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Availability of Human Resource Learning Content in Virtual Reality: Reasons and Implications

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Abstract

The rapidly growing domain of virtual reality (VR) has witnessed considerable traction in the realm of education. Notwithstanding, a discernible void persists in the accessibility of VR content specifically tailored for the domain of Human Resource Management (HRM). This paper endeavors to explain the underlying causes contributing to the scarcity of HR-related VR content. Furthermore, the paper focuses on the reasons and implications of not having sufficient HR content in the immersive space. The paper proposes an innovative solution in the form of a "VR-HR Training Needs Identification Framework". This conceptual framework is designed to facilitate VR content developers in pinpointing the precise core requirements inherent to HR, thereby enhancing the development process.

Keywords: Virtual Reality, VR Content, Human Resource Management, Higher Education

1. Introduction

Through leveraging immersive content through head-mounted displays, students can delve into complex subjects in a manner that surpasses the potential of traditional pedagogical approaches. Using head–mounted displays, students now can delve into subjects in a manner that surpasses the capabilities of traditional learning.

The conceptual underpinning of virtual reality (VR) rests on the premise that users can perceive to be in an alternative immersive environment, whether it is participating in a virtual meeting alongside other VR users or traveling in an entirely imaginary world (Bower et al., 2020). Expressed differently, VR possesses the remarkable capability of transmuting the physical realm into a realm of imaginative constructs to spark a sense of authenticity in the user (Alfalah, 2018). In addition, VR is described as "stretching from authentic reality to wholly synthetic simulations," as articulated by Campos et al. (2022). Therefore, VR is the result of emulating the user's sensory input that the body receives (Linowes, 2020). The design and development of an immersive experience are intrinsically linked to effective pedagogy, which includes appropriate tools and resources, as well as learning content. Cao et al. (2023) add that "in terms of pedagogy, the instructional content design is one of the most

crucial aspects of the transactions that has do with the learning and teaching process, and the success of an immersive virtual reality environment largely depends on the instructional content design". The development of an immersive experience has the sole purpose of enhancing the learning experience and keeping the student engaged (Campos et al., 2022; Lege & Bonner, 2020).

Although VR has predominantly started in the gaming industry, significant momentum within the educational field has been witnessed over the past decade. Integrating immersive virtual reality (I-VR) as an educational tool has redefined the conventional understanding of a learning environment (Dan, 2022). Several researchers conducted systematic reviews to determine the success of VR learning. From these studies, it is evident that there are many advantages to the use of VR in education, of which the most significant is the increase in student engagement that takes place during VR learning (Cao et al., 2023). VR can even improve a student's cognitive, emotional, and behavioral capabilities (Hamlin & Sage, 2011).

Vasilenko (2019) alludes to the fact that HR managers have many daily problems and tasks that can be managed more effectively when using virtual technologies. Furthermore, it is worth noting that there is currently insufficient scientific information and research available to enhance the effective utilization of VR technologies in human resource management (HRM) (Vasilenko, 2019).

1.1 Definition of key terms

Virtual reality: The term "virtual reality," applied to computer-generated simulated environments, was coined by the multifaceted Jaron Lanier. In a 1989 interview for *Whole Earth Review*, Lanier defined VR as a technology using computerized clothing to synthesize shared reality. He emphasized that VR recreates our relationship with the physical world in a new plane without directly affecting the subjective world inside our brains; instead, it solely pertains to what our sense organs perceive (Ambrosio & Fidalgo, 2020).

Virtual reality content: Virtual reality (VR) content is any object or experience made for a virtual reality environment (Perforce Software, 2022).

Human resource management in higher education: Resources encompass tangible and intangible elements, and with the systematic approach of management, the tasks of the human research practitioner would be to universally oversee people and the organization (Mishra & Painoli, 2023).

1.2 Rationale for the research

Despite the well-documented benefits of VR in education in literature, the adoption of VR learning within higher education has been slower than anticipated (Bower et al., 2020; Lai & Cheong, 2022). However, it is widely acknowledged by stakeholders, especially educational institutions, that VR has the potential to substantially enhance student engagement, leading to improved academic outcomes. Addressing the fundamental challenges, which include the scarcity of VR content, particularly for the HRM field, is crucial to facilitate VR's seamless integration into tertiary education. Considering the insights derived from prior research and the uncharted domains that remain ripe for this research, the study formulated several fundamental research objectives:

- To assess the implications of not adopting VR as a medium for learning within the field of HRM.
- To determine the reasons for developing (or not developing) content in the HRM domain.

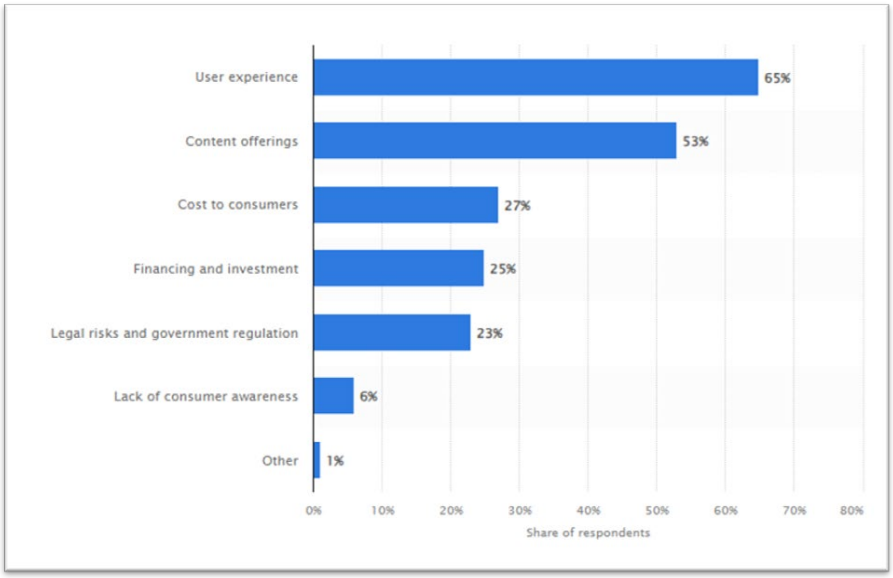
- To design a VR-HR Training Needs Identification Framework.

1.3 Reasons for not adopting VR into HRM

A report written by Perkinds Coie LLP in 2020 underscores that a primary obstacle to the widespread adoption of VR in education pertains to the lack of available material. The report indicates that although there are some industries in which VR learning has gone mainstream, most industries have not fully committed (Perkins Coie LLP, 2020). Alfalah (2018) reports that in recent years, educational institutions have been witness to the rise of educational technology such as VR, however, providing sufficient learning media (or subjects) in VR remains a challenge.

Figure 1 illustrates the main reason for not adopting VR for educational purposes. VR is regarded as one of the innovative alternatives for enhancing the educational experience (Alfalah, 2018). The second biggest obstacle hindering the adoption of VR in education appears to be the scarcity of available content, ranking highest among seven other reasons at 53%, as reported by Alsop (2021), which confirms the validity of this research paper.

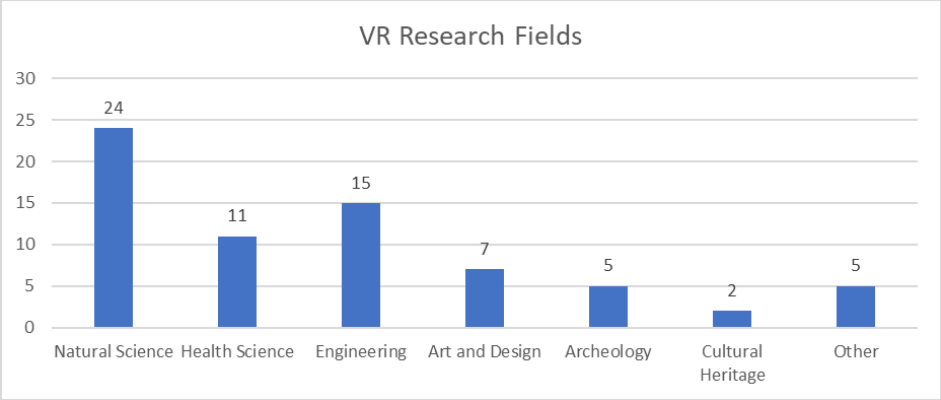
Figure 1: VR adoption barriers



Source: (Alsop, 2021)

In addition, a further study led by Cao et al. examined 69 research papers compiled between 2017 and 2022. Their research aimed to categorize research subjects within the field of education that are relevant to VR. The research found that a third of the studies (24%) focused on subjects within the realm of Natural Sciences, encompassing disciplines such as geography, biology, and chemistry. This was followed by Engineering (15%) ranked second highest, with the third highest VR content designs in Health Science (11%) (Cao et al., 2023). Figure 2 presents the imbalance in the development of VR learning content.

Figure 2: Research fields in VR



Source: (Cao et al., 2023)

The research paper by Cao (2023) notes that the challenge of limited VR content has been raised by various researchers and continuous to hinge the adoption of VR within the educational field (Lege & Bonner, 2020); more specifically, within the human resources (HR) realm where VR can be used successfully for HR training purposes. The implication of not utilizing VR in HR management is that it may lead to a significant impact on an organization's operations, with processes not being automated, which can result in wasting cost and time. For example, without the implementation of VR, organizations may continue to incur expenses related to travel and accommodation (Vasilenko, 2019). A further reason for not adopting VR is that top management teams may not be receptive to adopting VR technologies into the workplace. Management is hesitant to invest in VR experiences without a clear and measurable way of assessing the effectiveness and return on investment (Vasilenko, 2019).

In summary, VR has the potential of drastically reducing costs associated with the training of internal staff members, such as time and money. One of the most astonishing features VR holds within education is to offer an assessment process with a more realistic approximation of a candidate's skills for a particular job. Candidates have the ability to navigate, manipulate objects, and solve real problems within an immersive environment. This use of VR can also help businesses differentiate themselves in a competitive recruitment environment (Vasilenko, 2019).

1.4 The potential uses of HR in a VR environment

Lawton (2021) advocates for the use of VR in HR-related topics, such as recruitment, onboarding and employee training and development. If VR is not implemented, staff members are not able to practice their behavior within complex HR scenarios in a safe and controlled manner.

As a result of the recent coronavirus pandemic, the need to provide alternative learning experiences has received scrutiny (Lege & Bonner, 2020). Even before the advent of the coronavirus in 2020, it is reported that in 2017, Toyota created VR experiences of new incumbents conducting office tours to increase interest in working for the company. VR can also be employed to subject potential employees to a virtual simulation, gauging their reactions and responses (InstaVR, 2017). Another example is the company General Mills, which adopted VR to recruit new employees and for employment branding in the form of shooting immersive videos so that new staff members can do a virtual tour of the offices (Pratik, 2023).

In summary, while the adoption of VR technology in HRM presents a transformative opportunity to (i) revolutionize teaching in higher education and specifically the HRM environment, (ii) streamline processes, and (iii) elevate recruitment practices, a cultural shift within organizations is required. Despite the hesitance of management teams to invest in VR without seeing the return on investment, the potential benefits of embracing these innovations far outweigh the initial uncertainties by recognizing the value of VR in enhancing several HR processes, thereby driving sustained growth and competitiveness (Lege & Bonner, 2020).

2. Methodology

Utilizing qualitative research methodology, this study sought descriptive insights from VR content developers regarding their primary educational subject areas or fields for potential VR content development, along with the underlying implications of not using VR and the reasons for choosing certain subjects for VR content development. The data were collected from experts in the VR content environment—three international and two South-African based content designers. Purposeful sampling has been used as it allowed the researcher to select participants with the expertise in the field and with the ability to contribute positively to the objectives posed. This intentional selection assisted the researcher to gain rich information from the participants. A selection of VR content interest groups was also approached directly; however, no response was received from this group.

The choice of methodology was determined by the ontology of the study. The researchers' experiences and beliefs in the field of VR, as well as their philosophical beliefs about the nature of the reality were the main reasons for choosing the research method (Fouché et al. 2021, 293). The researcher ensured that the participants were not influenced by her own experiences and preconceived ideas.

2.1 Strategy

Open-ended questionnaires were employed to explore the comprehensive implications and reasons for the absence of human resources VR content. Descriptive data emerged through the researcher's phenomenological philosophy (Fouché et al. 2021, 293). The focus was on understanding the implications and reasons for choosing a specific subject to create VR content. Striving to meet the qualitative research methodology measures, the researcher adhered to the following four measures (Fouché et al. 2021, 293): (i) credibility, (ii) dependability, (iii) confirmability, and (iv) transferability. The researcher ensured credibility, making use of Atlas.ti, to assist in the interpretations and findings of the participants. Dependability within the qualitative research was obtained by following a reliable procedure throughout the study and ensuring that all data were kept confidential. The researcher confirms that no biasness or preconceptions were formed during the study. Finally, because of transferability, the data and outcomes of this paper can be used in other subjects as well.

2.2 Selection and screening

A purposeful (also referred to as a judgmental) sampling technique (Fouché et al. 2021, 282) has been used in this study. Selected participants with the relevant VR content expertise and insights were employed. The goal was to obtain comprehensive qualitative data on the factors influencing the availability of HR learning content in VR.

2.3 Data analysis

To analyze the data, the study used Atlas.ti for qualitative statistical analysis, coding all the completed surveys. From the coding, themes were developed and categorized. Linkages

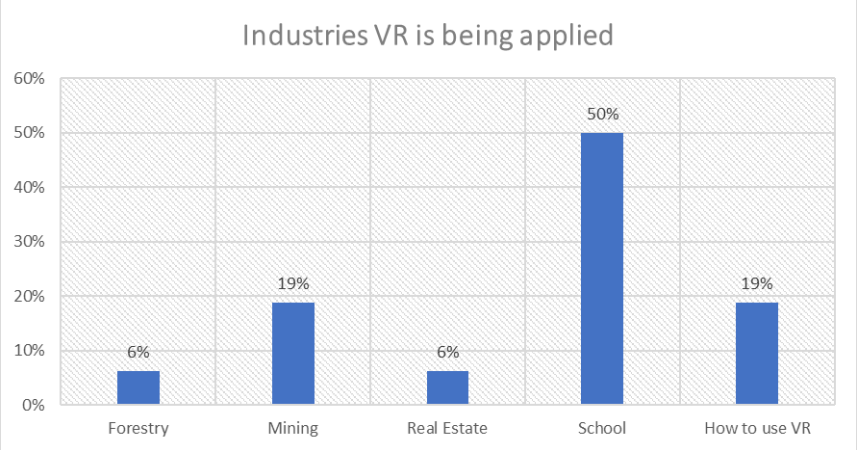
between the different themes were then created to build a theory (Fouché et al., date). The themes focus on the implications of limited VR content creation for the field of HRM, the potential motivations that could drive VR content writers to engage in HRM-focused content creation, and how this engagement could shape the future of HRM applications in VR technology.

3. Results

To enhance the clarity of the data collected, each of the three themes was examined individually. Firstly, it was important for the researcher to use **VR content experts**. The data revealed that these participants collectively contribute a wealth of expertise, encompassing VR content development, educational content creation, language teaching, and entrepreneurial ventures within the educational technology space working in various teaching and learning environments.

The participants were asked about the specific **industries** where they have crafted VR content. Following the analysis of 16 responses using Atlas.ti, into six distinct fields were identified. Notably, the most prevalent focus for VR content creation was on school subjects spanning both primary and secondary education. Subsequently, VR training for mining obtained significant interest. Conversely, the least explored areas mentioned by the participants in the group were forestry and real estate (refer to figure 3).

Figure 3: Industries of VR content developed by participants



To gain a deeper understanding of the VR content generated by participants, an inquiry was made into **whether (or not) VR content designers attempted to design any HR-related immersive experience.** Notably, three participants have dedicated their efforts to the formulation of content related to HRM, thereby constituting a 60% majority. In contrast, 40% of the participants have not yet undertaken any developmental initiatives pertaining to HR materials. Those participants engaged in HR-related content development demonstrated an inclination towards the research paper, encompassing aspects such as induction training and health and safety programs.

3.1 Reasons for not creating immersive HRM content

Participants were invited to contribute their insights into the **potential reasons behind the paucity of VR content** specifically tailored to the HRM domain. Participant 001 articulated that the unique operational processes inherent to each company within HRM preclude the development of a generic approach, thereby rendering such endeavors **time-consuming and cost intensive**. Participant 002 expanded on this discourse by underscoring the high barriers

to entry in deploying VR solutions, positing this as a significant obstacle contributing to the scarcity of **available content** for HRM training.

A notable revelation emerged from Participant 003, who highlighted the **limited comprehension of VR** technology, particularly among users in higher educational institutions. This lack of understanding, as noted by the participant, hinders the recognition of potential applications for HRM within the VR domain. Furthermore, an additional layer of complexity is introduced by the assumption held by HRM practitioners that VR deployment is both intricate and costly. Participant 003 emphasized the inclination toward investing in VR content designed for broader or global audiences, attributing this preference to the substantial financial commitment associated with VR technology. The participant expounded, stating, "Given the high investment in VR technology, there's a preference for content that caters to a larger or global audience. Unlike subjects such as anatomy or technical topics like AI, which follow global standards, HR rules and policies vary significantly across different companies. This diversity might make it challenging to create universally applicable content for HRM, leading to hesitation in making substantial investments in this area." This observation sheds light on the intricate interplay of technological, financial, and conceptual factors influencing the limited development of VR content specific to HRM.

Integral to the essence of this paper, participants further expounded on **significant challenges** encountered during the development of HRM material when providing feedback in the survey. A pivotal consideration underscored in the responses is the inherent intangibility of HRM, as it **lacks physical form** that can be deconstructed. Instead, HRM material involves the **construction of scenarios**, often necessitating the portrayal of characters engaged in discussions pertinent to disciplinary matters, inductions, negotiations, and the like. Moreover, Participant 002 elucidated her experiential challenges, specifically addressing the **obstacle of user adoption** and **insufficient training** available for academic staff. She remarked, "Convincing stakeholders and end-users about the value and practicality of VR content is a continuous effort. Providing comprehensive training programs to ensure that users are comfortable with the technology becomes a pivotal part of the process. This ongoing drive for user adoption and overcoming technological skepticism has been a persistent challenge in the creation of VR content across various domains." The participant's insights shed light on the enduring effort required to garner acceptance for VR content within educational contexts and the persistent challenge of **dispelling skepticism** surrounding its practical utility.

The predominant viewpoint among participants (80%) conveys a consensus that a deficiency in interest, stemming from a **lack of comprehension about VR**, has resulted in HRM professionals not prioritizing its integration. However, Participant 005 presented a dissenting perspective, asserting that individuals well-versed in learning and development recognize the distinctive capabilities inherent to VR devices, which are unparalleled to other means. Emphasizing the transformative potential of VR, Participant 005 remarked, "It is truly a transformative tool. When used for the right purposes, it cannot be matched. If someone does not understand that they simply aren't aware. I have never met someone who isn't easily convinced that VR is a useful tool." This contrarian viewpoint challenges the notion that a lack of understanding invariably diminishes interest in VR within HRM, suggesting that informed professionals perceive its unparalleled utility.

The survey data additionally reveals that **60% of participants expressed a minimal to non-existent interest in adopting VR training in HRM**, echoing the sentiments of participant 002. However, the data also indicate that 40% of participants acknowledged a surge in enthusiasm post-event but observed minimal subsequent actions to implement VR training.

Moreover, the data suggest that VR content writers must acquire a comprehensive understanding of HR topics to craft relevant HR-related experiences.

The data further highlight that none of the VR **content writers use their own motivations or interest** in a subject to create content; it is depicted from clients' needs and what the industry requires. Participant 004 added a valuable comment by stating, "Delivery of product. There are many ways that this can go wrong, and the easy way to go about things is not the right answer. Until that is fully appreciated, there will be issues going forward. This does not need to be the case. These are fairly easily resolved issues, but someone needs to lead the change." Participant 004 stressed the point of having **HR professionals that lead the change.** A final point of view on the topic of challenges hindering the adoption of HR content being developed is the unique cost that goes with the development of VR material. Most probably, the VR content will have to be filmed first making use of a 360 camera and scenarios need to be created.

3.2 Driving forces to engage with VR content for HRM

A key insight into overcoming the adoption challenges of human resources VR content development is the imperative for organizations to articulate their needs. VR content writers will prioritize content creation based on identified needs, ensuring a return on their investment. It becomes essential for organizations to communicate their requirements, as VR content writers have no incentive to develop material that may not find acceptance among clients. Drawing from the valuable experiences and insights shared by participants, figure 4 presents ways in which VR content writers can further enhance the development of HRM immersive content.

Figure 4: Driving forces to engage with VR content for HRM

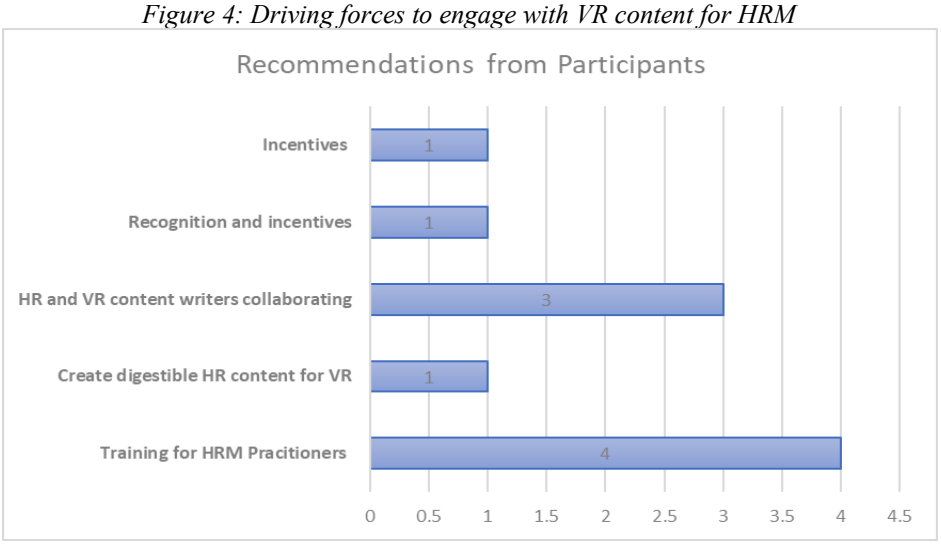


Figure 4 unmistakably underscores the **imperative for training HRM** professionals. Participants highlighted that HRM professionals do not necessarily understand what VR is and how it can be used. Professionals and VR content creators can engage in discussions, identify needs, and collaboratively devise solutions.

The researcher further enquired about the efficiency of teaching HR through a VR learning mode. Another crucial aspect identified was the importance of establishing **networking platforms** where HR practitioners can collaborate with VR experts. Participant 002 proposed a valuable recommendation, suggesting the **breakdown of HR processes** to facilitate the creation of concise VR training sessions. This approach could simplify the subject matter and enhance the effectiveness of VR training in HR. Additionally, recommendations were made

to recognize and **reward VR content** writers who excel in producing exceptional work within the HR field. This acknowledgment serves as an **incentive** to motivate and appreciate the efforts of those contributing significantly to developing VR content in the realm of HRM.

4. Discussion

Far beyond a mere administrative function, HR emerges as a dynamic and people-centric discipline. HR goes beyond tangible things; it embodies humanity's essence. It underscores the significance of human elements in the workplace, necessitating a more contemplative approach to crafting VR scenarios. The focus shifts from instructing a tangible object within VR to the nuanced task of imparting knowledge and skills within the context of human interactions and dynamics.

4.1 THEME 1: Implications of not adopting VR learning for HRM practices

Failing to highlight the fundamental goal of HRM practitioners, which is to optimize the return on investment derived from an organization's human capital while concurrently minimizing financial risk (Mishra & Painoli, 2023) can lead to significant setbacks. Neglecting the pivotal role of the HR function within an organization could result in decreased individual performances, organizational goals remaining unmet, and reduced worker satisfaction (Mishra & Painoli, 2023). Given the paramount importance of this responsibility, the failure to embrace educational technologies such as VR for training, guidance, and upskilling staff can have detrimental effects. Not leveraging VR may lead to missed opportunities for enhancing training outcomes. The absence of initiatives to educate and raise awareness about the benefits of VR in HRM could be detrimental. Failing to showcase successful case studies and neglecting to demonstrate the positive impact of VR in HR training may result in a lack of understanding and interest in the technology. This approach risks leaving organizations ill-equipped to adopt VR for HRM, potentially hindering their ability to effectively manage human capital and optimize organizational performance.

4.2 THEME 2: Reasons for not creating immersive HRM content

The rationale behind the limited emphasis on the creation of HRM content can be attributed to two primary factors. Firstly, the HR environment has not **overtly expressed its demand for such content**. Secondly, there is an **absence of a well-defined pedagogical framework** that can serve as the foundation for guiding the instructional design of VR training programs dedicated to HR intent (Lege & Bonner, 2020). The research further confirms that HR practitioners need to **digest the HR learning concepts** for VR content writers to create scenarios. The results confirm that one of the foremost reasons considered for the adoption of VR in the HRM environment pertains to the considerable **cost and time investment**. The cost associated with the implementation of VR technology within an HRM environment are challenges that may mitigate the adoption of VR..

4.3 THEME 3: Driving forces to engage with VR content for HRM

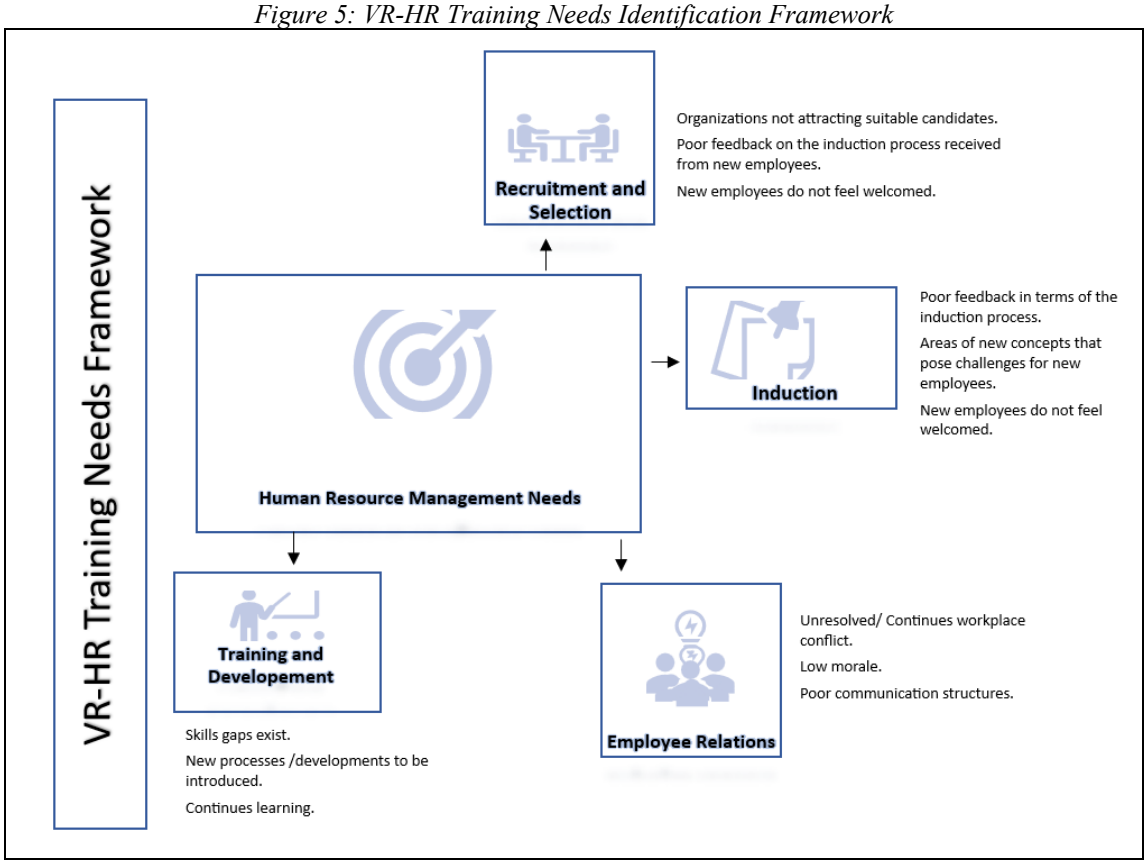
Some participants indicated that VR content writers should be incentivized or receive some form of recognition. Within the specific milieu of South Africa, it is suggested that a professional institution, such as the South African Board of People Practices, could play a pivotal role in fostering, endorsing, and operationalizing such initiatives. Recognition and incentives play a pivotal role in motivating VR content writers. By acknowledging exceptional VR content in HRM through initiatives such as awards or incentives for

innovative work, organizations can stimulate interest and engagement among writers. Providing research and development grants for VR content creation in HRM is another possibility that can drive innovation. Financial support encourages writers to invest time and effort in exploring new ideas and approaches in this evolving field. Furthermore, networking platforms are essential for creating a supportive community of VR content writers specializing in HRM. These platforms facilitate idea exchange, collaboration, and the collective advancement of expertise in the specific domain.

5. Recommendations

Considering the implications of forgoing the integration of virtual reality into HRM, as well as the reasons outlined for such decisions, the researcher developed a VR-HR Training Needs Identification Framework. This framework is specifically designed for application by VR content designers within the realm of HRM. This conceptual framework (Figure 5) aids in the identification of areas within HRM suitable for the development of VR training programs.

Figure 5: VR-HR Training Needs Identification Framework



This conceptual framework presents the multifaceted challenges confronting organizations in the domain of HRM. The research posits a recommendation advocating for VR content designers to conscientiously integrate this VR-HR Training Needs Identification Framework into their decision-making processes when selecting and assimilating HR information within an immersive environment.

Recruitment and selection play pivotal roles in the domain of HRM; these factors are crucial to organizational success. The developed framework advocates the use of VR scenarios to (i) train HR practitioners in effective staff selection and recruitment, and (ii) integrate VR into the actual recruitment process, utilizing immersive scenarios for candidate assessment or

role-playing interactions within a virtual environment**.** To add, the induction process plays a pivotal role in facilitating a seamless onboarding experience for new employees, encompassing the provision of physical resources, acquainting them with policies and procedures, and introducing them to colleagues (Mchete & Shayo 2020). In the realm of VR, a simulated "walkthrough" of the workplace can be created, enabling the new employees to familiarize themselves with departmental locations, the kitchen, and other facilities. Additionally, policies and procedures can be presented to the new employee through an immersive VR experience, enhancing their understanding and engagement with organizational guidelines.

Another important facet within the HR field is Training and Development, which resorts under the purview of HR practitioners, ensuring that staff members are equipped with essential skills and resources to fulfill their roles. In the context of new projects, HR practitioners strategically partner with management to inform and prepare staff for new responsibilities. The framework can further be used to assist in providing employees with training on how to conduct performance reviews. Virtual reality can offer managers an immersive experience to practice and enhance their skills in conducting effective performance review sessions with staff.

Finally, HR practitioners often grapple with the task of managing employee relations, which involves improving relationships between the organization and its employees, as well as fostering positive interactions among employees. By employing VR immersive cases, individuals within an organization can be presented with diverse scenarios, subsequently undergoing assessments based on their responses. The utilization of VR learning facilitates prompt provision of feedback to users regarding their handling of various situations. Equally important, organizations have the opportunity to collaborate with VR companies to showcase the functionality of VR, and it frequently falls on the shoulders of HR practitioners or learning and development managers to usher in innovative learning methodologies within the company. Importantly, someone must assume responsibility for orchestrating and overseeing this integration process. Hence the importance of HR practitioners to gain insight into the benefits of VR training.

A huge responsibility lies on the shoulders of learning and development practitioners to ensure collaboration, awareness, recognition, networking, and financial support of VR within the organization. Fostering collaboration between VR content writers and HR professionals can be instrumental in creating content that aligns with specific training needs and challenges.

6. Conclusion

This paper introduced a conceptual framework crucial for virtual reality content designers in assessing human resource management skills and related organizational gaps within organizations. The framework facilitates the formulation of pertinent questions to accurately identify HR needs within the organization, ultimately guiding the development of appropriate VR experiences. Through utilizing the *VR-HR Training Needs Identification Framework,* VR content developers possess a valuable instrument for comprehending the specific HR scenarios that necessitate development. This framework serves as a guiding tool, aiding developers in discerning precise HR training requirements that should be addressed in the creation of VR content.

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