

Exploring The Integration Of Virtual Reality Training Programs In Green Human Resource Management Initiatives To Enhance Employee Ecological Awareness And Eco-Friendly Practices In Contemporary Organizations

Kulsoom Siddiqui^{1*}, Dr. Satendra Kuman Sharma²

¹Ph.D. Scholar, Mangalayatan University, Aligarh, India

²Assistant Professor, Mangalayatan University, Aligarh, India

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ABSTRACT

A three-dimensional computer depiction of a real or imagined world with interactive features is called virtual reality, or VR for short. There has been a lot of hype about the use of VR for organizational training, however, It is yet unknown what VR training programs work well. To solve these problems, we conduct a meta-analysis of controlled experiments that evaluate the potency of virtual reality training courses. We can determine the approximate overall efficacy of virtual reality training programs, and we pinpoint programme elements that consistently yield better outcomes. Our meta-analytic results confirm that VR instruction leads to improved results compared to alternatives that were tested. The findings also demonstrate that not many moderating effects were noteworthy.

Keywords: Virtual Reality, Green Human Resource Management Initiatives, Eco-friendly Practices.

1. INTRODUCTION

Virtual reality is the latest technology that develops a replica of the real world and enhances the learning experience. It is the simulation of the existing environment, which is in the nascent stage of development and emerging in HR activities in contemporary organizations (Arya & Rana, 2023). The purpose of the study is to explore the integration of virtual reality in spreading awareness of Green Human Resource Management Initiatives to increase ecological awareness and eco-friendly practices. It has been recently observed that Virtual Reality training programs are boosting ecological awareness among the employees at a large scale. Virtual reality programs have revolutionized Green Human Resource Management Initiatives and impacted employee performance. Innovative technologies like VR training are providing a simulation of an artificial environment and challenges faced by employees in organizations in implementing green human resource management initiatives (Zielinski, 2021).

The paper explores the growing importance of VR training in providing the proper training to implement the VR training modules in the Green HRM initiatives such as green training, green selection, green compensation, etc in the spread of ecological awareness and eco-friendly practices at the workplace. The VR training provides hands-on experience to the employees and knowledge of the importance of implementing the Green Human Resource Initiatives in the organizations (Stasa et al, 2023). The modern organizations are incorporating the implementation of VR training in the workplace to grow the importance of green HRM initiatives. With the incremental rise in environmental deterioration organizations are rising in the concept of virtual training programs to provide training programs on employee ecological awareness and eco-friendly practices (Mishra, 2017).

Virtual reality is integrated with HR activities is a recent trend and boosting environmental ecological awareness and eco-friendly practices. VR is augmenting the deeper sense of employee awareness and employee engagement (Lawton, 2021).

The paper explores the concept of virtual reality training programs and their integration with green HRM initiatives to augment employee environmental awareness and eco-friendly practices.

2. REVIEW OF LITERATURE

Semedo, E et al (2022) This study sought to explore the impact of green human resource management on organizational identification and employees' eco-friendly behavior, as well as the mediating role of organizational identification in the relationship between green human resource management and employees' eco-friendly behavior. To achieve the study objectives, a cross-sectional quantitative study was developed, for which the data were obtained through a structured questionnaire containing the measures of the study variables. Data were collected from 235 employees from several Portuguese tourism organizations participating in the study. The Harman test and bootstrapping were applied previously to the assessment of the results. The mediation study's hypothesis was evaluated using Baron and Kenny's linear regression method and subsequently complemented using the Sobel test. The findings showed that the implementation of green HRM practices in tourism organizations has a positive impact on employees' eco-friendly behavior and organizational identification, with the latter mediating the relationship between green human resource management and employees' eco-friendly behavior. The study is breaking new ground because it incorporates the impact of green human resource management on organizational identification and employees' eco-friendly behavior in a single research model, thus expanding knowledge on the subject, namely in the tourism sector in Portugal.

Ronaghi, M (2023). Sustainability is one of the global challenges, individuals and businesses need to change their behavior and consumption patterns to move towards sustainable development. This is not possible without planning for education and related knowledge transfer. On the other hand, disruptive technologies such as virtual reality (VR) have revolutionized the field of education. The purpose of this study is to evaluate the effect of holding traditional training courses and VR-based training courses on sustainable behavior.

Brosch, T (et al), 2023. Our study focuses on the promotion of sustainable actions that individuals can adopt at home. We tested the effectiveness of different formats of conducting promotional campaigns providing pro-environmental knowledge. Specifically, we assessed whether the same message delivered in print, in a video, or in an immersive virtual environment, via a virtual human that resembles the participant or not, affects norms, attitudes, and behavioral strategies about energy-saving gestures. Results revealed that receiving pro-environmental knowledge while being immersed in virtual reality led to greater energy-saving attitudes and different use of products and appliances at home as compared to receiving the same information via more traditional means. The present work aims to sensitize governmental and pro-environmental organizations about the effectiveness of using immersive virtual reality to conduct such campaigns.

Hamari, J (et al), 2023. In recent years, extended reality (XR) technology has seen a rise in use in environmental subjects, i.e., climate change or biodiversity loss, as a potential tool to inform and engage the public with current and future environmental issues. However, research on the potential of XR technology for environmental sustainability is still in the early stages, and there is no clear synthesis of the methods studied in this field. To provide a clearer view of existing approaches and research objectives, we systematically reviewed current literature dealing with XR use in environmental topics. Although the results indicate that the volume of literature exploring XR in environmental applications is increasing, empirical evidence of its impact is limited, hindering the possibility of drawing significant conclusions on its potential benefits. Based on our analyses, we identified thematic, theoretical, and methodological knowledge gaps and provided a guideline to aid future research in the field.

OBJECTIVE OF THE STUDY

- 1) The purpose of the paper is to explore the role of virtual reality in spreading the awareness of environmental ecological awareness and eco-friendly practices.
- 2) The role of virtual reality in visualizing sustainability concepts.
- 3) The challenges faced in implementing virtual reality training programs in organizations.

HYPOTHESIS DEVELOPMENT

H1 Virtual training programs are more beneficial than an alternate option, which includes equal, unequal, and no training comparisons.

The first hypothesis states that virtual reality training programs yield better results than other comparisons, such as equal, unequal, and no training comparisons. Here, we suggest moderating factors that could affect the degree to which VR training courses yield greater advantages than different comparisons utilizing the above-described theoretical perspective. We emphasize that VR applications with specific features and/or settings could yield better results than VR initiatives without certain characteristics (like hardware or software) or environments (like participant population, or the group under control). In those cases, the former would result in greater results in contrast to other comparisons than the latter, which means these characteristics would mitigate the impact of virtual reality training courses about theoretical insights.

H₂= The effect of training programs on the alternate hypotheses is moderated by the applied hardware such as the effect of the immersive VR technologies is not about the non-immersive technologies in the VR training programs.

H₃= The applied input hardware modifies the effect of VR training programs on alternative comparisons. This means that the effect is greater when specialized input hardware (such as motion sensors, and custom devices) is used in the VR training program than when non-specialized input hardware (such as keyboard, mouse, and joystick) is used.

STUDY DESIGN

Two factors should be taken into account when designing studies. First, VR training programs may seem better than alternatives due to certain confounding elements in research design, but this may not accurately reflect their genuine benefit. Second, problematic study designs may be frequently employed in VR training research; determining how common these designs are may be the first step in minimizing their use. Consequently, we go over three facets of the study design. Training outcomes can be examined at four distinct levels, according to Kirkpatrick (1975, 1979): reactions, learning, behaviors, and results. Learning is the acquisition of knowledge and skills by the trainees; behaviors are the change in participants' behavior in natural situations following the training; and outcomes are the perceptions of the learners regarding the training program.

RESEARCH METHOD

In addition to identifying a wide range of potential moderating factors, we suggested that VR training programs are more effective than alternative training methodologies. The easiest way to test these suggestions is through a meta-analysis of well-monitored experimental studies on virtual reality training programs to ascertain whether these training initiatives have an overall higher impact than alternative training initiatives. We decode and examine the qualities of the sources to ascertain whether particular traits change the impacts that are seen. For example, we designate if the research used hardware for immersive or non-immersive displays, and we compute estimates independently for each. By comparing the outcomes, one can ascertain whether. Immersive displays indeed have more positive effects than non-immersive ones, and we offer comparable evaluations for every other theory and research question.

ANALYSIS

First, we computed several publishing bias indices, such as the trim- and-fill technique, Egger's test, fail-safe k , and weight-function model analysis (Moher et al., 2009, 2015; 2001). Supplemental Material B has additional details on each of them; the first three results are shown in Table 1, whereas Supplemental Material B contains the weight-function model analysis results. Our dataset was also examined. With an emphasis on studentized deleted residuals, Cook's distance, and covariance ratios, outliers, and significant examples are examined (Viechtbauer & Cheung, 2010). Supplemental Material B provides reporting information for these values and enumerated below. We employed a random-effects model to determine the key effects Using Comprehensive Meta-Analysis V3, each effect size was weighted according to its related sample size.

RESULTS

The overall fail-safe k was 21,604, and all but two fail-safe k were larger than 300 when restricted to specific significant study/source characteristics. According to prior guidelines (Orwin, 1983; Rothstein et al., 2005), these fail-safe k values are sufficiently large and the meta-analytic effects can be considered robust. Egger's test, trim-and-fill method, and weight-function analyses signified publication biases in the overall and many subgroup analyses. These instances of publication bias primarily arose in two manners. First, many studies (>5) were implied to be missing to the left of the mean for five subgroup analyses, which is the expected direction of publication biases. In these instances, some studies with positive and large effects had small sample sizes. Because an equal number of small sample-size studies with negative and large effects are not also included in the dataset, these results suggest that publication bias may indeed be present. Second, many studies were unexpectedly implied to be missing to the right of the mean for the overall analysis and thirteen subgroup analyses. The analysis identified several effects missing above the mean because two positive outliers shifted the mean upwards (discussed below), causing more effects to fall below the mean. In these cases, the two possible outliers were the apparent causes of potential biases, rather than substantial effects of publication biases. To further explore possible biases in the dataset, we calculated relevant statistics to test for influential cases and outliers (Supplemental Material B). Each of these indicated that two outliers may be present in the overall analyses. We included these two sources in analyses because random-effects approaches are resilient to outliers and none of these sources altered our interpretations of results; however, Supplemental Material C includes the current results recalculated without these two sources, which readers can reference to ensure that the current results. The paper has found that VR training programs are enhancing the awareness on environment and eco-friendly practices in a positive way.

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