

# Perceived Effect of Virtual Reality Headset on Students' Dancing Performance

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**Abstract.** This study aims to examine the student's perception on the appropriateness of virtual reality headset as an aid in learning and performing dance. A descriptive-correlational type of research was employed. Sixty Physical Education students were chosen as respondents of the study. They were asked to wear a 3D Virtual Reality Box for an average of one minute. Inside it was a mobile phone with a dance video. A self-made questionnaire was then given for them to response. It is a likert scale that contains a series of statements on the appropriateness of the tool, inviting the respondents to respond to each based on how strongly they feel on each statement. The results shows that age, familiarity on the use of VR and the rate on the appropriateness of VR use is significantly correlated with the perception on the use of virtual reality on dancing performance. This implies that the more familiar and aware the respondents are with VR, the more they perceived that this is an appropriate tool in performing dance better. Furthermore, those who believe that virtual reality headset is appropriate as a learning tool in dancing also has a higher perception on the efficacy of VR headset on students' dancing performance. This result suggests that teachers in physical education may consider using the virtual reality headset as a tool in teaching dance.

**Key words:** Virtual Reality Headset; Dance Performance; Appropriateness of VR

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## INTRODUCTION

Throughout time, technology has made great impact on people's lives. It helps in various ways to ease the way of living. As new generations are born and raised in a digital era where the technologies are quite advanced, many people love technology and resist the traditional learning ways. That makes technologies more efficient by means of integrating different kinds of ICT materials. Virtual reality technology brings a plus to the education of the new generations (Hicks, 2016). It offers various capabilities that are able to provide promising support for education. Some of these capabilities include the ability to allow the learners to visualize and interact with the three-dimensional virtual representation, experience the virtual environment in real-time, visualize abstract concepts, articulate their understanding of phenomena by constructing or manipulating the virtual environments, visualize the dynamic relationships between several variables in a virtual environment system, obtain an infinite number of viewpoints of a virtual environment, allow individuals to interact with each other in collaborative virtual environment, as well as visit and interact with events that are unavailable or unfeasible due to distance, time, cost, or safety factors. With such capabilities, in which some are unique to this particular technology, virtual reality offers many educational benefits that if appropriately implemented will bring a positive impact to its application to education (C. J. Chen, 2009).

Since education and technology have become intertwined, it provides student with an immersive learning experience like no other tool. It allows them to virtually set foot into the world of learning and explore. This synergy has yielded excellent results all around the world. Technology has transformed education like never

before. Today, students are quite comfortable with using technology as a learning tool. We have witnessed the revolution of online education and digital classrooms; virtual reality is next in line. Virtual reality was born to transform the video gaming industry. It has now started doing the same in the education sector. It provides student with an immersive learning experience like no other tool. Further, student can experience a 360-video shot or a 3D environment and learn (Beas DevRalhan, 2016). Furthermore, study shows that virtual reality delivers significant and rewarding outcomes for students and teachers by increasing cognitive memory; Test scores and knowledge retention improved when a VR-based education was utilized (Kolo, 2017).

Thus, this study aims to examine the appropriateness of this virtual reality specifically the headset on dance performance.

## METHODS

### Respondents

The respondents were 60 students (30 male, 30 female) who are sophomore and junior physical education majors of MSU-Iligan Institute of Technology. Their Ages range from 16-20 years old. They were specifically chosen as sample since they were enrolled in a dance major in the semester that this study was conducted. Also, the aforementioned University is the only one in the province that offers a degree in Physical Education.

### Measures

Descriptive-correlational method was employed. Data were gathered through a self-made questionnaire. It has two classification. First is on familiarity and awareness on the 3D virtual reality headset; and the second is on the appropriateness of this VR as a tool in performing dance efficiently. Questions were a likert scale that contains a series of statements, inviting the respondents to respond to each based on how strongly they feel on each statement.

### Procedure

Following the approval of the Department of Physical Education's Chairperson, the identified participants were informed about their right to decline to participate and to withdraw from the study. The willing volunteers were presented with an information sheet and informed consent. Once done, each one was given an average of one minute to tried on the 3D virtual reality box with a mobile phone containing a dance video. Then, they were instructed to answer the questionnaire and were encouraged to ask questions anytime. The convenience, time preference, and well-being of the participants were given consideration.

### Data Analysis

Data analysis was carried out using SPSS Version 20.0. Frequency and percentage distribution were used to assess the demographic profile of the respondents. Pearson R was utilized to evaluate correlation between variables. The results showed that  $p$  was smaller than the accepted level of significance  $\alpha=0.05$  is considered as statistically significant.

## RESULT AND DISCUSSION

### Profile of the Respondents

**Table 1.** Frequency and Percentage of the Respondents' Familiarity and Awareness with Virtual Reality Headset

| Rating                                                  | Frequency | Percentage (%) |
|---------------------------------------------------------|-----------|----------------|
| Slightly Aware of VR Headset                            | 25        | 42%            |
| Aware of VR headset                                     | 32        | 53%            |
| Have a plan to make use of VR over the next year or two | 1         | 2%             |
| We have already begun making use of VR Headset          | 2         | 3%             |
| TOTAL                                                   | 60        | 100%           |

**Table 2.** Frequency and Percentage of the Respondents' Top Concerns to the use of Virtual Reality Technology.

| Concern                             | Frequency | Percentage (%) |
|-------------------------------------|-----------|----------------|
| Too much like a game                | 24        | 40%            |
| May cause headache or brain damage  | 18        | 30%            |
| Expensive or difficult to implement | 4         | 6.7%           |
| Might be a distraction              | 0         | 0%             |
| Not enough VR Headset Available yet | 0         | 0%             |
| No Concerns about VR Headset        | 14        | 23.3%          |
| TOTAL                               | 60        | 100%           |

**Table 3.** Frequency and Percentage of the Respondents' Rate on the Appropriateness of Virtual Reality Headset as a Learning Tool in Dancing.

| Description     | Frequency | Percentage (%) |
|-----------------|-----------|----------------|
| Appropriate     | 55        | 92%            |
| Not Appropriate | 5         | 8%             |
| TOTAL           | 60        | 100%           |

### Perception on the Use of Virtual Reality Headset on Dancing Performance

**Table 4.** Overall Weighted Mean of the Respondents' Perception on the Use of Virtual Reality Headset on Dancing Performance

| Question                                            | Strongly Agree | Moderately Disagree | Slightly Disagree | Slightly Agree | Moderately Agree | Strongly Agree | Weighted Mean |
|-----------------------------------------------------|----------------|---------------------|-------------------|----------------|------------------|----------------|---------------|
| Increase dancing performance                        | 1              | 0                   | 2                 | 14             | 16               | 27             | 5.08          |
| Is effective because it makes learning fun          | 3              | 0                   | 3                 | 12             | 20               | 22             | 4.87          |
| Promotes student collaboration                      | 0              | 1                   | 9                 | 8              | 17               | 26             | 5.03          |
| Promotes development of sensory motor skills        | 1              | 0                   | 4                 | 14             | 17               | 24             | 4.97          |
| Is a valuable instructional tool                    | 0              | 4                   | 5                 | 14             | 17               | 20             | 4.73          |
| Is too costly in terms of resources time and effort | 0              | 4                   | 8                 | 10             | 17               | 21             | 4.72          |
| Make student more competent educators               | 0              | 3                   | 10                | 11             | 16               | 20             | 4.67          |
| Makes dancing more interactive                      | 1              | 1                   | 7                 | 13             | 23               | 15             | 4.68          |
| Brings students to a whole new                      | 2              | 0                   | 3                 | 9              | 24               | 22             | 4.98          |

| level of learning                                 |   |   |   |    |    |    |      |
|---------------------------------------------------|---|---|---|----|----|----|------|
| Is easier than any medium                         | 1 | 4 | 6 | 10 | 21 | 18 | 4.67 |
| Motivates students to get more involve in dancing | 3 | 0 | 3 | 8  | 20 | 26 | 5.00 |
| Will increase the student's confidence            | 0 | 2 | 5 | 13 | 16 | 24 | 4.92 |
| Makes dancing easier to learn                     | 0 | 0 | 3 | 14 | 20 | 23 | 5.05 |
| Is effective in different genre of dance          | 0 | 2 | 2 | 11 | 18 | 27 | 5.10 |
| Could develop myself in dancing                   | 0 | 1 | 1 | 10 | 18 | 30 | 5.25 |
| Make me a productive individual                   | 0 | 1 | 6 | 11 | 20 | 22 | 4.93 |
| Overall Weighted Mean                             |   |   |   |    |    |    | 4.92 |

### Significant Relationship between Independent Variable and Dependent Variable

**Table 5.** Results of the Test Statistics on the Significant Relationship between Independent and Dependent Variable

| Independent Variables (Respondents' Background) | Dependent Variable (Perception on the Use of VR Headset) |         |                 |
|-------------------------------------------------|----------------------------------------------------------|---------|-----------------|
|                                                 | r-value                                                  | p-value | Remarks         |
| Age                                             | -0.544                                                   | 0.000   | Significant     |
| Familiarity & Awareness                         | 0.267                                                    | 0.039   | Significant     |
| Top Concerns                                    | 0.125                                                    | 0.341   | Not significant |
| Rate on the Appropriateness of VR use           | 0.308                                                    | 0.016   | Significant     |

### Discussion

The findings of this study provide a comprehensive understanding of respondents' familiarity, awareness, concerns, and perceptions regarding the use of virtual reality (VR) headsets, particularly in the context of learning tools for dancing. The results provide a detailed view of the respondents' engagement with virtual reality (VR) headsets, reflecting their awareness, concerns, and perceptions regarding the technology, especially as a tool for learning dance. The data shows that a significant portion of the respondents, 53%, are aware of VR headsets, while 42% are slightly aware. However, only a small fraction, 5%, have plans to use or are already using VR headsets. This suggests that while awareness of VR technology is relatively high among students, its adoption is still in its early stages (Al Jahwari et al., 2022). The limited number of respondents actively engaging with VR could indicate potential barriers to its widespread use, such as cost, accessibility, or a lack of perceived necessity (Evans Leighton, 2019; Ghobadi & Sepasgozar, 2020). Despite these challenges, VR shows promise in higher education, with 71.5% of students reporting enhanced learning outcomes in a purpose-designed VR laboratory (Marks & Thomas, 2021). Students generally view VR as having useful pedagogical implications (Baxter & Hainey, 2019), and factors such as perceived facilitating conditions and compatibility significantly affect intention to use VR for educational purposes (AL-Oudat & Altamimi, 2022).

The respondents' concerns about VR technology are varied, with 40% expressing that VR feels too much like a game, which may undermine its seriousness as an educational tool. Additionally, 30% are concerned

about potential health risks, such as headaches or brain damage, associated with VR use. These concerns highlight the need for more research and education on the safe and effective use of VR technology. A smaller group, 6.7%, finds VR expensive or difficult to implement, suggesting that cost and practical challenges may also hinder its broader adoption (Sarkar et al., 2020). Interestingly, none of the respondents viewed VR as a distraction or cited a lack of available headsets, indicating that these are not significant barriers to VR use among the surveyed group. However, 23.3% of respondents reported no concerns at all, pointing to a segment of the population that is either well-informed about or unconcerned with the potential risks associated with VR (Leighton, 2019; Baxter & Hainey, 2019). To fully realize VR's educational potential, addressing these challenges and developing appropriate content and implementation strategies is crucial.

In terms of the appropriateness of VR as a learning tool in dancing, a resounding 92% of respondents find it suitable, reflecting strong support for VR's educational potential in this area. This positive perception is further reinforced by the overall weighted mean of 4.92, indicating that, on average, respondents moderately agree with the use of VR in enhancing dance performance. This finding suggests that VR is not only seen as a viable tool but is also appreciated for its potential to enhance learning experiences in creative and performing arts. Various studies have supported this finding showing that virtual Reality (VR) has emerged as a promising tool in education, particularly in creative and physical disciplines. Studies have shown strong support for VR's educational potential in dance, with 92% of respondents finding it suitable and an overall weighted mean of 4.92 indicating moderate agreement with its use (Alhamad et al., 2023). VR's immersive nature enhances engagement, motivation, and learning experiences in sports education and dance training (Mai Geisen et al., 2023; Al-Fayyadh et al., 2023). Pre-service teachers recognize VR's potential to offer unique experiences but express concerns about implementation and self-efficacy (Cooper et al., 2019). VR dance applications positively impact physical and mental well-being (Sarupuri et al., 2023). Students generally show willingness to adopt VR in higher education, particularly in IT and creative disciplines (Alfalah et al., 2017; Baxter & Hainey, 2019). Enhanced usability and spatial ability in VR environments correlate with increased learning satisfaction and positive educational outcomes (Serna-Mendiburu & Guerra-Tamez, 2024).

The analysis also reveals significant correlations between age, familiarity, awareness, and the perceived appropriateness of VR use, with p-values of 0.000, 0.039, and 0.016, respectively. These correlations suggest that as individuals become more familiar with and aware of VR technology, they are more likely to view it as an appropriate tool for learning, particularly in specialized areas like dance. This emphasizes the importance of increasing exposure and education around VR to foster greater acceptance and utilization of the technology in educational settings. Studies indicate that VR can enhance student engagement, knowledge retention, and skill development (Vats & Joshi, 2022; Au & Lee, 2017). Educators and students generally perceive VR positively, recognizing its potential to create novel pedagogical approaches and support active learning (Gavin J. Baxter & T. Hainey, 2019; G. Cooper et al., 2019). However, challenges such as high costs, technical infrastructure requirements, and content development complexities hinder widespread adoption (Sam Kavanagh et al., 2017; Babajide Tolulope Familoni & Nneamaka Chisom Onyebuchi, 2024). Research suggests that increasing exposure and education around VR technology may foster greater acceptance and utilization in educational settings (Gavin J. Baxter & T. Hainey, 2019). As VR continues to evolve, it is expected to play an increasingly significant role in transforming educational practices and enhancing learning experiences.

## CONCLUSION

This study aims to investigate the perceived effect of virtual reality headset on students' dancing performance. It aims to examine the students' perception on the appropriateness of virtual reality headset as an aid in learning and performing dance. A descriptive-correlational type of research was employed. The findings underscore the growing awareness of virtual reality (VR) technology among students, particularly in the context of its use as a learning tool for dancing. While a significant portion of respondents are familiar with VR, its actual adoption remains limited, pointing to potential barriers such as cost and accessibility. Despite these challenges, the strong support for VR's educational potential, especially in creative disciplines like dance, highlights its promise in enhancing learning experiences. Concerns about the game-like nature of VR and potential health risks underscore the need for further research and education on safe and effective VR use. The significant correlations between familiarity, awareness, and positive perceptions of VR suggest that increasing exposure to the technology could foster greater acceptance and utilization in educational settings. Thus, while challenges remain, the study indicates that VR has the potential to transform educational practices, particularly in specialized areas, by offering unique and immersive learning experiences.

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