# VIRTUAL REALITY IN CRIMINAL JUSTICE: EXPLORING THE ROLE OF EMOTION IN STUDENT LEARNING

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## ABSTRACT

*The role of emotion in the context of virtual reality learning environments (VRLEs) has lately received increased attention, though there is a gap in the research on VRLEs in criminal justice. The current study examines the impact of a virtual reality experience that focuses on mental illness occurring in those within the criminal justice system. A qualitative methodology was employed to examine student responses from 242 students in five criminal justice classes taught in two states between 2019 and 2020. Three themes emerged from the students' responses, including personal connections, empathy for others, and emotional responses to situational factors. Students experienced considerable presence and immersion during the virtual reality experience, and this generated emotional responses in them to the material. While the use of virtual reality in the pedagogy of social science is still emerging, the current study indicates that student can be provided a high degree of control and value in learning from the experience while simultaneously minimizing student exposure to risk.*

**Keywords:** *virtual reality, affective learning, empathy, emotions, criminal justice, mental illness*

## INTRODUCTION

The role of emotion in learning has received considerable attention in recent years. Emotion in learning, or affective learning, has demonstrated efficacy in supporting the student-teacher relationship (Warren, 2018), teacher training (Han et al., 2022), and cultural immersion (King et al., 2019). One technology that may increase the effectiveness of emotion in learning is virtual reality (VR). VR refers to a computer-generated environment that uses two- or three-dimensional (2D or 3D) software and input/output transmission devices. These technologies allow the participant to maneuver within a virtual world. The VR experience can be viewed using a mobile phone, desktop or laptop monitor, projector, or head-mounted display (HMD). Input devices include the use of a touch screen, keyboard, or hand controller(s). The participant's visual and auditory systems are engaged within the computer-generated environment to meet the key concepts of immersion and presence. Immersion refers to the awareness the user has of the real world around them while in the simulation. Presence represents "the psychological state in which a participant accepts, interacts and is physically, socially, and emotionally engaged in the virtual world" (Ticknor & Tillinghast, 2011, p. 8).

VR has been used in education over the past few decades in various ways, and it is becoming more widespread. For example, educators in K–12 and higher education are increasingly using VR technology to teach content, meet course objectives, and provide experiential learning activities (Hu-Au & Lee, 2017; Merchant et al., 2014). When correctly applied, the concepts of presence and immersion may enrich the overall learning experience by creating virtual reality learning environments (VRLEs). There is substantial evidence

that VRLEs constitute a practical, economical, and effective pedagogical approach (Banos et al., 2004; Han et al., 2022; Merchant et al., 2014).

VRLEs can be used to supplement traditional learning, with the recognition that content can be delivered in a safe, controlled environment. This is particularly salient in virtual environments where emotions may be stimulated. However, there is currently little published empirical research that examines the application of VRLEs in diverse pedagogical settings such as criminal justice classes. There is also a dearth of research that examines the impact of VRLEs on student emotions and learning in criminal justice. The current study addresses this gap in research by examining the role of emotions in student learning in a VRLE that centers the context of multiple university courses in criminal justice. Specifically, students engaged in a VRLE that focused on mental illness occurring in the criminal justice system.

## LITERATURE REVIEW

### *Emotions, Control-Value Theory, and Virtual Reality*

A fundamental argument made by scholars who study affective learning is that emotions are often the driving force underlying knowledge acquisition, cognitive development, and intellectual curiosity (or student motivation). Nussbaum (2003) suggested that emotions are reflective of core values within the individual. An emotional reaction typically occurs through a tripartite schema of feelings (i.e., emotional states like sadness, happiness, joy, disgust, etc.), physiology (i.e., physical responses like elevated heartbeat, changes in the brain patterns, sweaty palms, etc.), and social/expressive factors (i.e., changes in facial expressions and body language). Nussbaum (2003) added that, "emotions are not just the fuel that powers the psychological mechanism of a reasoning creature, they are parts, highly complex and messy parts, of this creature's reasoning itself" (p. 3). These findings have been validated by a meta-analysis by Camacho-Morles et al., (2021) where emotions were linked to motivational, self-regulatory, and cognitive processes that are crucial for academic success. Likewise, a systematic review and meta-analysis by Loderer et al. (2020) found that technology could serve to facilitate emotions (enjoyment, curiosity/interest, anxiety, anger/frustration, confusion, boredom) that lead to pedagogical outcomes (engagement, learning strategies, achievement).

One of the most salient theoretical approaches to a pedagogy that relies on emotions is control-value theory (Pekrun, 2006). Control-value theory posits that appraisals of control and values are central to the arousal of emotions. This includes activity-related emotions such as enjoyment, frustration, and boredom, as well as outcome-related emotions such as joy, hope, shame, and anger (Pekrun, 2006). This is often a basis of pedagogical support for student-based learning activities in the field, such as students participating in a tour of a real-world prison (Smith, 2022). Studies indicate that emotions not only guide a student's self-concept of ability in the classroom, but these educational gains can extend to future career aspirations and choices (Lazarides et al., 2019: Lazarides & Raufelder, 2020). Control value theory has been supported in treatment/control experiments, with student response systems and formative assessments leading to improved student achievement (Paul et al., 2020). For pedagogy, this places a premium on the student maximizing the control they have over the topic, content, and approach towards learning.

In contrast, a significant amount of research indicates that poor outcomes, particularly procrastination, increase when students perceive low level of control and value in their coursework (see Cavanagh, 2016, p. 173). This can lead to classrooms that are devoid of enthusiasm. Here, Cavanaugh (2016) stated that university professors are often faced with "a classroom of students who are potentially drowsy, stressed, and exposed to multiple sources of competing stimuli both external (the smartphones in their laps) and internal (nagging worries about whether they're going to pass the calculus exam they have next)" (p. 36). While traditional approaches to pedagogy may conceptualize technology as a distraction to learning, there is a need to utilize emerging technologies as effective pedagogical tools.

Several researchers have documented the impact of presence and immersion on emotional responses in the context of virtual reality. Wirth et al. (2007) were one of the first to develop a theoretical model outlining the psychological process involved. They suggested that a learner will have the greatest response when they believe a virtual

environment to be plausible and have a sense that they are actually there. Cummings and Bailenson (2016) furthered this idea by conducting a meta-analysis of 83 studies examining the impact of VR on presence. They found presence was impacted by user-tracking, stereoscopic visuals, and fields of view. Other researchers have communicated similar findings (see Baños et al., 2004; Riva et al., 2007). Advancements in understanding the link between immersion, presence, and emotion have also led to research on specific emotional states, like mood disorders (Botella et al., 2007; Opris et al., 2012), aggression and anger management (Miyahira et al., 2010; Smeijers & Koole, 2019), fear (Mühlberger et al., 2012), and stress (Wang et al., 2019; Yin et al., 2020). These developments lend credibility to the notion that virtual reality can serve as an effective means of learning, leading to the development, support, and maintenance of VRLEs.

*VRLEs and Criminal Justice*

Currently, much of the traditional work on VRLEs focus on cognitive outcomes. This generally includes some combination of verbal knowledge, knowledge organization, and cognitive strategies (Kraiger et al., 1993). Affective, also referred to as noncognitive outcomes, including emotional responses, have received less scholarly attention. There is ample evidence to support the use of VR for traditional cognitive outcomes. For example, Hew and Cheung (2010) conducted a systematic literature review on the use of VRLEs and found they were commonly used in the classroom, increased student learning outcomes, and fostered social interaction. Sitzmann and Ely (2011) conducted meta-analyses analyzing the effects of non-immersive simulations and on learning outcomes. They found a significant positive relationship in the effectiveness of using the simulations over controls. Merchant et al. (2014) conducted a meta-analysis on the overall impact of using VRLEs for K–12 and higher education. They found games, simulations, and virtual worlds were effective in improving multiple learning outcomes.

While somewhat less supported than the research on cognitive outcomes, research on VRLEs has been shown to increase a feeling of presence and immersion, which in turn, results in emotionally engaging learning experiences. Specifically, increased immersion and presence brought about by using VR produced a powerful emotional response from students (Milk, 2015). Um et al. (2012) found that these types of technologies induced positive emotions in learners and increased comprehension of materials. Picard et al. (2004) discovered that VR was more immersive than other traditional types of media used for student learning and increased emotions, such as positive mood states and enjoyment. This resulted in increased engagement and motivation.

More recently, VRLEs have been increasingly used in the context of criminology and criminal justice pedagogies. In one example, Smith (2021) used a virtual reality simulation with criminal justice students. This research concluded that VR enhanced realism, motivated learning, increased memory recall, produced a deeper meaning in learning, included visual learning techniques, and increased overall student satisfaction. This approach also minimized student risk because they did not have to visit a jail or prison for the learning experience. A more dated example is Jouriles et al. (2009), who compared two forms of role playing (i.e., virtual reality vs in-vivo) on the topic of sexual victimization. They found that ethical considerations and safeguards protected student mental health while allowing for simulated realism and vicarious risk. Jouriles et al. (2016) conducted a similar experiment for assessing student willingness (as virtual bystanders) to intervene in sexual violence.

The present study adds to this growing body of literature by exploring the role of emotions on student learning and the mental illness of those within the criminal justice system. Students were exposed to this content in the VRLE. This study relies on a pre- and postsurvey design that measures the perceptions of students of criminal justice students. Our aim was to explore the following two research questions: (1) To what extent does viewing VR content invoke an emotional response in college students? and, (2) How did the VR experience influence learning about people with mental illness in the criminal justice system?

## METHODOLOGY

The following study explored the impact of a virtual reality experience that focused on mental illness occurring within the criminal justice system. Students from traditional face-to-face and online classes were asked to watch a series of 360-VR videos on prison inmates and mental illness.

Afterwards, they were given a survey about their experience. This methodological design aimed to promote honest and thoughtful responses from students on their perceptions when they engaged in the VR experience. Thematic analysis was deemed the most suitable approach as it "is not wed to any pre-existing theoretical framework" (Braun and Clarke 2006, p. 9), and because there is a lack of studies of VR using the context of criminal justice pedagogy.

*Sample*

Participants included undergraduate students in five undergraduate criminology classes taught at two universities located in the southeastern United States. These classes were taught between the Summer, 2019, and Fall, 2020, semesters. Students were given the opportunity to approve their responses in the analysis by checking an informed consent option when submitting their work. This included assurances that IRB safeguards were in place and that nonparticipation would not impact their status in the class nor their grades. Data from all five classes were combined, though separate data is provided to detail the sample. This featured a traditional, in-person general criminology class Crime in America (Total responses = 170 students; n = 137 approvals; n = 33 refusals). It also included four sections of an online, asynchronous specialized elective criminology class Criminal Justice & Mental Health (Section 1: Total responses = 32 students; n = 27 approvals; n = 3 refusals; n = 2 unanswered; Section 2: Total responses = 27 students; n = 25 approvals; n = 2 refusals; Section 3: Total responses = 27; n = 25 approvals; n = 2 refusals; Section 4: Total responses = 30; approvals = 28; n = 2 refusals). Combined, this produced a sample frame of 286 students with 44 refusals/unanswered and 242 participants, which constituted an 85.6% response rate.

*Data Collection Procedures*

The topics of the module included both mental illness in general and mental illness occurring in prison. This module took place early in the coursework of each class so that students pretest perceptions were more candid and undeveloped. Students were first provided an interactive online lecture by the professor and several journal article readings. The readings were guided by the criminological literature on student learning and corrections (Smith et al., 2010). They were also given public health insights on topics like psychological decomposition that results from social isolation (Rhodes, 2005).

Students were then asked to watch a series of 360-degree video's that explored classroom materials within the VRLE and were encouraged to compare classroom topics and readings (i.e., incarceration, mental illness) with real world situational factors (e.g., absence of private shower, size of cell, noise, space and proximity to others, symptoms of mental illness, etc.). All 360-degree videos could be easily accessed via YouTube with a mobile device, tablet, or computer. Optional 360-degree videos were also included for students who owned an HMD for a more immersive experience, though the method of usage was not recorded as some students used multiple methods.

Due to the potential for negative outcomes related to triggering imagery and exposure to a prison environment, several safeguards were in place. First, all students were given the opportunity to complete an alternative assignment in lieu of the virtual experience. Module instructions reinforced the choice of an alternative option, which was available at any point during the VR module. This allowed for any student who was negatively impacted by the experience to stop the simulation at any time. Second, a trigger warning for the students was clearly displayed in the module. Instructions asked students to contact the professor and/or the student health service office should they be triggered by the assignment. No students requested an alternative assignment or reported a negative reaction to the designated professor of each course. An IRB application was submitted to the university office of the University of South Carolina and was approved.

*Measures*

Students were asked a series of five questions about their virtual experience. The first question required the student to answer prior to engaging in the virtual experience and asked: (Q1) Before watching the 360-degree videos, what are your perceptions and opinions about mental illness occurring in prison? The remaining four questions were completed after the virtual experience and included: (Q2) Now that you watched the 360-degree videos, did any of your perceptions and opinions change? If so, explain how and why they

changed? (Q3) What emotions did you experience while watching the 360-degree videos in this module? (Q4) What did you like about the module? and (Q5) What would you suggest the Professor change in the module? This provided the opportunity to access pre/post changes in perceptions (Questions 1 and 2), the emotional response of participants (Question 3), and participant satisfaction with the module (Questions 4 and 5).

*Analytic Plan*

Participant responses were entered in Nvivo, a computer software program that is tailored for qualitative research. First, using open-coding techniques, we coded each interview/response paper and assigned labels to sections focusing on students' virtual experiences. Using previous research as a guide, we coded responses with respect to descriptions of: (1) changes in participant perceptions (pretest and posttest), (2) emotional content, and (3) participant satisfaction with a virtual reality pedagogy. Next, we revisited the coding frame and collapsed descriptions of students' virtual experiences into conceptual themes, which were defined as "broad units of information that consist of several codes aggregated to form a common idea" (Creswell & Poth, 2013, p. 194).

## FINDINGS

The VR exercise produced significant emotional reactions from participants that can be categorized into three key themes. These themes include personal connections to materials, empathy for others, and emotional responses to situational factors.

*Personal Connections to Materials*

A prominent theme that emerged centered on the role that the VR experience played in participants connections to people with mental illness and/or who experienced incarceration. This included accounts where participants compared the VR exercise to their working experiences with offenders with mental illness, typically as EMT technicians, correctional staff, or law enforcement officers. This also included comparisons to more traditional forms of experiential learning such as prison tours as well as unpaid or volunteer roles like previous internships in criminal justice agencies. Personal connections were generated when participants explored their own experiences with mental health in relation to the mental health diagnoses occurring in corrections during the VR exercise. This can be seen here:

> I am fairly knowledgeable about the symptoms of Bipolar, even prior to the videos. (I have a very mild case of Type 2). But as far as schizophrenia, I had no clue there was different types of it. I can see now why prisoners (or anyone) who experiences these symptoms would act out the way they do. It seems terrifying to deal with.

Another emotional response involved personal connections with immediate family members. This was an unintended, though positive outcome, as the goal of the VR exercise was to maximize learning about the criminal justice system. A number of participants expressed an emotional connection to the material that helped them further understand the symptoms of mental illness they may see in family members. These responses often demonstrated long-term and/or early childhood experiences with family members experiencing mental illness with recognition of gaps in their own understanding of these challenges. The following two examples reinforce these perspectives:

> My father has bipolar disorder. So, understanding bipolar disorder previously was very impactful on my thinking during these videos. He personally would not be able to handle solitary confinement. I also never realized how much bipolar disorder affected one's senses. Prior to this my understanding with mental disorders, especially bipolar disorder, is how important outside influence is on the success of treatment or handling these disorders.

> The Bipolar video changed a lot of preconceived notions for me. My brother was diagnosed with bipolar disorder, but I guess I never realized the way he felt during the "manic" phases—I only ever recognized the depressive episodes. This could be because I was a child. I did not realize how extreme the differences are to experience.

Personal connections to the VR exercise facilitated learning that moved along diverse pathways of knowledge. For example, the following account links a personal connection to an incarcerated person (i.e., an uncle) followed by recognition in a gap in experience (previously filled by "imagination"). This then produced responses about correctional

and law enforcement officers in general. Of note, the participant provided disparate statements of changing perceptions within the one response:

> My perceptions have not changed very much. My viewpoints on how to address inmates and address mental illness in inmates remain the same, if not affirmed even more so by the videos. I have not actually been inside a prison, I have only spoken to my uncle through letters and his restricted phone calls, so watching the tour videos gave me a new impression than what I came up with based on my own imagination. My opinion on correctional officers has not changed very much either as they seem, overall, do not seem abusive to the inmates and they don't treat them with hate. My uncle seems to not mind them as they let him do his own thing within reason and some are even friendly and encouraging to rehabilitating behavior. However, my thoughts on police officers are different, if not opposite, for my own personal reasons.

*Empathy for Others*

A significant number of participant responses included references to increased empathy for people with a mental illness and/or people who are incarcerated. The following responses showed the emotional response to the inmate experience and reinforces the notion of empathy:

> After personal experiences of my own and watching these videos, my opinion absolutely changed. First off, I no longer view prisoners as people that are below me. I still view them as different from me in many cases, but this analysis is done by a case-by-case basis. There are different prisoners in the criminal justice system that are there for different reasons. Not all of them are crazy or inhumane. I still remember going to book a transfer prisoner from a County Sheriff's Office Deputy to the County Detention Center during a ride along. While I was there, a high school football player had been arrested for stabbing another high school student. He was crying and pleading with the deputy who arrested him to do what he could, to not have his life ruined. He was not an evil human being. His bad decision was a merely a result of a crime of passion. Experiences and these videos also opened my eyes to the many players in rehabilitating and stabilizing an offender while in jail or prison, as well as the many programs a prisoner can partake in while being incarcerated.

A number of these responses also lead to further consideration of incarceration effects such as long-term or life sentences in prison.

> When I watched the 360-degree videos, I tried to put myself in the same position as the inmates. I tried to picture myself locked in solidarity confinement for an extended period of time. I had instant feelings of depression, claustrophobia, denial, and many others. I felt as if I was trapped and no longer felt as if I was the same person. All of these feelings occurred without even being in an environment where you know the door is only going to open once or twice a day.

*Emotional Responses to Situational Factors*

Participants were apt to report emotional responses that were stimulated by the physical senses. These responses connected classroom concepts (i.e., incarceration, corrections, symptoms of mental illness) within situational factors. This began with a recognition of existing perceptions that were challenged by the presence or absence of physical characteristics in the environment. The following participant expressed surprise that prison cells did not feature a private shower. This was linked to classroom readings on prisonization, deprivation, and the impact of incarceration. While the class did not include an advocacy exercise, this reaction produced a general need in participants to "do something":

> Before the videos, I had imagined the setting of the prison to be pretty bad, but the prison cells were actually a lot worse than I had thought. I didn't know what I had expected or imagined there to be for a shower, but the lack of one did surprise me. I was also surprised by the amount of time the inmate is in their cell every day. None of my opinions changed to be the opposite of what they were before hand, but they all

had been intensified after being informed. I have a great amount of anger towards how the prisoners are treated. Along with that, I now feel the need to help change what I can. I feel this way because the mental disorders these people develop are so difficult to live with. It is no joke when I say they are in a living hell. Finding out about the amount of people put through this only heightens my urge to help.

Participants also experienced emotional responses based on the situational elements of space, light, and noise. These emotional connections were particularly heightened during the experience of solitary confinement, which produced a range of emotions in students that were linked specifically to the VR exercise (i.e., lack of space, noise, etc.). When combined, these situational elements produced an emotional response in participants, one that many expressed could not be easily achieved through a traditional pedagogy. A number of participants questioned their pre-activity perceptions of punitiveness towards inmates with mental illness and the use of solitary confinement as a common feature of the correctional system. These emotional responses are evident in the following accounts:

> My perceptions changed drastically after watching these videos. I have never personally seen a solitary confinement cell, I've only witnessed the general population so it gave me a new understanding on what these people really go through. The last video struck me the most because just having to watch the video for 9 minutes bore me, I can't imagine being in the inmates' shoes. I would go absolutely insane if I was forced and left in an 8x10 cell for however long my time was sentenced. My heart really broke for the people who go through this for 10 or 20 years. No matter your crime, I do not agree with solitary confinement. It is absolute abuse to leave a human being in such a confined space. Humans need stimulation and a since of connection and being in solitary confinement allows none of that. Your brain has nothing to look forward to, nothing to live for, and nothing to feel a sense of love. Brains are wired with these three things so you are going to go insane, your brain cannot sit in silence for that long. It made me feel like they are treated like literal animals locked up in a cage.

> I felt uncomfortable at first because the angles made you seem enclosed. The loud noises and shouts also added to these feelings as I felt like there was nothing I could do to change the environment around me. I felt a lot of empathy for prisoners that have to live in those conditions. I was shocked looking at the different cells that people can be kept in for years because they were so bare and dark.

## DISCUSSION

There are several themes from this study that require discussion. An emotional response based on the prior personal connections of the student was heightened during the experience. Whether this connection was through their employment or familial relationships, students expressed a clear connection between these influences and their response to the VR simulation. This finding highlights the value of emotion in learning (Pekrun, 2006) as students immediately personalized symptoms of mental illness then moved towards the consideration of mental illness occurring in the correctional milieu. While increasing student motivation and learning, this theme highlights the need to ensure that virtual reality exercises are bolstered by careful and appropriate ethical safeguards. While no student reported distress to the professor or any university mental health center, the personalization and value of this learning exercise requires forethought to be successful.

In concurrence with previous research that indicates VR is an effective tool to invoke empathy (see Milk, 2015; Shin, 2018; Wiederhold, 2020), the immersive experience produced considerable emotional reactions from students. This invoked a sense of empathy with inmates housed in prison. This empathy facilitated a comparison of traditional classroom materials (i.e., textbooks, readings, etc.) with the virtual experience. On a basic level, empathy is the ability to sense other people's emotions and imagine what they might be feeling or thinking. According to Goleman (2006), emotional empathy, as the name implies,

focuses on the ability to feel what the other person is feeling. Moreover, social and emotional learning in the context of virtual reality has emerged as a potentially powerful pedagogical tool (Walker & Venker Weidenbenner, 2019). This is noteworthy as perceptions of the criminal justice system are often influenced by inaccurate imagery generated by mass media.

Surette (2015) examined the history of sound media (i.e., ballads, theater, folktales, etc.), print media (i.e., dime novels, penny press, books, etc.), visual media (i.e., commercials, movies, television shows, etc.), and new media (i.e., video games, the internet, etc.). The study found that corrections were habitually presented in a context in which "staff incompetence, corruption, and cruelty, are common, ingrained, and unchallenged. Prisoners systematically suffer systematic racial prejudice, homosexual rape, and between-prisoner assaults" (p. 274). This narrative limits the control and value that students can exert over learning, and the findings of this study suggest that virtual reality crafted in a pedagogical context may address these stereotypes.

An additional finding was that students were able to gain a better understanding of the situational factors that many inmates experience while incarcerated and how this contributes to the complexities of the American criminal justice system. Students experienced an emotional response to the physical presence or absence of situational effects (e.g., a toilet or a shower), which then facilitated comparisons to their pretest perceptions, mass media examples, and traditional classroom materials. By placing learners in a virtual prison cell, coupled with experiencing symptoms of mental illness, students were able to "see," or rather, understand, concepts that were less accessible when using only traditional classroom materials. This finding aligned with the tenants of control-value theory in that students had full control of what physical items to view within the virtual experience and they expressed an educational value to the exercise.

In summary, the current study indicates that a VRLE may serve as an effective tool to invoke emotion during student learning exercises that center on mental illness occurring in the criminal justice system. Students were asked to reflect on these factors and relate them back to various topics discussed in the classroom, a core feature of learning. The VR experience allowed these students a safe and effective method to explore relevant components of the criminal justice system.

### *Limitations*

The current study produced several key insights into the use of VR within a tertiary criminal justice pedagogy, but it is not without limitations. The first limitation is the recognition that students have different resources and, as such, the student was left to select the method of VR delivery (i.e., mobile, computer, HMD, etc.). Moreover, due to the asynchronous and online nature of the course, students may have different triggering dynamics, and thus their total viewing time was varied (and not measured). Future studies would benefit from controlling these factors in order to measure the impact of discrete technologies and the cumulative effects of the VR experience over time. Future research may be able to determine which of these devices is most effective in delivering content.

Additionally, the threat of social desirability bias was recognized as the experience was conducted during a college-level class that included a range of criminal justice topics. However, this threat was minimized by the multiple safeguards put in place, and a comparison of participant-student to nonparticipant-student variables shows no differences (i.e., the final grade in class, gender differences, etc.). It is also worth noting that the virtual experiences were not created by the researchers. While they present a range of correctional environments that were unsafe and/or unethical to physically take students, these virtual experiences were decided by the researchers, and thus they may contain inherent biases. These biases were minimized in the course content that required students to compare a variety of traditional materials (i.e., textbook, readings, documentaries, etc.) to the VR experience.

## CONCLUSION

The role of emotions for learning has been well-established across various disciplines. Using VR to illicit an emotional response is also supported. The current research adds to this growing body of literature suggesting that VR can be used as a tool to increase the effectiveness of traditional classroom teaching and provide new opportunities for experiential learning. When a student experiences a situation for themselves and/or through a

virtual world, emotions can facilitate learning. As education continues to be reimagined in the post-pandemic world (one where prison tours for the public and for students have largely ceased), VR is an innovative tool that can be used in and out of the classroom to engage and motivate students.

## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request. There was no conflict of interest in the study, and there was no funding source.

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