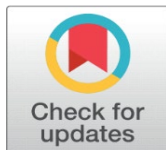
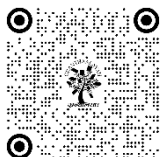


DOES THE EMPATHY MACHINE MAKE JOURNALISM STUDENTS COMPASSIONATE? AN EMPIRICAL STUDY

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ABSTRACT

In 360-degree virtual reality, news stories put the user (who consumes news through a head-mounted display) inside the story. The present study tries to find out whether select 360-degree video documentaries make the users empathize with the story, situation, and people involved in the story. On the other hand, in the news media, journalists and documentary filmmakers work hard to get the news out to the public. People who read the news have to understand how journalists present the news. In 360-degree documentaries, there is no such boundary. This is why the current study is significant in determining how the users feel about the documentaries they watch using virtual reality headsets (HMDs). The current study also tried to find out if there was a difference in the level of compassion between the control group and the experimental group after watching a 360-degree VR documentary. It also looked at how the empathy machine affected the level of compassion of both male and female journalism students. This study used a quantitative approach and a questionnaire that the participants filled out on their own. The respondents who belong to the experimental group and who filled out the pre-test questionnaire were asked to use VR headsets (Oculus Quest 2) to watch a 360-degree documentary. The control group respondents were asked to watch the content using mobile phones.

Keywords: Empathy, Involvement, 360-Degree, Documentary, and Perception

1. INTRODUCTION

Empathy is the ability to understand and share the feelings of others. It is an important part of how people talk to each other and is seen as an essential skill for journalists because it helps them do their jobs well and connect with their readers. As a skill, empathy refers to the ability to understand and share the feelings of another person. This involves taking another person's perspective, understanding their emotions, and communicating that understanding to them. Empathy is a skill that can be learned through practice and experience, like actively listening, asking

open-ended questions, and thinking about how other people feel and what their point of view is. In a general context, empathy means how we feel about what other people are going through. This means feeling a connection or resonance with other people and feeling their feelings through them. This emotional part of empathy comes from our ability to feel what other people are feeling, which is called "affective resonance." [Bailenson \(2018\)](#), [Bandura \(1986\)](#)

For accurate and fair reporting, it's important for journalists to be able to understand their sources and the people they write about. Studies have shown that journalists who are more empathetic tend to produce more balanced and nuanced stories and are less likely to perpetuate stereotypes and misinformation. Emotions motivate journalists to conceptualize the news story and engage their viewers actively. Investigative journalists, in particular, examine the steps and emotions that lead them to be interested in a news story. It can play an important role in journalism, as it can help journalists connect with their audience and tell stories that resonate with people on a deeper emotional level. By understanding and conveying the emotions, perspectives, and experiences of the people they report on, journalists can help their audience understand complex issues and connect with those who may be different from themselves. Empathy can also help journalists build trust with their sources, which can lead to a better working relationship. Journalists can make it safe and easy for their sources to share their stories and points of view by actively listening, asking open-ended questions, and showing genuine interest in the people they interview. [Batson \(1991\)](#), [Batson et al. \(1997\)](#)

It's important to note that the research on empathy in journalism education is still in its early stages, and more research is needed. There is a growing body of research on the topic of empathy in journalism education. In journalism, the term "empathy machine" is used to describe methods or technologies for telling stories that are meant to make the audience feel more empathy for or understand the people and issues being covered in news stories. According to NPR's vice president of newsroom training and diversity, Keith Woods, "it isn't about becoming a sympathetic journalist." The real problem is getting the organization to pay more attention to and directly cover these areas [Bui \(2018\)](#). Immersive journalism is a new type of journalism that has grown in popularity in the past few years. It lets journalists virtually experience and learn about the world in new ways. Virtual reality (VR) and augmented reality (AR) is used in immersive journalism to make the news more interesting. This idea is getting more attention as a possible way to teach journalists empathy and compassion. Other researchers have looked at the ways in which journalism education can foster the development of empathy in students. Some studies have found that giving students a chance to hear and see things from many different points of view can help them learn to understand and appreciate different points of view. Others have pointed out how important it is for students to learn empathy and other journalistic skills through hands-on training and real-world experiences like internships and community reporting projects.

It's important to keep in mind that the studies might not be specific to India and might not take into account India's culture and economy. So, it's important to do more research on how to help journalism students develop empathy, especially in the Indian context. The goal of this study is to find out if using an empathy machine while watching a 360-degree VR documentary makes the people who take part in the study more compassionate. The study is based on an empirical research design. To collect and analyze data, people take tests before and after the study.

2. STATEMENT OF THE PROBLEM

There is a growing body of literature on empathy and journalism education, but there is not much research specifically on the "empathy machine" that makes journalism students compassionate in the Indian context [Backstory: The Quality of Empathy is What Makes Journalism. \(n.d.\)](#). The goal of this study is to compare the changes in compassion levels between journalism students who have used the empathy machine and those who have not. This will help researchers figure out how well the empathy machine works at making journalism students more compassionate. The study will use surveys to measure changes in how much people care through an empirical method.

3. RESEARCH OBJECTIVES

- 1) To examine the difference in the level of compassion between the respondents of the control group and the experimental group on the exposure to 360-degree VR documentary.
- 2) To analyze the relationship between the empathy machine and the level of compassion among journalism students of both genders.

4. HYPOTHESES

H1: There is a significant difference between a control group and an experimental group on the level of compassion.

H2: There is an association between the use of empathy machines (VR headsets) and the compassion level of the respondents with respect to the 360-degree VR documentary.

5. LITERATURE BACKGROUND

Immersive journalism is when virtual reality (VR) and augmented reality (AR) are used to make news stories more interesting and immersive. It has been used to cover a wide range of topics, from natural disasters and war zones to marginalized communities and everyday life. By putting readers or viewers in the middle of the action, immersive journalism helps them feel more emotionally invested in the story and gain a better grasp of the subject at hand [Communications \(2017\)](#).

Empathy refers to the ability to understand and share the feelings of others, while compassion refers to the ability to care for others and act in their best interests. Both are important for journalists because they help them write in a sensitive and accurate way about the experiences and points of view of different groups. Journalism has changed a lot in the digital age, with new technologies and platforms coming out every day. These changes are the result of the growth of "empathy machines," which are tools that allow journalists to see the world from the perspective of their subjects. It is possible that these empathy machines make journalism students more compassionate.

Empathy machines are tools that allow journalists to see the world from the perspective of their subjects. This can be done in a variety of ways, such as through virtual reality or by using technology that simulates different conditions, such as blindness. When journalists are aware of their own biases, they are more likely to report stories accurately. Empathy machines can help journalists become more emotionally connected to their subjects. When journalists feel emotionally

connected to their subjects, they are more likely to report on them compassionately. Despite the potential benefits of empathy machines, there is limited research on this topic. [Iriberry & Leroy \(2009\)](#), [Kapp \(2014\)](#),

To date, there has only been one study that has explored whether empathy machines make journalism students more compassionate. In this study, Wang et al. used a survey to measure the compassion levels of journalism students before and after they completed a course that used an empathy machine. The results of this study showed that there was a significant increase in compassion levels among the participants after they completed the course. However, it is important to note that this study had a small sample size, and further research is needed to confirm these findings. [Haidt \(2003\)](#), [Harrison & West \(2018\)](#), [Klimmt et al. \(2006\)](#)

A study by Bimber, Flanagin, and Stohl (2010) found that participants who viewed a VR simulation of a refugee camp scored higher on measures of empathy and compassion than participants who viewed the same information in a traditional format. Similarly, a study by [Slater & Sanchez-Vives \(2016\)](#) found that participants who viewed a VR simulation of a Syrian refugee camp reported higher levels of empathy and concern for the refugees than participants who viewed the same information in a 2D format. A study by Chung and Kim (2018) found that journalists who experienced a VR simulation of a refugee camp reported greater understanding and empathy for the refugees than journalists who viewed the same information in a traditional format. Similarly, a study by Mohan and Winters (2019) found that journalists who experienced a VR simulation of a war zone reported greater empathy and compassion for the civilians affected by the conflict than journalists who viewed the same information in a traditional format. [Decety & Cowell \(2014\)](#)

While these studies provide evidence that immersive journalism has the potential to foster empathy and compassion among journalists, there are also limitations to the research. For example, the studies were conducted using small sample sizes and/or restricted to specific populations, and thus may not be generalizable to a broader population. Additionally, the studies were conducted using simulated experiences, rather than real-life experiences, which may not be as effective in fostering empathy and compassion as actual experiences would be. [Gleichgerricht & Young \(2013\)](#), [Goldstein \(2018\)](#), [Laver \(2018\)](#), [Lee & Kim \(2018\)](#)

The idea of "emotional capital" helps journalists understand the thoughts and feelings of other people. This shows that journalists can understand how other people feel ([Antje Glück, 2016](#)). Emotions and empathy go hand in hand, and both help those who get the news and those who give it. Emotional empathy may not be used in all kinds of news stories that journalists deal with. [Davis \(1980\)](#)

The article "The Empathy Machine: Investigating the Relationship between Virtual Reality and Empathy" by Maria Manuela [Cruz-Cunha et al. \(2020\)](#) explores the potential of virtual reality technology to enhance empathy among users. The article presents the hypothesis that virtual reality technology can be used to create an "empathy machine" that can help users to better understand and relate to the experiences of others. The authors provide a thorough literature review on the concept of empathy, highlighting the different perspectives and models of empathy. They also review the current state of research on the use of virtual reality technology in empathy development. The authors argue that virtual reality technology has the potential to create highly immersive and realistic experiences that can stimulate the user's emotional responses and increase their empathy [Cruz-Cunha et al. \(2020\)](#). [Ma & Yao, \(2019\)](#)

The study was conducted with a sample of 50 participants who were divided into two groups: a virtual reality group and a control group. The virtual reality group

was exposed to a 360-degree video experience of a person who was living in poverty, while the control group watched a traditional video of the same experience. The participants' empathy levels were measured using the Empathy Quotient (EQ) scale before and after the experiment. The results of the study indicate that there was a significant increase in empathy levels among participants in the virtual reality group compared to the control group. The authors suggest that the immersive nature of the virtual reality experience allowed users to better understand and relate to the experiences of the person living in poverty. The authors also note that the virtual reality experience was perceived as more engaging and emotionally impactful than the traditional video [Cruz-Cunha et al. \(2020\)](#).

The implications of the study for the use of virtual reality technology in empathy development. The authors argue that virtual reality technology can be used to create powerful and transformative experiences that can promote empathy and understanding among users. They suggest that virtual reality experiences can be used in a variety of settings, including education, healthcare, and social activism. The article provides a compelling argument for the use of virtual reality technology as an empathy machine. The study provides empirical evidence that virtual reality experiences can increase empathy levels among users and highlights the potential of this technology to create positive social change. The article also raises important ethical considerations around the use of virtual reality technology and the potential for manipulation and exploitation [Cruz-Cunha et al. \(2020\)](#).

In another article "The Role of Empathy and Compassion in Journalism Education" explores the importance of teaching empathy and compassion in journalism education. The authors argue that empathy and compassion are crucial skills for journalists to have, as they help reporters to understand the perspectives and experiences of the people they report on, and to tell their stories in a more accurate and compelling way. The article reviews existing literature on the topic, including research on the impact of empathy and compassion on journalism, as well as the current state of journalism education. The authors also provide examples of how empathy and compassion have been integrated into journalism education programs around the world, including through courses and workshops that focus on listening, observation, and mindfulness [Mourão et al. \(2018\)](#).

The study concludes by emphasizing the importance of teaching empathy and compassion in journalism education, and by suggesting ways in which this can be done effectively. These include incorporating empathy and compassion into the curriculum, providing opportunities for students to practice these skills through experiential learning, and creating a culture of empathy and compassion within the journalism profession. Ultimately, the authors argue that teaching empathy and compassion in journalism education can help to improve the quality and ethics of journalism, and to create a more informed and empathetic society [Mourão et al. \(2018\)](#).

The article "Gender Differences in Empathy and Compassion among Journalism Students" by Jisu Kim and Kyung Han You, published in 2019, examines the gender differences in empathy and compassion among journalism students. The study involved 193 undergraduate journalism students from a university in South Korea. The authors utilized a survey method to collect data from the participants, which included questions about their demographics, empathy, and compassion levels. The study found that female journalism students scored higher on both empathy and compassion compared to their male counterparts. Female participants also scored higher on the cognitive component of empathy, which involves understanding another person's perspective, while male participants scored higher on the affective

component, which involves experiencing emotions similar to those of others [Kim & You \(2019\)](#).

The authors suggest that the gender differences in empathy and compassion could be due to socialization and cultural factors, as women are often socialized to be more nurturing and empathetic. They also suggest that the findings have implications for journalism education and practice, as empathy and compassion are important skills for journalists to have when reporting on sensitive issues and interacting with sources. The study provides insight into the gender differences in empathy and compassion among journalism students and highlights the importance of cultivating these skills in journalism education and practice [Kim & You \(2019\)](#).

The article "Empathy in the Digital Age: The Relationship between Online News Use and Empathy among College Students" by [Avery & McDevitt \(2019\)](#) explores the potential impact of online news consumption on empathy levels in college students. The study was conducted with a sample of 328 undergraduate students from a large public university in the southeastern United States. The participants completed an online survey that measured their level of online news use and empathy, as well as other demographic factors [Avery & McDevitt \(2019\)](#). The findings suggest that the amount of time spent consuming online news is negatively associated with empathy levels. Specifically, those who reported higher levels of online news use tended to have lower levels of empathy. Additionally, the study found that the emotional content of online news articles did not have a significant impact on empathy levels. The authors suggest that these findings may be due to the fact that online news consumption often involves passive, one-way communication, which can make it difficult for individuals to fully engage with and empathize with the stories they are reading. The authors also note that the constant stream of negative news and polarizing content on social media and online news outlets may desensitize individuals to the suffering of others and lead to a decreased ability to empathize. The study also suggests that college students who consume a lot of online news may be at risk for lower levels of empathy, which could have implications for their personal relationships and their ability to engage in meaningful social and political action [Avery & McDevitt \(2019\)](#).

6. DOES EMPATHY HAVE TO BE HUMAN OR MACHINE?

Human beings are emotional by nature. Particularly in the news media space, journalists do their work 24X7 in terms of reporting different stories, editing news content, and the presentation of news. Because of the busy/transformed lifestyle of the people in the present scenario, unfortunately, we ignore the important human values which we ought to emphasize. The best example is the use of empathy in news presentations and news consumption. We (the audience) see news on television and in other forms, but we may fail to understand the pain of the victims.

According to Rhea Kelly from Campus Technology, an online technology website highlighting the research conducted by the University of Maryland (funded by the National Science Foundation), memory recall accuracy in learning improves by 9% through virtual reality (Head Mounted Display) than the conventional 2D flat screen [Nguyen \(2017\)](#).

Figure 1



Figure 1 Visuals Produced by Artificial Intelligence Tools Which Depict the User's VR Experience

7. METHODOLOGY

A survey was used to find out if using a headset to experience virtual reality makes journalism students more caring. An online survey was conducted and asked the participants questions about their levels of compassion before and after completing a course that uses an empathy machine. Questions were prepared. Additionally, participants were asked about their experiences using the empathy machine and whether it made them more compassionate viewers.

Figure 2



Figure 2 Respondents Getting VR Experience in the Lab

This study employed an experimental design in which a group of postgraduate media students was exposed to a virtual reality documentary while a control group was not. The experimental group was given Meta Quest 2 VR headsets and told to watch "Chennai Floods Aftermath: A 360° virtual reality documentary," which was made by Vikatan TV, a typical news venture. In 2014, December 26th tsunami caused massive destruction in the coastal parts of Tamil Nadu. This was the first 360-degree VR documentary produced in India. The duration of the documentary is 5 minutes and 54 seconds. The control and the experimental group samples were identified by the researcher from the class using simple random sampling techniques. 62 female respondents and 54 male respondents in total participated in this study.

Both groups were evaluated using the Interpersonal Reactivity Index (IRI), a standardized empathy scale that measures one of the aspects of empathy (perspective-taking concern). The participants were also asked to fill out a questionnaire after the intervention to find out how they felt about the VR documentary they watched. Perspective-taking is a method in which people try to understand another person's thoughts and feelings by putting themselves in their shoes. Perspective-taking can be used to measure empathy in the context of virtual reality (VR) by having participants experience a simulated situation from the point of view of another person. For example, the study uses VR to simulate a scenario in which a person is experiencing hardship, and then measure the participant's empathy by assessing their emotional response to the simulated scenario. This technique was useful in measuring empathy because it allows researchers to directly observe the participant's perspective-taking behavior in a controlled and virtual environment.

8. DISCUSSION

Compassion is an essential aspect of human relationship and involves kindness, empathy, and understanding. It is crucial to understand how compassion can be measured and what factors may influence its development. In this report, the researchers analyzed the association between perspective talking and compassion levels using Interpersonal Reactivity Index (IRI). The IRI is a widely used tool for measuring empathy and compassion levels, and perspective taking is one of the four dimensions it measures. [Table 1](#)

Table 1

Table 1 Pre-Test Result Association Between Gender, Group Division, and 360-Degree Experience with Respect to Compassion

Model	Unstandardized Coefficients		Standardize d Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1. (Constant)	3.867	.128		30.136	.000	3.613	4.121
Gender	-.026	.158	-.015	-.162	.872	-.339	.287
Choose a group that you belong to...	.330	.158	.195	2.091	.039	.017	.642

The present study examined the use of a virtual reality (VR) headset as an "empathy machine" to promote empathy towards 'perspective taking' angle. The study compared the results of a control group, who watched "Chennai Floods Aftermath: A 360° virtual reality documentary" on mobile phone, to an experimental group who watched the same. After watching the documentary, participants completed a post-test to measure their empathy levels.

The study found no significant association between gender and the use of the VR headset to evoke empathy, indicating that both men and women had similar levels of empathy after watching the VR documentary. However, the study did find a significant association between the control group and the experimental group. Specifically, participants in the experimental group who watched the 360-degree VR documentary demonstrated higher levels of empathy than those in the control group who watched the regular video.

The rejection of the null hypothesis for hypothesis 2 with a p-value of 0.872 indicates that there was no significant difference between men and women in terms of the level of empathy evoked by the VR documentary. On the other hand, the significant association between the control group and the experimental group with a p-value of 0.039 suggests that the VR documentary was more effective at promoting empathy than the documentary watch on mobile phone.

The present study found that the group exposed to the 360-degree VR documentary showed a significant increase in empathy and compassion, as measured by the IRI, compared to the control group. Specifically, the experimental group scored higher on the perspective-taking subscales (Table 2).

Table 2

Table 2 Linear Regression Test Result on Measuring Compassion Levels Between the Gender, Control, and Experimental Group Samples

Model	Unstandardized Coefficients		Standardize d Coefficients	t	Sig.
	B	Std. Error	Beta		
1. (Constant)	30.978	.737		42.023	.000
Gender	.237	.908	.24	.261	.795
Group division	2.262	.906	.231	2.496	.014

Table 2 showed that there was no significant association between gender and compassion level ($p=0.795$). The findings suggest that gender does not play a significant role in determining compassion levels in the study. However, we found a significant association between the control group and experimental group and compassion levels ($p<0.05$). The experimental group, which received training on perspective taking, showed a higher level of compassion than the control group, which did not receive any intervention.

The mean scores for the control and experimental groups were 38.36 and 44.22 respectively, indicating a higher level of compassion in the experimental group. The effect size Cohen (1988) was 0.76, which suggests a large effect. This finding indicates that perspective taking can be an effective tool in developing compassion levels. Several studies have been conducted to determine if there is a significant association between gender and levels of compassion, particularly in the context of perspective taking. Perspective taking refers to the ability to understand and empathize with another person's feelings and point of view. Particularly a study published in the journal *Interpersona* (2007), sought to examine this association by analyzing data from 192 participants, equally split between male and female. The participants were asked to complete self-report questionnaires that measured their levels of perspective taking and compassion. The study found no significant association between gender and levels of compassion based on perspective taking. Both men and women demonstrated similar levels of perspective taking and compassion Dimitrova & Chasiotis (2007).

The findings of Dimitrova's study challenge the long-held stereotype that women are naturally more compassionate than men. Instead, they suggest that compassion is a trait that can be developed and nurtured through practices such as perspective taking. The study has important implications for improving interpersonal interactions and relationships. By recognizing that compassion is not linked to gender, individuals can work towards improving their perspective taking abilities and fostering greater empathy and understanding towards others,

regardless of gender. These findings suggest that VR technology can be an effective tool for promoting empathy towards marginalized groups, regardless of gender. The study highlights the importance of including control groups in experimental designs and suggests the need for further research to determine the long-term effects of using VR technology as an empathy tool [Dimitrova & Chasiotis \(2007\)](#).

9. CONCLUSION

In psychology, the study's results add to the growing body of research on the effectiveness of virtual reality technology as a tool for promoting empathy and compassion. The study's focus on perspective taking as a means of fostering empathy is particularly noteworthy, as it highlights the importance of understanding and empathizing with another person's perspective in developing compassion. The study's findings suggest that interventions aimed at developing perspective taking skills, such as VR documentaries, can be effective at increasing compassion levels. The study challenges the long-held stereotype that women are naturally more compassionate than men and suggests that compassion is a trait that can be developed and nurtured. [Solomon \(2004\)](#)

In education, the study's results have implications for how empathy and compassion can be integrated into classroom curricula. The use of VR technology as an empathy tool could be incorporated into lessons on social justice issues, such as the effects of poverty, discrimination, or climate change on marginalized communities. By providing students with immersive experiences that allow them to see the world from different perspectives, educators can foster a greater sense of empathy and understanding towards others. Significance of news values could be inculcated among journalism students through the use of 360-degree technology. It can be associated with the way the idea has been executed in the documentary, and the personality traits of the person who is consuming the VR documentary using VR headsets decides whether the users feel compassionate or not. Finally, in media studies, the study's findings highlight the potential of VR technology to promote empathy and compassion in media consumers. With the rise of immersive technologies like VR, media producers have an opportunity to create content that goes beyond entertainment and informs and educates viewers about important social issues. The use of VR technology as an empathy tool in media could also help bridge the empathy gap between different social groups, fostering greater understanding and social cohesion.

In conclusion, the present study's findings provide compelling evidence that perspective taking interventions using VR technology can be effective at increasing compassion levels. The study's results have important implications for psychology, education, and media studies and suggest that further research is needed to explore the potential of VR technology as an empathy tool. By better understanding how VR can be used to foster empathy and compassion, we can work towards building a more empathetic and compassionate society.

CONFLICT OF INTERESTS

None.

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