that staff members are informed about the use of AI in training as well as the potential effects it may have on their education and professional growth. Upholding trust and resolving ethical issues need open communication regarding the use of AI, the data that is gathered, and the decision-making process (Bala et al, 2023). In order for AI models and algorithms to continue to be useful, workplace dynamics, technological advancements, and skill needs must all change over time. To adapt AI models to evolving requirements, organizations must often update and retrain them. AI systems should also be adaptable enough to take into account the preferences, learning styles, and particular training needs of each student.

Employee resistance or hesitation may arise when AI is introduced into workplace training because they may mistrust AI-based technologies or fear losing their jobs. Companies must proactively address issues, explain the advantages of AI in training, and offer assistance and training to staff members so they can become familiar with and comfortable with AI technologies (Zhang & Wang, 2019). It's critical to communicate clearly about how AI improves learning and growth possibilities rather than taking the place of human teachers. Integration with current systems and a strong technical foundation are necessary for implementing AI in workplace training. Businesses must make sure that their infrastructure can support the computing demands of AI algorithms and that learning management systems, data storage, and analytics platforms integrate seamlessly. Adequate IT support and expertise are necessary to overcome technical challenges and ensure smooth implementation and operation of AI-powered training systems.

The costs of implementing AI in workplace training, such as purchasing AI technologies, developing AI models, and keeping up the infrastructure, might be high. Businesses must carefully weigh the advantages and disadvantages of implementing AI before allocating resources (Khatri et al, 2020). Compared to larger businesses, smaller organizations with tighter budgets could encounter more difficulties implementing AI for training. AI algorithms can be complicated and challenging to understand, especially deep learning models. The inability of AI systems to provide an explanation can make it difficult to comprehend the reasoning behind specific suggestions or choices (Zhang & Wang, 2019). This lack of openness may undermine user acceptability and cause problems with trust. Establishments ought to endeavor to create AI models and algorithms that are comprehensible and offer lucid explanation for their results.

## Benefits of AI in Training

Artificial Intelligence (AI) is transforming the field of learning and development with its many benefits for workplace training (Zhang & Wang, 2019). AI allows for customized learning experiences based on the requirements, interests, and learning preferences of each employee. Based on an employee's performance, desired career path, and knowledge gaps, AI algorithms can evaluate learner data and generate personalized recommendations, material, and learning courses (Bala et al, 2023). By guaranteeing that workers receive customized training sessions, this customization promotes more effective and efficient learning outcomes.

By utilizing cutting-edge algorithms to optimize content delivery, adjust the difficulty level, and provide real-time feedback, AI-powered training systems can improve learning results. Employers are guaranteed to be suitably challenged and engaged by adaptive learning platforms, which use AI to dynamically modify the training content based on learners' knowledge levels and progress. Better knowledge retention, skill learning, and general performance improvement are encouraged

by this tailored approach (Zhang & Wang, 2019). AI makes it possible to access training resources and materials at any time, anyplace. AI-powered learning platforms enable employees to study at their own speed and accommodate a variety of learning preferences by delivering training information across a variety of devices and formats (Khatri et al, 2020). AI-based chatbots and virtual assistants can also respond to employee inquiries and offer on-demand help, increasing accessibility and lowering the need for human trainers.

Large volumes of training data can be analyzed by AI algorithms to produce predictive analytics and actionable insights. AI can be used by organizations to track training efficacy, detect skill gaps, and monitor learner progress (Zhang & Wang, 2019). Organizations are able to optimize training programs, manage resources efficiently, and match training initiatives with strategic goals and business demands thanks to this data-driven approach to decision-making (Bala et al, 2023). AI makes it easier to learn continuously by offering chances for continuing skill improvement and microlearning. Based on an employee's performance, interests, and evolving skill requirements, recommender systems powered by AI can make recommendations for pertinent training materials, articles, videos, or microlearning modules. This makes it possible for staff members to learn new skills gradually, keep up with market developments, and pursue ongoing professional growth.

Assessment solutions powered by AI have the ability to produce comprehensive performance reports, instantly provide comments, and automate the grading process. Artificial intelligence (AI) systems are able to examine student responses, spot trends, and offer tailored feedback to fill in knowledge gaps. Employees can monitor their progress, active learning is encouraged, and trainers may step in and offer more assistance as needed thanks to this real-time evaluation and feedback system.AI can save costs and save time by au-

tomating and streamlining a variety of training procedures (Khatri et al, 2020). Artificial intelligence (AI)-enabled chatbots, virtual trainers, or intelligent tutoring systems can reduce the need for human intervention by answering basic questions, assisting with employee onboarding, and giving fast access to training resources. AI also streamlines administrative chores like scheduling, registration, and reporting, giving trainers more time to concentrate on more strategic and valuable work.

Training platforms with AI capabilities can easily grow to accommodate many students at once. Artificial intelligence algorithms guarantee the uniform distribution of training materials and tests, removing discrepancies that could result from the different approaches or perspectives of human instructors. Organizations are able to provide training programs consistently across geographically dispersed teams or different locations thanks to this scalability and uniformity. AI analyzes learner data, assesses training outcomes, and pinpoints areas that need work to enable training programs to be continuously improved (Bala et al, 2023). Artificial intelligence algorithms possess the ability to monitor the efficacy of diverse training interventions, detect successful patterns, and suggest adjustments to enhance training endeavors. Training programs adapt to changing needs and stay in line with business goals thanks to this iterative approach.

AI enhances the effectiveness of human trainers and subject matter experts by giving them access to insights, analytics, and tools. Trainers can get help from AI algorithms with learner data analysis, trend identification, and intervention customization. Trainers may now make data-driven decisions, concentrate on strategic training elements, and provide more memorable learning experiences thanks to this enhanced intelligence. Organizations may build a learning ecosystem that is more effective, personalized, and engaging by utilizing

AI. Workplace training powered by AI enhances learning outcomes, fosters personal growth, and helps businesses adjust to a business environment that is changing quickly. In training, the integration of AI capabilities and human expertise produces a potent synergy that promotes skill development, ongoing learning, and organizational success.

## Research Methodology

The study used qualitative methodologies in understanding the opportunities and challenges of artificial intelligence in training in the Zimbabwean mining sector. Qualitative methodologies, specifically face-to-face and telephone interviews, were chosen as they are well-suited for investigating perceptions and attitudes. The target population for this study consisted of human resources professionals working in Zimbabwean mining sector. Data collection involved conducting interviews with the participants. The study used a mixture of judgemental, convenient and snowball sampling. The interviews were carried out until data saturation was reached, which occurred after the 10th interview. This approach helped to ensure that a sufficient amount of information was gathered without unnecessarily prolonging the data collection process. By stopping the interviews at this point, the study was able to save on resources and time. Thematic analysis was chosen as the method for analyzing the collected data. Thematic analysis involves the identification and exploration of patterns or themes within the data, allowing for a comprehensive understanding of the participants' perceptions. This approach facilitates the organization and interpretation of the qualitative data, leading to the emergence of key findings and insights.

## Results and Discussions

### Training Activities That use Artificial Intelligence in The Zimbabwean Mining Sector

The first objective of the study was aimed at establishing areas in training that have been using artificial intelligence. The study found that artificial intelligences are used in induction, online training, refresher courses and conferences. The study found that many organisations are using artificial intelligence in induction training. This is where new employees are given a chatbot to ask questions on the organisation in order to familiarise themselves with the culture and practices of the organisation. For example, P2 said "We give new employees a link to our chatbot so as to make ask the chatbot as many questions as possible about our organisation." This is similar to Zhang & Wang (2019) who found that Chinese firms are using chatbots for induction of employees. The study also found that online training is now conducted using artificial intelligences. Chatbots are used to facilitate online training as opposed to using humans as facilitators. This also resonates with Arggawal & Khathuria (2023) who also found the use of artificial intelligence in online training. The study also establishes that artificial intelligence is also used in the refresher courses. They have the ability to train people on refresher courses uses chatbots. Refresher courses such as training and development. This resonated with P8 who said "Refresher such as health and safety we use chatbots, and these automatically conduct training examination and certify whether the employee has passed or not." This converges with Khatri et al (2020) that artificial intelligence is vital in refresher courses. However, the study found that organisations are not fully using artificial intelligence in training activities such as needs assessment, training implementation and training evaluations. This contradicts finding by Bala (2023) that organisations are fully utilising artificial intelligence in training activities.

### Challenges Associated With The Use if Artificial Intelligence in Training Activities

The second objective was aimed at identifying challenges associated with use of artificial intelligence in training activities. The study found that expensiveness is one of the challenges associated with artificial intelligence. For example, P1 said "To invest in these technologies it is expensive and we cannot afford, hence not using artificial intelligence in training." This resonates with Bhardwaj et al (2020) that organisations are hesitant to use artificial intelligence because of costs associated with it. In addition, the study found that lack of skills in artificial intelligence is another challenge. For example, P9 said, "The training officers do not have the skills to leverage on artificial intelligence in executing their duties." This id different with Malik et al (2019) studies, the difference may be that India is ahead of Zimbabwe in terms of artificial intelligence skills. The study also found that artificial intelligence leads to loss of jobs especially in a country like Zimbabwe with its economic challenges. For example, P4 said "Where we need five human resources personnel we may need only one, it means that the other four should be let go." This converges with Mishra & Arkman (2010) that technology is leading in loss of jobs. The investigation found that artificial intelligence in training has cultural implications. For example, P5 and P7 cited that Zimbabwe has collective culture and use of artificial intelligence has resulted in little interactions amongst humans. This is not detected by Gupta & Singh (2020) who did their studies in the UK where there is individualistic culture.

**Benefits That Can Be Derived From The Use Of Artificial Intelligence In Training Activities**

The investigation found that use of artificial intelligence in training leads to training efficiency. Training is conducted using limited resources. For example, P3 said "Use of artificial intelligence in refresher course is quicker and uses less resources as it is the individual employee interacting with a chatbot." This is similar to findings by Sharma et al (2022) that efficiency is enhanced through artificial intelligence. The study found that training is effective when artificial intelligence. Human facilitators can have errors but this is not the case with well programmed artificial intelligence as all the relevant information may be fed to the artificial intelligence. This deviates from Aggarwal & Mittal (2022) who found humans to be more effective that artificial intelligence. The investigation also established that enhanced trainee experience is another finding pertaining benefits of artificial intelligence. For example, P6 said "With chatbots employees have to train at their own pace and time making the process interesting and stimulating." This is also picked up by Gupta & Singh (2020) in their studies in India. The research found that use of artificial intelligence is also part of organisational branding. It can be used to attract employees as it is viewed as more modern than the traditional training. This is not picked by various researchers on the same problem investigation (Bala et al, 2023; Bala & Singh, 2022; Rehman et al, 2021).

## Conclusions

The study concludes that organisations in the mining sector are not fully utilising artificial intelligence in training, but some have been using it in induction, refresher courses and online training. The research recommends that expensiveness, lack of skills, loss of jobs and cultural implications as challenges associated with artificial intelligence. The investigation concludes that artificial intelligence is highly beneficial in training as it results in effectiveness, efficiency, enhanced trainee experience and organisational branding. The study recommends that:

Mining companies embrace artificial intelligence in all its training activities;

• Mining companies collaborate with higher education institutions and tech companies to help

them develop artificial intelligence capable of being used in training activities;

- Further studies to be conducted on training and artificial intelligence in other sectors such as manufacturing and telecommunications; and

- Further studies to be carried out on artificial intelligence and other HRM activities such as reward management and performance management.

## References

1. Aggarwal, R., & Mittal, A. (2022). Adoption of Artificial Intelligence in Human Resource Management: A Study of Indian Organizations. International Journal of Research in Marketing and Human Resource Management, 12(2), 1-18.
2. Aggarwal, S., & Kathuria, P. (2023). Impact of Artificial Intelligence on Human Resource Management: A Review of Literature. Journal of International Academic Research for Multidisciplinary, 11(4), 1-3.
3. Bala, H., Saini, R., & Singh, S. (2023). Artificial Intelligence and Human Resource Management: A Review of Current Practices and Future Directions. Journal of Strategic Human Resource Management, 12(1), 1-15.
4. Bhardwaj, A., Singh, R., & Sharma, A. (2020). Exploring the Use of Artificial Intelligence in Human Resource Management: A Study of IT Professionals. International Journal of Human Resource Studies, 10(1), 1-18.
5. Gupta, R., & Singh, V. (2020). Exploring the Use of Artificial Intelligence in Employee Recruitment and Selection: A Review. International Journal of Management Studies, 7(2), 1-11.
6. Khanna, R., & Sharma, A. (2021). Artificial Intelligence in Employee Training and Development: A Review. Journal of Training and Development, 9(1), 1-10.
7. Khatri, R., Sharma, V., & Gupta, K. (2020). Artificial Intelligence and Human Resource Management: Opportunities and Challenges. International Journal of Scientific and Research Publications, 10(3), 1-6.
8. Malik, A., Sood, S., & Gupta, A. (2019). Impact of Artificial Intelligence on Human Resource Management Practices: A Review. International Journal of Advanced Research in Computer Science, 10(2), 1-5.
9. Mehta, P., Verma, S., & Sharma, V. (2023). Artificial Intelligence in Performance Appraisal: A Systematic Review. Journal of Applied Psychology, 9(2), 1-12.
10. Mishra, R., & Akman, I. (2010). The Role of Information Technology in Human Resource Management. International Journal of Economics, Commerce and Management, 2(4), 1-11.
11. Rehman, A., Qureshi, M. I., & Shah, S. Z. A. (2021). Artificial Intelligence in Human Resource Management: A Review and Future Research Agenda. Journal of Organizational Change Management, 34(5), 1002-1023.
12. Sharma, A., Bhatia, S., & Kumar, A. (2022). Ethical Implications of Artificial Intelligence in Human Resource Management: A Review. Journal of Business Ethics, 151(3), 845-860.
13. Sharma, S., Jain, S., & Sharma, R. (2021). Artificial Intelligence in Human Resource Management: A Review of Applications and Challenges. International Journal of Engineering Research and Advanced Technology, 7(1), 1-7.
14. Singh, A., Kumar, A., & Bhatia, N. (2018). Artificial Intelligence and its Role in Human Resource Management. International Journal of Mechanical Engineering and Technology, 9(12), 135-144.
15. Singh, D., & Mishra, S. (2021). Artificial Intelligence and Employee Engagement: A Review of Literature. International Journal of Human Resource Development and Management, 21(1), 1-16.

16. Verma, R., & Gupta, S. (2020). Artificial Intelligence in Employee Retention Strategies: A Review. Journal of Organizational Behavior, 41(3), 367-381.

17. Zhang, Y., & Wang, L. (2019). The Impact of Artificial Intelligence on Human Resource Management: An Empirical Study in China. Journal of Business and Psychology, 34(4), 539-549.

18. Agarwal, A., & Sharma, S. (2021). Artificial Intelligence in Talent Management: A Review. Journal of Talent Development and Excellence, 13(1), 1-11.

19. Bala, M., & Singh, P. (2022). Artificial Intelligence in Succession Planning: A Systematic Review. Journal of Leadership and Organizational Studies, 29(4), 531-546.

20. Gupta, A., & Kumar, S. (2023). Artificial Intelligence in Workforce Analytics: A Review. Journal of Strategic Human Resource Planning, 11(2), 1-14.