

CROSS-FIELD COMPARISON:
A STUDY ON THE PARALLEL BETWEEN MIRROR
USE IN DANCE AND SOCIAL MEDIA USE

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Submitted in partial fulfillment of the requirements for Departmental Honors
In the School for Classical & Contemporary Dance
Texas Christian University

May 8, 2023

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Acknowledgments

I would like to express my deepest gratitude to my committee chair, Dr. Suki John, and committee members, Dr. Jacqueline Lambiase and Dr. Wendy Williams for their guidance and support throughout this research project. Their mentorship and expertise were invaluable in shaping the direction of this study and helping to bring it to fruition.

In addition, I would like to give a special acknowledgment to Dr. Nina Martin, who was my original committee chair and worked on the project with me since November 2021 but could not see the end of the project due to personal circumstances. Her contributions and guidance were integral to the early stages and majority of work during this research, and I am grateful for her support.

I would also like to thank the eight participants of this study for their willingness to share their experiences and insights. Their contributions were essential to the success of this project. I am grateful to my colleagues and friends who provided valuable feedback and support throughout the research process. Their encouragement and advice helped to keep me motivated and focused throughout the project.

Finally, I would like to thank my mother and grandparents for their unwavering support and encouragement throughout my academic journey at Texas Christian University. I could not have completed this project without their constant love and support.

Abstract

This study explores the impact of mirrors in dance training environments on dancers' mindset and perception of self and evaluates the similarities between the use of the mirror in dance training environments and the use of social media. There is much research regarding the impact of social media use on Gen Z (ages 8-23) citing effects, such as body objectification, lowered levels of self-image, and changes in eating habits. This research proposes that Gen Z college-aged dancers (age 18-23) face the same effects. This researcher believes that the use of mirrors in dance pedagogy and the use of social media both mask themselves as sources of information, but both are closed-feedback systems that cause the user to objectify their own bodies. Through close examination of secondary literature, data analysis of qualitative interviews, and the researcher's own lived-bodily experience dancing in front of a mirror for 18+ years and as a digital native, it can be concluded that mirrors can have negative effects on dancers' self-esteem, body image, and mental health, and promote comparison and unhealthy self-talk. However, training in absence of the mirror can improve dancers' connection to the space and proprioception, enhance their movement, and improve their experience in the studio. The study also found similarities between the negative effects of mirrors and social media on users' self-esteem, body image, and mental health. This paper suggests that conscious and intentional use of mirrors, like social media, can mitigate these negative effects.

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Introduction

This thesis paper represents the researcher's multiple-year work regarding the use of mirrors in dance training. This section will introduce the reader to the researcher's background regarding mirrored training environments, the purpose of the study, and the proposed research questions of the study. The research questions are identified to illustrate gaps that exist in current research.

I experienced my first dance class when I was only two years old and am still dancing in my twenties today. Mirrored walls existed in my training environment from day one. As I have gotten more mature, I find that as I have become more aware of the harmful effects the mirror can have on oneself, I rely on it only on occasion. I do not look to the mirror at every given opportunity because it removes my presence from the class. In ballet class, I find a mirror helpful to understand alignment issues before or after combinations but not during. Once I understand the correction, I feel it in my body and stop the dancer-mirror feedback loop from occurring in my mind. This way, my muscles can learn to distinguish right from wrong. In contemporary dance class, I find I am more present in the class and my body when the mirror is absent. I can feel the movement rather than see it.

When I am in a mirror-filled classroom, I witness myself become cast under the spell of the mirror and put into an endless trance of self-correction. I am unable to control the direction and focus of my gaze. As I coax my pupils out of my flat reflection, my eyes spot a new segment of my body that I must try to fix. The relationship I have with the mirror is an endless feedback loop that is infested with negative connotations against the self. In the presence of the mirror, my mind slips into this negative head space and views my body as an object. The mirror emphasizes segments of the body rather than the textures and qualities of movement which causes my mind

to become fixated on how one aspect of my body appears in the mirror. The feedback loop cycle is hard to break and causes my mind to become separated from my body for the duration of the class. In the presence of a mirror, my mind is taken out of the present and sent into an endless cycle of seeing a problem, feeling a problem, and fixing a problem. I do not focus on the movement but rather on how each part of my body looks in the mirror. The flat image presented by the mirror distracts my mind from thinking about the movement as a whole and emphasizes achieving picture-perfect moments. It is nearly impossible to distract myself from staring at my reflection in the mirror. Conscious effort is required if I wish to keep my mind in motion and away from fixation.

In the absence of the mirror, I learn to trust my somatic sense, rather than relying on the images of myself and others in the mirror. I can think about how the movement feels in my body and develop a flow of movement. In contemporary-based movement classes, the mirror is removed at the end of the class, on some occasions. I feel the most alive at this point in the class. Is it because the mirror is removed or because I am more confident in the material? I believe the first to be true. When I am practicing group choreography, I find myself looking to the mirror for reassurance that I am doing the same movement as my peers. I do not feel confident in my knowledge until I am out of the presence of the mirror.

This study aims to analyze and understand the parallel between the use of mirrors in dance pedagogy and the use of social media for undergraduate dance students. There is much research regarding the impact of social media use on Gen Z (ages 8-23) citing effects, such as body objectification, lowered levels of self-image, and changes in eating habits. This research proposes that Gen Z dancers (age 18-23) face the same effects. It is hypothesized that the same negative effects Gen Z social media users encounter are like the effects Gen Z dancers

experience. The researcher proposes the use of mirrors in dance pedagogy and the use of social media both mask themselves as sources of information but are closed-feedback systems that cause the users to objectify their bodies. This will be examined through secondary literature, data analysis of qualitative interviews, and my lived-bodily experience dancing in front of a mirror for 18+ years and as a digital native. These research questions were used to conduct the qualitative interviews. This interview process and specific protocols will be described later in the paper.

Research Questions

RQ1: How do dancers describe mirrors in studios, their relationship with mirrors, and their experience with instructors and the mirrors?

RQ2: Is the relationship that dancers have with mirrors and users have with social media comparable experiences?

Review of Literature

This section will introduce the reader to relevant background information, previous research, and important terms needed to further understand this study. The following paragraphs include the following topics:

- Narcissus
- History of the Mirrors
- Mirror Use in Dance
- Proprioception and Interoception
- Feedback
- Social Media
- Objectification and Perfectionism

Additionally, the social comparison theory is highlighted and its relevance to the study is identified.

History of Mirrors, Mirror Use in Dance, and Feedback

The beautiful Greek mythological story of Narcissus is related to the birth of self-reflection. Classic myths of mirror use include those of the character Narcissus, “who is enchanted by his image, and Perseus, who makes Medusa see herself in his shield, bear[ing] witness to this early curiosity toward reflecting surfaces” (Miller, 2013). The myth of Narcissus begins at a pond of water. While looking into the pond, the Greek god becomes madly obsessed with the reflective element of water and an image that looked back at him. Within his obsession, Narcissus fails to realize that the image looking back at him is himself and “thought it must be some lovely water spirit that lived within the fountain” (Pratt, 1881). Narcissus does love the image he sees but he cannot accept that the reflection he loves is his own.

“Day after day, night after night he stayed there, gazing and grieving” (Pratt, 1881). The Greek youth became indifferent and lost his ability to passionately empathize with himself

(Milivojevic, 2014). It no longer is a question regarding self-love but rather of feelings towards himself in general. Narcissus' practice of reflecting on the reflection draws attention to a new level of unknown self-awareness (Downing, 2000). The myth ends with Narcissus' death next to the body of water. Downing suggests that Narcissus' obsession with his reflection did defeat him. The relationship that Narcissus developed with his image parallels the relationship that many dancers develop with the image in the mirror. Many dancers build an emotional connection to the reflection, almost as if it were a partner. However, this relationship can become dangerous if taken too far, as Narcissus' story so tragically proves. This myth serves as an important reminder for dancers to remain aware of the power that their relationship with the mirror holds.

Mirrors have been around since ancient times, with the earliest known examples dating back to around 6,000 BCE. The earliest known mirrors were made of polished obsidian, a volcanic glass. Evidence of the use of mirrors has been found in Neolithic sites in Anatolia, modern-day Turkey, and the Nile Valley (Jones, 2004). The purpose of mirrors has changed through eras. Their first use is correlated with religious ceremonies, personal grooming, optical illusions, and light reflection (Pinch, 1984). During the Middle Ages, Greek and Roman armies used mirrors to signal messages over long distances (Dyers, 2019). In the Renaissance, mirrors were often used to reflect light and create an even illumination throughout a room, especially when illuminating dark corners, and for creating dramatic effects in paintings and sculptures (Rogers, M).

Edgar Degas' earliest paintings of dancers at the Paris Opera Ballet date back to the 1860s (Grove, 2001). The famous Impressionist painter typically depicted dancers in rehearsals, classes, and costume fittings -- rather than in performances -- where mirrors would not be used in any case. What happened in the ballet world offstage interested Degas more than the

presentation on stage. Art historian Sandra Forty stated that Degas “wanted to show the stain behind the perfectionism” (2013). Degas paintings of ballet dancers in rehearsals and classes reveal the absence of large mirrors and the lack of mirror use. Below, are two of Degas’ most famous paintings. Both were painted during the 1870s. Degas' painting *The Dancing Class*, shows the presence of a small mirror in the classroom (and possibly one in the background) but the dancers depicted in the painting are unamused by it (see Fig. 1). Rather than staring at her reflection in the mirror, the dancer has her back turned away from the stand-up object. Degas's painting *The Dance Class* depicts no wall-to-wall mirror in the classroom as is common in modern-day ballet studios, but a large open room filled with dancers intensely watching the dancers practicing their work, chattering among themselves, or adjusting their shoes (see Fig. 2). The dancers depicted in both paintings are extremely focused on their training environment and not affected by the mirrors in the space. This observation raises the question of when mirrors became integrated into dance practice.

The relationship between dance and mirrors stretches far back into history. The earliest recorded use of mirrors in dance training dates to the 18th century in France, when Jean-Georges Noverre, a famous ballet dancer and choreographer, used mirrors to teach ballet positions and correct mistakes in his students’ technique (Noverre, 1760). This type of reliance between the teacher and the mirror continued into the 19th century as the use of mirrors became more widespread. Ballet masters used mirrors to check their students’ progress and make corrections to their technique (Hovey, 2018). They used the mirror to create visual illusions, which allowed the dancer to see how their body moved in relation to the music and other dancers (Anderson, 2020).



Fig. #1. Edgar Degas. (1871). The Dancing Class. [painting]. Metropolitan Museum of Art. New York City, NY, United States of America.



Fig. #2. Edgar Degas. (1873). The Dance Class. [painting]. Corcoran Gallery of Art. Washington D.C., United States of America.

Much research regarding the relationship between dance training and mirrors portrays the use of mirrors in a negative light (Dearborn, 2006, Diel, 2016, Ehrenberg, 2010, Oliver, 2008, Radell, 2014). The mirror itself is a flat, one-dimensional object. Many dancers fail to recognize the distortion that the mirror can project onto one's reflection. Researcher Nicole Miller describes,

“It is easy to identify a warped mirror image in a funhouse environment, but not as easy to identify the distortions in one’s views of oneself in the world” (2013). The information provided by the mirror is not as true as one might imagine. Nothing compares to a three-dimensional figure viewed with the naked eye.

There are some positive uses of the mirror in dance classrooms. The immediate use of the mirror is to provide the dancer with instantaneous feedback regarding body placement, movement, position, and line. A mirror allows the dancer to visually see what part of the body might be out of alignment. This information can help a dancer perform a movement that previously was not working in their body. In a ballet class, the dancer can look to the mirror to see if the arch of the foot is internally collapsing as the feet stand in first position. In a dance class, a dancer might look to the mirror to find a parallel position of the feet and affirm that the knee is aligned properly over the second toe. It can be used as an affirmative tool. If a correction is given to the dancer by the instructor, the student can look to the mirror to further understand what is not working in the movement.

Teachers can use the mirror as a tool to easily show elements of movement and phrase work to students. When the instructor is facing the mirror, the students can observe the movement from two views: behind the demonstrating body or through the mirror (Radell, 2019). This phenomenon presents the dancers with two diverse ways of learning and observing movement. If the mirror was forfeited from the dance studio, the instructor might have to demonstrate a combination two times so the body can be viewed from the front and back. The instructor also might reverse the combination to the opposite side so that their movement appears as a mirror image to the students. Multiple ways of observing the body benefit both the instructor and the students. The instructor can be efficient with the time allocated for each class and the

students can choose the viewing style that works best for them. Experiments conducted by Dearborn and Ross report dancers who train with mirrors are more likely to retain movement phrases than those that trained without a mirror (Dearborn, 2006).

Researcher Shantel Ehrenberg termed the dancer-mirror feedback loop as a dancer's perceived image in the mirror and a dancer's kinesthetically sensed feeling of his/her body. The two variables create a cynical feedback loop that is experienced in the body and can lead the dancer to develop an inability to trust their proprioceptive receptors that are needed to self-correct (2010). In this example, the dancer might second guess their own judgment in terms of movement. Dance researcher, Karen Dearborn writes, "The mirror image and the dancer's kinesthetic awareness (are) constantly affecting each other in a cyclical action-reaction pattern" (2006). The dancer-mirror feedback loop suggests that implementing a correction in the body is a multi-step process. The dancer must see the unaligned element in the body, feel the unaligned element in the body, make the adjustment, look at the image in the mirror again, feel the change in the body, etc. (Dearborn, 2006).

Proprioception is defined as an unconscious sense of the body which is "the felt understanding of exactly where one's body is and what it is doing and it is a critical ingredient to being a technically skilled, aware, and expressive dancer" (Radell, 2019). Researcher Sally Fitt concludes that "the kinesthetic sense is a perception of both motion and position. [It] is dependent on the proprioceptors and the sensory organs involved in the righting reflexes. The proprioceptors provide feedback to the central nervous system regarding muscle contraction, relaxation, tension, and stretch as well as information about joint position and velocity of motion" (2001). Interoception is understood as an internal sense that makes it possible for the dancer to know where their body is in space and focus on the movement in their body rather than

stress about how the movement looks on their body to outsiders. This term serves as the basis for self-correction. Studies have found that interoception is fundamental for dancers to trust their own judgment when it comes to their movements and to trust their own bodies and the signals they receive (Butikofer, 2018, Soares, 2020). Mirror use can complicate the attention paid to what is occurring internally, which is referred to as interoception.

outside and within

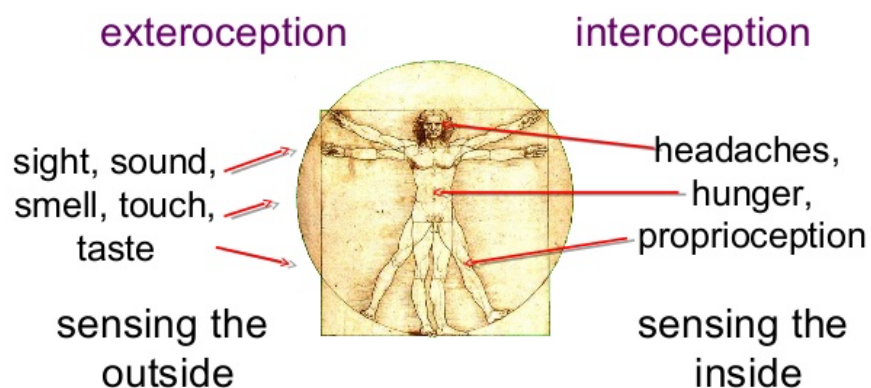


Fig. #3. Musician's Health Collective. (2018). Proprioception, Nociception, Exteroception, and Interoception

One's proprioceptive skills are exercised in the absence of the mirror. According to Jack Radell (2019), it is critically important for beginning students to train in the absence of the mirror because the image in the mirror presents itself as a more trustable source when compared to proprioception (2019). Reliance on the mirror can be harmful when trying to assess the aesthetics of one's own movement. The classic shape is known as first arabesque is disrupted by the improper placement of the chin that results in one straining their neck to view oneself in the mirror. Rather than aligning one's chin forward with their extended finger, the dancer's face is

torqued towards the mirror, which disrupts the placement of the torso, pelvis, shoulders, and spine. The instructor once again cues the dancer to align her hips with her shoulders and the cycle repeats itself.

Rather than relying on the image in the mirror to dictate the dancer's definition of right and wrong movement, the dancer can develop a feeling for what is correct. Removing the mirror from the practice space allows the dancer to transition their focus away from strict technique and explore artistic elements of the practice. Research that compares the impacts of the mirror on body image in mirrored and non-mirrored classrooms reveals that modern and ballet dancers taught in mirrored studios have heightened body image issues (Radell, 2014). This suggests that the negative impacts of mirror use are not exclusive to one discipline of dance but can transcend to other styles, like modern and contemporary.

Social Media

The use of social media has become increasingly popular since its inception in the early 2000s. With the advancement of technology, people now have access to a wide array of social media platforms, where they are exposed to a variety of images and messages from friends, family, and strangers. It has become a major source of information on how people should look, and it has created a culture of comparison and unhealthy expectations (Willis, 2019). The rise of social media has had a profound effect on the way people view their bodies and sense of self (Aparicio-Martinez, 2019, Fardouly et al., Keles, 2020, Myers, 2009, Perloff, 2014 Vogel, 2014). It is problematic for adolescents, who may be more susceptible to the messages and images that are presented on social media (Keles, 2020). Recent studies that examine the use of social media have found that those who spend more time on the platform have lower self-esteem and higher

levels of depression than those who spend less time on it (Fardouly et al., Chen & Lee, 2016). This suggests that using social media can lead to negative psychological effects.

Social media provides users with a sense of connection and community, giving them an avenue to express their thoughts and feelings, as well as to connect with others who share their interests. However, this technology can also be used to create an unrealistic ideal of beauty and perfection, which can lead to feelings of inadequacy and low self-esteem (Fardouly et al., Mishra et al., 2017).

Objectification and Perfectionism in Dance and Social Media

The lens one uses to view a body is a product of time and culture that can shape one's interpersonal relationships, one's relationship with the world, and one's view of the world, according to Sandra Reeve who researches somatic dance practices (2011). Reeve proposes nine different lenses to view a body through, the first being the "body as an object." This lens suggests that the human body is something that we do something to or "as a container that provides us with information for our conscious life, rather than as an intrinsic part of our being and our sense of self" (Reeve, 2011).

Objectification of the human body is the process of dehumanizing the person and reducing them to a mere object of beauty and desirability (Mussap, 2016). This objectification can cause detrimental negative opinions to develop about oneself. The body as an object lens explains unhealthy habits that many engage in. For example, Rachel Calogero, William Davis, and Kevin Thompson's research on *The Role of Self-Objectification in the Experience of Women with Eating Disorders* describes self-objectification as "the psychological process by which women internalize observers objectifying perspectives on their bodies and become chronic self-

monitors of their own physical appearance” (Calogero, 2005). Self-objectification of the body is linked to body shaming, anxiety, lack of proprioception, disordered eating, sexual dysfunction, and disordered eating habits (Calogero, 2005, Mussap, 2016).

The use of filters on photos is becoming more popular by the day. Women feel pressured to edit their photos to look like the photoshopped version of models that appear in ads. Many of the images and videos that are posted are airbrushed and filtered, creating an unrealistic ideal of what people should look like (Mussap, 2016). According to City University London, 90% of women use a filter or edit their photos before posting to social media. Motives behind the editing of photos include even out skin tone, reshape the jaw/nose line, make the body look skinnier, make skin look tanner, or whiten teeth (City University London, 2021). The act of self-presentation is defined as “behavior that attempts to convey some information about oneself or some image of oneself to other people. It denotes a class of *motivations* in human behavior. These motivations are in part stable dispositions of individuals, but they depend on situational factors to elicit them” (Baumeister, 1987). The most common strategy for self-presentation includes editing one’s appearance using filters and editing software (Hong, 2018). This further promotes objectification of the body.

Social comparison theory is a psychological concept that explains how people evaluate their own thoughts and actions by comparing themselves to others (Festinger, 1954). This is done through a process of downward and upward social comparison, whereby people compare themselves to those who are worse off to make themselves feel better, and to those who are better off to convince themselves to improve. The theory was first introduced by social psychologist Leon Festinger in 1954 and has since been used to explain how we as humans think, feel, and behave in social situations. The theory suggests that “people are more inclined to

compare themselves as a means of self-evaluation” (Myers, 2009). This theory serves as a launching ground to compare oneself against perfectionist values. The use of social media creates the opportunity for this phenomenon to occur (Perloff, 2014). Users rely on social media, both consciously and unconsciously, as a mirror to reflect their self-image and evaluate their own worth. Users often compare themselves to people seen on screens, whether that be a model, an influencer, or a celebrity to measure success, accomplishments, and even appearance against the lives portrayed on social media (Vogel, 2016). This can lead to feelings of inferiority and body dissatisfaction (Aparicio-Martinez, 2019). It can also lead to an increase in appearance-related anxiety and depression (Keles, 2020). Social media can be a powerful tool, but it is important to remember that it should not be the only source of information on body image and self-esteem. The correlation between social comparison theory and the mirror should be considered. When the mirror is used in combination with social comparison theory, the mirror can be used to compare the individual's form to that of the teacher or peers, providing a powerful tool to harm one's identity of self or motivate one to improve their skills.

A common response to standards set by perfectionism is feedback. In dance training environments, feedback can take one of two forms: feedback from a human source, like a teacher or peer, or feedback from the reflection in the mirror. Feedback on social media takes the form of engagement such as likes, comments, shares, and reposts. Feedback creates a longing to apply change to oneself positively or negatively. If an Instagram selfie receives more likes than a previous post, the user might post another photo that has a similar emphasis. If a dancer receives more compliments because their arabesque was higher than the day before, this could cause the dancer to resort to unhealthy training habits to gain more admiration from their teacher. Researcher N.J. Sabik found that one's self-worth, when dependent on social media feedback, is

lower and concludes that women whose self-worth is dependent on social media feedback are at “higher risk for poorer psychological well-being, which has implications for practice and policy regarding women’s mental health” (2020).

Social media platforms often reward those who post images or videos that are considered attractive, further perpetuating the idea that physical beauty is the most important trait a person can possess (Wykes & Gunter, 2017). If an Instagram photo receives less engagement or negative feedback, the user might feel the need to make a correction to oneself or the post. Research done in 2018 found that “when you [user] alter a photo and the result is a you-but-better-version staring back, you may start to get it in your head that that's what you should look like” (Willingham, 2018). Recent research concludes that 55% of plastic surgeons perform surgery to improve their client’s looks in a selfie (Rajanala, 2018). Less permanent methods of self-correction include the use of filters, changes in eating habits, changes in exercise habits, etc. Researchers E.A. Vogel, J.P. Rose, L.R. Roberts, and K. Eckles found a correlation between the frequency of Facebook users and lowered levels of self-esteem among the young adult population. This suggests that Facebook usage and decreased self-esteem levels have a negatively correlated relationship (Vogel, 2014). Researcher S. Mehdizadeh found similar results in his research study regarding the correlation between the length of time spent on social media and levels of self-esteem (Mehdizadeh, 2010). Recent research has shown a direct correlation between time spent in front of a mirror and self-esteem levels. Studies have found that individuals who spend more time looking in the mirror tend to have higher levels of self-esteem, while those who spend less time looking in the mirror tend to have lower levels of self-esteem (Barnier, 2019, Irving, 1990).

Methodology

In this section, research procedures and methodology are described. Selection criteria, ethics, validity, reliability, and generalizability are discussed.

The researcher used a qualitative interview method to discover an in-depth understanding of the participant's own experience with the phenomenon (Lindof & Taylor, 2019). The semi-structured topic guide (*see Appendix A*) allowed the participants to provide open-ended responses and created a space for the researcher to ask follow-up questions as needed. Secondary questions were asked based on the participant's answer to previous questions with the purpose to find a deeper understanding (Kvale & Brinkmann, 2009).

The researcher created an interview topic guide that was used to guide the progression of the interview. The questions were developed based on the goals of the study (*see Appendix A*). Before any questions were asked, each participant was informed about the researcher's ethical considerations which include anonymity, confidentiality, and their rights as participants in the study. The interview questions sought information regarding the participant's dance background, current dance training, and experience training in the mirror to compare mirror use in dance and social media use.

Questions like: "Do you recall any conversations about the early use of mirrors?" "What do you see as the benefits of using mirrors in dance training environments?" and "Have you noticed if the mirror affects your mindset when you walk into the studio?" reveal deep insights into the participant's experience training in a mirrored environment. The answers to questions like "Are you affected by the standards of perfectionism?" and "How have mirrors shaped your perception of yourself?" provide the researcher with a deeper understanding of how the use of mirrors in dance affects value systems and perception of self. At the end of the interview, one

question regarding social media was asked: “Have you ever noticed any similarities between social media use and mirror use?” This question could highlight the similarities between mirror use in dance and social media use. The open-ended nature of the participants’ responses makes it possible for deeper understanding to be discovered. The participants are granted the space to become co-creators of meaning with the researcher, making it possible for all opinions to be heard and for new phenomena to emerge (Geertz, 1973). The researcher is granted access to the participants’ personal views, opinions, and thoughts as opposed to the interviewers (Klandermans & Staggenborg, 2002).

Participants in the interviews met the following criteria is a current Modern and/or Ballet BFA student at Texas Christian University, School for Classical & Contemporary Dance, Fort Worth, Texas; is between the ages of 18-23; and has at least eight years of training in dance.

The sampling method used to recruit the interview population is convenience sampling. All participants were chosen because they were the most available to the researcher, this is why all participants are current students at Texas Christian University. Since the topic of research is about the experience of dancers training in a mirrored environment, it was acceptable to find participants within the School of Classical & Contemporary Dance at Texas Christian University. Recruitment communication took place via email *see Appendix B and C*. The email included a brief description of the study, expectations regarding participation, and an attached consent form. Participants were informed that the use of audio recording would occur. Each interested participant responded back to the email with dates and times that each was available and their preferred communication method.

The eight participants included one man and seven women. Three of the participants identified as a ballet major, one of the participants identified as a Modern major, and four of the

participants identified as a Ballet and Modern major (BAMO). Three of the participants were homeschooled. Most of the participants took their first dance class between the ages of 3-10. Of the eight participants, 7 and 8 started training in dance training at a significantly older age— 15 years old. The general characteristics of the participants in the study are presented in Table 1.

Participant	Age	Major	Participant	Age	Major
#1	22	BAMO	#5	21	BAMO
#2	19	BAMO	#6	21	Ballet
#3	22	Modern	#7	21	Ballet
#4	19	Ballet	#8	20	BAMO

Table 1. Participant Demographic Information

Interviews took place via video conference platform (Zoom) or in a conference room inside Erma Lowe Hall on the campus of Texas Christian University during November and December of 2022. The length of each interview ranged from 20-30 min, with most lasting the latter. All interviews were recorded by the researcher. Each interview was transcribed digitally, and the names of each participant were removed from the transcripts and replaced with number to maintain anonymity. The given number appear in the responses in the findings section. A participant's major is mentioned in the findings if it is relevant to the response.

The researcher read each transcript line-by-line to identify themes and patterns that exist. Based on the grounded theory, the researcher created a codebook that included open codes, categories, and examples of the participant's words (Glaser & Strauss, 1967; Lindof & Taylor, 2019). Once the codebook was created, the researcher reread each transcript and analyzed to ensure saturation of meaning (Bauer & Gaskell, 2000).

To ensure validity of the research, several considerations were taken. The topic regards the experience of dancers training in mirrored environments. Each interview was conducted in an objective manner to ensure validity of data. The interview manual included no close-ended questions to encourage freedom of thoughts. To ensure reliability of the research, all eight interviews were conducted using the exact same procedures. The same interviewer ran each interview to ensure consistency. Generalizability ensure that conclusions can apply to a larger population (Ostbye, 2004). Due to the small sample size of the study, limitations regarding the generalizability of the study are present. Instead, this study aims to gain an in-depth understanding of the experience of dancers training in mirrored environments.

This study was approved by the (IRB) at Texas Christian University. Confidentiality, informed consent, and anonymity are three ethical concerns that were considered by the researcher. Procedures were taken to ensure informed consent *see appendix D*. The participants were made aware that their participation was voluntary and their ability to withdraw from the process at any given time without penalty. Each participant was aware of their right to decline a question with no penalty. There were no known risks to the individuals chosen to participate in the study. Procedures were taken to maintain the confidentiality of data. All data in the study, hard copy or electronic, will be stored and managed in a secure manner. Electronic data will be stored on the investigator's locked computer. Transcribed data and consent forms will be maintained in a secured cabinet in the investigator's office for five years and will be destroyed after that time. Procedures were taken to ensure anonymity. Following each interview, the name of each participant was removed from the recording and replaced with a number.

Findings

This section includes data gathered during the interview process of this research. Specific key questions and quotes are discussed in separate paragraphs for in-depth investigation. An extensive number of direct quotes are included in this section as the interview participants are co-creators of meaning. The findings are presented in reference to the following three categories:

- Participant Use of Mirrors in Dance Training Environments
- Effects of Use of Mirror in Dance Training Environments
- Effects of Training on Non-Mirrored Training Environments

At the end of this section are responses from the participants regarding the comparison between the use of social media and the mirror.

Participants' Use of Mirrors in Dance Training Environments

Relevant themes within this category are listed below:

- Early Use
- Current Use
- Self-Correct
- Learning and Teaching Tool
- Social Communication Tool

Early Use of Mirrors in Dance Training

All participants recall using the mirror to view the body early in their dance training. Most participants stated that their teachers used the mirror as a tool when teaching combinations. Participant 1 said: “We learned a combination facing the mirror and then we do the combination facing the mirror while the teacher watches. We face the mirror throughout the entire class... I didn't even know why I had to do it in front of the mirror.” Participant 4 said that in her earliest years, the mirror was her eyes. Many participants said their teachers encouraged them to use the mirrors to look at themselves and self-correct.

Participant 5 said: “We would use them just kind of we typically always face towards the mirrors. We always use them to I guess either look at our dancing or even figure out where others were like in relation to this space, but it was always just kind of something that was there. It was always it was never questioned.” Participant 6 said that the use of mirrors was emphasized more in group classes as it could serve to receive corrections when the teacher was not able to view the body. Participant 7 said that her high school teachers and peers were big fans of the use of mirrors in dance training. She said:

Everybody kind of was it was kind of like if you want to get good if you want to be a good dancer you must stare at yourself in the mirror so that you cannot be lazy about your technique. You’d always be looking to check something and always pick something (to work on). You never want a moment to go by where you're not like perfect in your Technique. It really was not useful without the mirror.

Current Use of Mirrors in Dance Training

Regarding present-day experience, the researcher found that the participants use the mirror in many ways. All participants revealed that it was not until their college career that the use of mirrors in training environments was questioned. Some conclude that this awareness developed during their first semester and others conclude that it was during the COVID-19 pandemic. Factors that led to such realizations include conversations with peers, statements by professors, negative views of self, forced removal of mirrors from training environments due to COVID-19 pandemic, and comparison.

The participants spoke about their current professors' use of the mirror in the classroom. Most conclude that they always have the option to avoid the mirror if wanted. Actions taken by professors to address the use of mirror in the classroom:

- Professors pulling a curtain over half of the mirror.
- Placing a curtain over the entire mirror.
- Instruct the students to face away from the mirror.

Participant 6 recalls a professor she had her freshman year would call students out if they were looking into the mirror when having a conversation rather than at her when she was speaking. She said: "She would call them out not in a mean way but just in a way to notice how much you're actually looking away and into the mirror when in conversation." Participant 1 included a story that her professor shared with her during a class. Her professor stated that she went many years without looking at herself in the mirror and then "one day, she was doing a grande jeté and could not believe it was her reflection in the mirror." Participant 7 believes that her "Monday professor would prefer if we did not use the mirror at all."

Most participants stated that the mirror hinders one's preparedness regarding performance rehearsals. Participant 2 said: "When we perform, we do not have a mirror in front of us and we have to project and feel." Professors are aware the dangers of practicing performance work in front of a mirror. Participant 6 said that her professors will "make us turn around and face the back wall or close the mirrors so that we can get used to performing without a mirror. Quotes that participants recall their professors stating in class are included in Table 2 below:

Table 2. Quotes of Participants' Professors Regarding the Use of Mirror.

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- "The mirror is not actually accurate."
 - "The mirror is holding back our artistic ability."
 - "The mirror lies and is not helpful."
 - "The use of eyes finishes off the line and helps technique. When the eyes are starring side eye at us in the mirror it can keep you back from being able to fully extend the line."

- “Do not look in the mirror. Look at your partner to determine where you are supposed to be.”
 - “Stop looking in the mirror.”
-

All participants referenced the use of mirror as a tool. One method mentioned by participant 6 involves noticing all that must be ‘fixed’ and choosing to focus on only one of the many observances. Almost all participants concluded that they prefer to limit their use of the mirror and use when needed. Some participants actively seek spots in the studio that are hidden from the gaze of the mirror. “I have also found there are places in the studio where you can stand and not look in the mirror. If it is one of those days where I feel like I don’t need the mirror in my life, then I’ll stand somewhere else.” Participant 8 stated that they rely on the mirror for controlled check-ins instead of allowing the mind to hyper evaluate oneself. Many participants stated that they try to find a healthy balance between using the mirror as a tool and proprioceptive application. Participant 4 said:

It kind of goes into the question of ‘are you feeling it?’ mentality which affects me. For example, getting on my leg (to find balance) is the simplest thing. The mirror might make it look like I am over my leg, but I am not. Since being at TCU I have been trying to get over my leg and feel it in my body rather than see it in the mirror... When I feel something is off in my body, I will pay more attention to the mirror to see what is going on in my body and then refer to this feeling.

Participant 7 stated that they conducted experiments regarding their reliance on the mirror. During COVID-19, participant 7’s access to the mirror was limited to a few times a week and said “I found it was very helpful for my technique to use (the mirror) once or twice a week. I could see if I was building unhelpful movement patterns and of the rest of the week without it.”

Many participants said that the mirror is removed entirely in their modern classes. Participant 3 said that her ballet professor does not allow them to face the mirror once off the barre.

Self-Correct

The first theme references how the participants use the mirrors in dance training environments. The phrase ‘self-correct’ was verbalized by each interviewed participant. All participants recall early memories of the mirrors in their beginner dance classes had teachers that suggested the mirror be used as a tool to view the body/bodies in the space. The most common use of mirrors in dance training environments was to self-correct. Use of mirrors to self-correct was referenced by all participants. Words used interchangeably with the term self-correct include evaluate, quick check, and body check.

Most participants noted the important use of self-correction at foundational levels, like the ballet barre and in slow-paced exercises, like *adagio*. Some participants concluded that they enjoy using the mirror in this way. Participant 8 stated the mirror creates an opportunity to explore new movement patterns, especially *port de bras* (arms).

Participant 6 was taught to use the mirror to break things down and nitpick every little detail. Participant 6 “when I do have the mirror in front of me, it gets to the point where I’m not even doing the combination – I am just doing a step, then a position, then a step... I am just checking every little position in the mirror and not even dancing.” Such statements reference the development of the dancer feedback loop.

Most participants concluded that the mirror generated one of the two feedback loops: one with themselves or one with their teacher. As described in the interviews and review of literature, the dancer-mirror feedback loop is two-way communication system that and begins with the

dancer looking to the mirror, feel it in their body, look to the mirror to check if the change was successful, feel it in their body; the process plays itself on repeat. Most stated that in their early training years, the initial first step of the communication process started with looking to the mirror for information as opposed to starting with their proprioception. Most stated that in their current training environments, the dancer consciously tries to start this process with their proprioception. Participant 6 said:

Something that I am working on right now, in terms of self-correcting as a dancer, is using the mirrors to see then turning away and thinking about how it feels then applying a correction that I am given and seeing how that feels and combining those two together.

This is a more positive use I believe.

The teacher-mirror feedback loop 3-way communication is best described by participant 7: “The teacher would give feedback, tell the student to look to the mirror and then feel it in their body.” This type of feedback loop was more commonly described in private lesson or small class settings.

Learning Tool and Teaching Tool

Five of the eight participants referenced the mirror as a learning and teaching tool. As stated in the methodology section above, Participant 7 and 8 started dancing much later than the other participants. Both used the mirror as a learning tool to understand new material and to see what other people were doing. Participant 1 noted that she uses the mirror as a tool when turning as she finds it “difficult to find a specific reference that is not the mirror” but also stated that the mirror “is not really a tool most of the time.” Many of the participants reference the use of mirrors when learning choreography.

Many of the participants have experience being the teacher in the room rather than the dancer. From the perspective of a teacher, the participants made statements regarding use of the mirror as a teaching tool, especially when teaching choreography to others. Participant 3 said that she relies on the mirror when she is creating new choreography as she likes to see what the shapes and movement phrases that she is creating look like from an outside perspective. Participant 1 said that she believes class can move more efficiently when the teacher relies on the mirror as a teaching tool.

Social Communication Tool

Three of the eight participants made statements regarding the use of mirrors as a social tool to communicate with others in the room. It can be used to make eye contact with peers that are on the other side of the room. Participant 1 uses the mirror to make jokes with peers in the space. She said: “My peers would use it to talk to me across the classroom, especially in my early years. If my friend was trying to make a joke, she would make a hand signal to get my attention and I would look at her and she would make a joke or something.”

Effects of the Use of Mirrors in Dance Training Environments

All participants stated some version of how the mirror can negatively affect the image that they have of themselves but that they continue to train in dance because of the rewarding feelings that can develop. Many of the participants made statements like participant 1: “the mirror is my nemesis.” Each participant revealed positive and negative impacts of the use of mirrors. Relevant themes within this category are listed below:

- Effects of Self-Correcting
- Effects of Training in Ballet vs. Non-Ballet Disciplines

- Distraction
- Effects of Mirror Presence in the Space
- Effects of View of Self
- Objectification and False Image
- Over Reliance and Obsession
- Standard of Perfection
- Comparison
- Negative Self Talk

Effects of Self-Correcting

Most participants referenced the dangers of self-correcting. A very common statement is reflected in the words of participant 8: “self-correcting becomes bad when it turns into self-demeaning.” Participant 3 stated that the mirror caused her mind to spiral due to the continued act of self-correcting. She stated that her “technique was not where she wanted it to be.” Self-correcting is very black and white; there is always a right and a wrong and leaves no room for in between.”

The act of self-correcting is extremely addictive. Participant 6 stated that it can become an unhealthy cycle of negativity, especially when unaware of the dancer-mirror feedback loop. Participant 3 said she often can “lose herself trying to find something that is wrong with herself.” Some concluded that the action of continuous self-correction disrupts one’s ability to learn information as it can become a passive action. Participant 6 said:

Our bodies are changing every single day... As athletes, we must give ourselves grace and our body’s grace because they work so hard to keep up with us and we really have to take care of/prioritize our instrument to use it to the best of our ability and that looks different every single day. It is about meeting yourself where you are at.

Most participants made statements that correlate self-correcting and development of mental health problems, like anxiety or body dysmorphia. Self-correcting can create an urgency to fix something that is not even there. Participant 8 said:

I think the reason that dancers are so anxious is because they are always hyperevaluating and are put in an anxious place 24/7. There is never a moment when they are not under scrutiny, and they know that. This causes every little thing to hurt. You can call dancers dramatic all you want but I don't see it as that. I see it as they have been trained to think this way and feel this way about our body.

Effects of Training in Ballet vs Non-Ballet Disciplines

There is a distinct difference between the effects of mirror use in ballet and non-ballet styles of dance. Six of the eight participants referenced the difference that exists between ballet and modern training environments. Negative views of the body, in many cases, were more likely to develop in ballet disciplines than any other discipline of dance. Many participants correlate “unhealthy” mindset with ballet. Traditional ballet body aesthetics set the standard. The ballet style also affected the amount of reliance the dancer has on the mirror. The participants in this study conclude that ballet creates a desire to observe from the outside eye as opposed to an internal experience. Several participants stated that body standards are only experienced in ballet environments. Participant 8 believes that her view of self is based on which style she is training in. She said: “In modern class and outside of dance in general, I am too thin. It is only in ballet class that I think ‘I am not good enough or skinny enough.’ She concludes that her thought process was caused directly by the mirrors. Some participants noted that modern dance emphasizes movement patterns rather than shapes. Participant 8 said: “It's really nice to zone into my body and not get in that ballet mindset of hyper-evaluating the shapes.”

Many participants made observations like participant 4: “Classical ballet has a set way of how something is supposed to look and so while you can go off a feeling, it is important to

remember how it looks. This is not the case in modern.” Participant 3 said that modern is “less structured” which creates more room for authenticity and eliminates perfectionism.

Distraction

Seven of the eight participants made statements about the mirror being distracting. Some participants noted that their peers use of the mirrors can be distracting. Participant 3 noticed the mirror’s ability to distract its users when she was teaching a children’s dance class. She observed that the kids she was teaching lose focus while looking into their reflection in the mirror.

Participants observed the effects of the mirror’s ability to distract. Commonly, the distractive elements were correlated with ‘ruining the line of the movement/shape.’ Participant 6 said that the mirror causes her eyes to become glazed over and her mind to zone out. Some participants stated that they constantly change what they are wearing in class or find a new spot in the room to change the way she looks in the mirror. Participant 1 stated:

I’ll just constantly like body checking constantly, like adjusting my place in the mirror constantly changing what I’m wearing in class. I’ll switch between a leg warmer. I’ll switch skirts for every combo. I’ll even change my tights sometimes because I hate the way I look in the mirror. A skirt is a skirt. It should just be what you want to wear that day for functionality or for your outfit, but maybe not. This makes my body look this way, but that’s only because of the mirror.

Effects of Mirror Presence in the Space

When asked if the mirror affects one’s mindset when walking into the studio, four of the eight participants ug Participant 6 said: “90% of the time, I expect it to be there... If (the mirror)

is closed, I get happy and hope that no one decides to open it.” Participant 3 said that her mindset is not necessarily affected in a positive or negative way. Participant 1 said the mirror immediately affects her mindset and said: “If I don’t like the way my leotard and skirt hit my body, then I automatically will have a bad class.” Participant 8 said that her perception of the way she looks in the mirror from the minute she walks into the space determines her mindset. Some participants made statements regarding anger toward the mirror when they walk into the space. Participant 2 recalled a conversation about this topic that she had with a friend. She said:

I love going to the gym and whenever I'm in the gym, I feel so confident about my body and I'm in my body and I just feel so strong and then it's like as soon as I walk into a studio my self-confidence and my self-esteem just goes down and become nonexistent as soon as I step into the studio. I think that it's almost muscle memory and it's almost just a habit for as soon as I walk into that room to just feel so numb and lost in myself because I'm so used to walking into that negative space and just being an empty vessel that's being told to move instead of bringing who I am as a human and who I am as a woman into that movement.

Participants provided their experience regarding their earliest memories of using mirrors in dance training environments. Six of the eight participants did not notice the uniqueness and abnormality of staring at one’s reflection for extensive hours until later in their dance training. Participants 7 and 8 were aware of this abnormality from the beginning of their dance training and noted that the mirror has always affected their mindset negatively when in the studio. Their experience was described as an “unpleasant shock.” Participant 7 trained with girls significantly younger than her due to her lack of dance experience. She said, “(the mirror) really refused my enjoyment of dancing... I felt a little odd being the oldest girl in the room who’s fully grown

with all these younger girls. I felt uncomfortable in the ballet clothes already”. Participant 8 hinted similar experience.

In terms of mindset during class, many participants made conclusions regarding the mindset that is required to get through a mirrored class. Participant 6 said that her mind is much calmer if she is dancing without the mirror and that it “takes less mental effort in terms of combating internal dialogues if there is a mirror... It doesn’t mean that the class is going to be bad but just 10 times harder.”

Participant 4 described an experience that he had at a ballet summer intensive. He recalled that the dancers would rank the mirrors based on the way that the mirror would make their bodies look. The training facility had one room that had a warped mirror that would ‘warp’ the way one’s body looked in the mirror, but it had the best sprung floors. He said: “They would prioritize the quality of the mirror over more what I would say practical aspects of the studio, such as the quality of the floors.”

Effects on View of Self

When asked how the mirror has shaped perception of self, six of the eight participants concluded that the mirror has negatively affected one’s perception of self. Participants 3 and 4 conclude that they have always maintained a somewhat healthy view of themselves. Participant 3 said: “I feel grateful that I’ve never looked at myself like oh my god, ‘I’m fat,’ like I am not fat. I am skinny enough. For me, it has always been about the technique... and not about demeaning the body.”

Due to COVID-19, participant 7's access to the mirror was limited. When she returned to training in a mirrored studio on a regular basis, she struggled to view herself in a positive light.

She said:

If I am being completely honest, it was very hard to come back to seeing yourself in the mirror after taking a break, especially when you were at your top level of training and you're going back and suddenly are like, oh my goodness, I am out of shape. I don't want to stare at myself all day long.

Objectification and False Image

Objectification and false image were common themes among all participants. Participants described the mirror as a "false reality". Participant 5 said that the mirror is not an accurate depiction of what you are seeing due to the two-dimensionality of the mirror and said:

The mirror gives a warped view of both your dancing and body because it is a two-dimensional reflection rather than a full three-dimensional image of what you look like...

When you are doing something, like a turn or big jump, you are not able to look at yourself the whole time, so it (your view) is a lot different than if you were seeing another person or even watching your video because it gives more of a full scope of what your dancing looks like.

The ability of the mirror to project a 'false image' can create trust issues. Participant 6 said: "My brain might think 'oh, this is good' but I'll be like 'just kidding, that did not look good at all' when it is probably somewhere in the middle, like there could be something to improve because there always will be but is still better than it was 6 months ago."

Many participants concluded that self-correcting in the mirror takes away one's ability to experiment. Participant 8 said the mirror "doesn't allow you to fail or experiment. It just becomes you trying to be a robot and honestly no one is interested in seeing that. It is not real or human and no one can connect with that."

Over Reliance and Obsession

All participants referenced that the use of the mirror can be overused and/or become an obsession. During participant 7's self-research, she concluded that she "noticed that I started to feel a little crippled when I danced without a mirror. I suddenly didn't know where my body was in space because I needed to see it like it was the other half of my brain." Many of the participants made statements regarding their lack of self-trust when that exists when attempting to apply a correction. Participant 5 stated that the mirror can reaffirm that the correction was correctly applied. Participant 8 said:

You get so caught up in your own perception of everything that it inhibits your freedom, and you feel really confused. You feel like you are getting mixed messages and mixed signals. Then, you start to wonder if there is something wrong with you or if you are not understanding... it becomes a roller coaster.

The desire to see what one looks like can create an over reliance on the mirror. Participant 5 stated "I think people just want to see what they look like when they are dancing. Participant 1 said:

I constantly am body checking (in the mirror), and I did not even realize it. A peer jokingly said, 'do you realize how often you are looking to the mirror?' and I was like 'What? No.' and then realized that I am constantly body checking in the mirror.

Most participants believe that the use of mirrors in performance-related rehearsals works against their goals. Areas of the body that are negatively distracted by the mirror include: the head, the eyes, and the placement of pelvis. Participant 6 said:

I have been thinking about how I use the mirrors in my rehearsals. Recently, I have started to make my dancers rehearse the piece without the mirror and two of them panicked. We are not going to have the mirror when we perform so we should probably practice (the dance) without it. It was interesting to observe that they felt like they couldn't do the dance as well when I took the mirror away.

Standard of Perfection

Most of the participants believe that dance promotes an ideal body type. Although an ideal body image does exist for all styles of dance, the participants expressed that there is more pressure to achieve this in ballet disciplines. Participant 8 said: "When you are in dance class, you're constantly evaluating your body because you are told as a dancer that your body is what you have to give."

All but one participant concluded that they are affected by standards of perfection. Some participants concluded that perfectionist body standards promoted unhealthy habits. Participant 1 stated that the mirror creates unrealistic expectations of the body and that she likes seeing the way her reflection looks in the mirror in the morning because she has not had anything to eat since "8 o'clock the day before".

Comparison

Healthy and nonhealthy comparison is promoted using the mirror in dance training environment. Healthy use of comparison was referenced by participants 6, 4, and 2. Participant 2 said: “It can be looking at the way a dancer is moving, seeing how efficient it is, borrowing that quality and applying it to yourself. You can learn a lot that way from watching other people.” Participant 6 talked about different elements, like artistry, that can be learned from watching others in the space.

All participants made statements that frame comparison in a negative light. Participant 6 was taught to use the mirror to break things down and nitpick every little detail. Participant 7 also stated that the mirror reinforces that “a bunch of eyes are looking at you, including your own. It is unpleasant” and commented that she gets embarrassed if she begins to sweat in a class and the mirror is present. Many participants referenced the idea that comparison is the thief of all joy. Most of the participants referenced the gaze that is reflected by peers in the space and that it can cause comparative thoughts to develop.

Important quotes regarding the negative aspect of comparison in dance environments are outlined in the table below:

Table 3. Unhealthy Comparison Quotes

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- “You are practically naked in front of a mirror it is hard when you are constantly being told that you are not doing enough. It becomes hard to not look at people.” (Participant 8)
 - “When a teacher pulls somebody out of the classroom and says everybody watched this person, that person becomes the ideal and then there's a ton of more comparison. You want to be the ‘correct version.’ And you ask yourself, ‘how do I match up against the ideal example?’” (Participant 7)

- “There is a lot of comparison and if you are looking at other dancers in the space, you can kind of look at them and see what they're dancing looks like. If you are looking in the mirror and analyzing your dancing, you might get into a tricky place with comparison because you're noticing your dancing and it might be hard because you're judging yourself. You're looking at someone else's dancing and then you're able to see your own dancing as well. You get this comparison mindset where you're probably, at least in my experience, where I was feeling like negative about my own self and my own dancing because I was able to like to see someone else and then compare it to the way that my dancing or my body looks.” (Participant 5)
- “These lies build up so quickly and then you get into class, and you know, you can use the mirrors to like covertly to look at everyone and everything going on around you. Then you're not even looking at yourself for focusing on self-correction. You're looking at everyone else and everyone knows that everyone else is looking at them through the mirror. It creates this paralyzing thing of just like fear and judgment and you're expected to show up every day.” (Participant 8)
- “You're already battling your inner monologue when you're in a class and then having everyone else being so aware of that too is just can be put you in a really vulnerable position and it can be really difficult to navigate.” (Participant 2)
- “Comparison becomes really big because you could look at yourself in the mirror and be like ‘oh my God, my leg looks really good’ but then you look at the person that is standing right next to you and look at the in the mirror but you are not actually looking at them in the space and you think ‘there leg looks so much better than mine’ but you are

only looking at a snapshot of it because it is only one moment that you see.” (Participant 6).

- “If you're looking in a mirror and you're seeing like another dancer or you're seeing the way that you're dancing looks compared to someone else, it can perpetuate the comparison and just being disappointed with yourself and your own dancing and I think the mirrors can perpetuate it.” (Participant 5)
- “I remember looking at myself in the mirror and looking at both of us and thinking, ‘Oh shit, her leg is higher’ and thinking to myself that I was not enough.” (Participant 4)
- “When I was young, I took ballet one day a week with young girls and we all wore leotards. The mirror kind of puts eyes all back onto you, you know, everybody can kind of be staring. I recall everyone being lined up next to each other and all our eyes are staring back at ourselves (in the mirror). That is a perfect little opening for comparison. I think naturally you must compare yourself when you're standing in a line and staring at all the bodies lined up next to each other, you know? Even if it's subconscious comparison like ‘oh, wow, I'm definitely the odd one out in this room’.” (Participant 7)
- “When I'm in *arabesque*, I don't see that my back fat wrinkles up. I might see it on others, but I don't see it on myself only when I look in the mirror”. (Participant 1)
- “I compare myself to others a lot, especially in a studio setting.” (Participant 2)
- “I think that comparison is something everyone is acutely aware of I think they're always trying to size up where they are in the class. You know how the teacher views them compared to the other dancers how you know, the other dancers view you compared to the other dancers how you view yourself compared to the other dancers like it is just

comparison after comparison and it's dumb because it's taking all the emphasis away from like what you're there to do. The mirror perpetuates this.” (Participant 8)

- “I was already uncomfortable in ballet closet and then having the mirror in front of you reinforces a bunch of eyes looking at you, including your own.” (Participant 7).
- “(Comparison) dehumanizes the other person that you’re looking at.” (Participant 6)
- “I really struggle with this comparison like comparing myself to other people and I think that mirrors can make it really easy to compare yourself to the other people on the other bodies that are in the room.” (Participant 2)

Negative Self Talk

Ultimately, all outlined outcomes of mirror use in dance training environments can result in negative self-talk. Seven of the eight participants referenced negative self-talk in their interviews. As described by many participants, a common mechanism to cope with the effects of mirror presence in the space was group talk. Participant 2 said: “It was kind of collective... like looking in the mirror and talking about how we did not like what we were looking at and judging ourselves in the mirror.

Many of the participants referenced that compliments given by teachers to their peers can cause the mind to think negatively of the self. A common comment that was made by participants in reference to lack of praise from teacher was “no one has ever said that to me”. Participant 2 said:

I think that mirrors can put us at a disadvantage when we're just so used to just staring at ourselves. It is normally in a judgmental manner. I feel like you can't be successful in a variation and a class if you're just constantly judging every little thing that you do.

Effects of Training in Nonmirrored Environments

Relevant themes within the third category are listed below:

- Improved Connection in Space and Improved Proprioception
- Enhances Movement
- Improved Experience

Improved Connection in Space and Proprioception

Five of the eight participants referenced that training in absence of the mirror improves their connection to the space and proprioception. Many participants said that training in mirrorless studios has challenged their proprioception and made them more aware of their bodies in space. Participant 4 said that training with no mirror challenges her to rely on feeling in her body rather than just trying to replicate an image. Participant 5 said: “When I’m not using the mirror, I am not as focused on the other people around me. If I want to look at somebody dancing, I must actively turn my head to look at them. It just makes me a lot more aware of like who’s in the space around me.” Participant 8 said that she trusts her proprioceptors more when the mirror is not present.

Participant 2 spoke about her experience attending a weekend-long mirrorless contact improvisation festival and emphasized the importance of training in the absence of a mirror when partnering with another dancer. She said: “You much be aware of the other bodies in the room. It takes a lot of distribution of weight and weight sharing. You have to be so in your body and so aware of what you can handle to reach the somatic state that you’re able to reach.”

Enhances Movement

Participant 5 describes the process of relying on past corrections to self-correct. She keeps a checklist in her mind of the things she is currently working on in her practice and goes through the list as she practices in the studio. Rather than relying on the mirror, she uses information that she already must improve her work.

Improved Experience

Six of the eight participants made statements that reference their experience is improved in the absence of the mirror. Many participants said they enjoy class more when standing in the corner of the room, hidden from the mirror. Participant 2 said: “I am happy because I am living in my body. It is so much more fulfilling.” Most participants stated that their mindset is healthier when training in mirrorless environments, which makes class more enjoyable. Participant 6 said that training in a mirrored environment is mentally exhausting and that training in the absence of a mirror gives her a mental break. Many participants stated that they like to encourage their peers to not rely on the mirror.

Social Media and Mirror Comparison

At the end of the interview, participants were asked if they believe there are any similarities that exist between social media and the use of mirrors. In terms of RQ#2, all participants saw similarities between the mirror and social media. Further analysis of RQ#2 is located in the discussion section of the paper. In the table below are relevant responses to the question. Quotes from this table are referenced in the analysis section of the report.

Table 4. Social Media and Mirror Comparison Quotes

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- “On social media, you’re looking at people who have raving success and you are like ‘Well, I am just not doing enough’. You might look at people that have very different body’s than you and think ‘I am not enough’.” (Participant 8)
 - “When you break it down into this picture, then you reduce ballet to just be an aesthetic image of a person who looks like quote ‘the ballet body’. The mirror in some ways does the exact same thing as seeing your image and still a still image of yourself.” (Participant 7)
 - “On social media, people post videos, and they look perfect. I don't think it is necessarily real and true what you're seeing. At the same time, when you are using a mirror what you're seeing might not necessarily be a real or true depiction of your dancing.” (Participant 5)
 - “I notice similarities when you're in front of a mirror and using social media how it affects your mindset.” (Participant 2)
 - “I really struggle with this comparison and comparing myself to other people. I think that mirrors can make it easy to compare yourself to the other people on the other bodies that are in the room. On social media, people are showing the world what they want the world to see. I think that there's a lot of negative comparison on social media and you're not seeing people like in their real state and in their real body.” (Participant 2)
 - “Social media probably does more comparison than the mirror, but the mirror can do it too.” (Participant 6)
 - “If you think about it people back in the day who didn't have social media, but they had mirrors all they had to compare themselves to the eight people in their class and they had

no idea what was going on in the world all they had all they knew was what was happening in their bubble. If they were to climb to the top of those eight people and then they enter the world, you know, that that's a new ballgame to that's a new thing to tackle but what we're going through right now is we're having to set unrealistic expectations on ourselves because I'm seeing people who have been training for their entire life years, I mean, they're double my age and they're beautiful and perfect and even people from the past who have already died. I'm seeing where they were at and I'm putting that expectation on myself now, which is unrealistic and so the same things happening with dance, you know, you see with the mirror. You see a lot going on whether it's 'how high is your leg? How much body fat do you have on you? How you know much can you turn out?' Maybe it's not as like comparing to so many people regarding functionality. But like the parallel is that you're comparing maybe not functionality regarding the mirror, but maybe like what you look like." (Participant 1)

- "I feel like social media and the mirror are connected because it reemphasizes you as a still image." (Participant 7)
- "The likes that you get when you post something offer validation. When I don't get as many likes, I would think negatively about myself. I used to post stuff that I knew would get a lot of likes but now I just post what I want, even if I do not get as much validation. This validation is like what I feel in the mirror" (Participant 3)
- "I think the biggest similarity is that it's a two-dimensional thing and you're seeing a three-dimensional body moving in space on something flat in terms of like in the mirror." (Participant 6)
- "Social media is just as much a mirror then the mirror is in the studio." (Participant 8)

- “Social media has the same vicious cycle as the mirror. When you get the validation from social media or the mirror, it feels good. So, you keep doing it and that's like the cycle.” (Participant 3)
- “In the way, they (dancers) interact with each other is like social media.” (Participant 6)
- “I actually took a break from social media for about a year and a half and I think it was honestly really healthy because I was getting caught up in a lot of like comparison and it just kind of can make you want to depict this like fake version of yourself because you want to like on the internet you want to look perfect and you want your videos like your dance videos to be perfected your dance pictures to look a certain way, but it might not actually be true. And so, whenever I stepped away, I feel like it was a lot healthier because I wasn't so focused on making this like fake version of myself. When using the mirrors, I think it's just having the option to stand in front of them or not. It's nice like giving dancers the choice because you know making the decision for yourself and you're able to use that as more of a tool than something.” (Participant 5)

Discussion and Conclusion

In this section, the experiences of dancers training in mirrored environments and similarities that exist between the use of social media and the use of mirrors in dance training environments will be described. The relevant discussion is organized according to the research question it answers.

RQ1: *How do dancers describe mirrors in studios, their relationship with mirrors, and their experience with instructors and the mirrors?*

The findings from this study suggest that the presence of mirrors in dance training environments can have a significant impact on a dancer's mindset and perception of self (Dearborn, 2006, Diel, 2016, Ehrenberg, 2010, Oliver, 2008, Radell, 2014). Many participants described the mirror as a "false reality" and stated that it can create trust issues. Participants discussed the negative impact that mirrors can have on their mindset and the pressure to achieve an ideal body image. Participants in the study described the mirror as a distractive element that can cause negative self-talk, obsessive behavior, and over-reliance. Additionally, the mirror can promote unhealthy comparison and reinforce an ideal body image that can lead to the development of unhealthy habits.

The findings from this study are consistent with previous research on the impact of the mirror on a dancer's mindset and perception of self. Kirkland wrote in her autobiography *Dancing on My Grave* that "throughout the early phases of my career, the mirror was my nemesis, seductive to the point of addiction" (Kirkland, 1986). Kirkland revealed that she struggled with many different illnesses during her career, including anorexia, bulimia, and drug addiction (Kirkland, 1986). The act of objectifying her body in her mind was destructive of her mental image. The mirror can become a 'grazing critic' that instigates anxiety about the way one

looks in the mirror (Dearborn, 2006). Some participants even reported enjoying class more when they were standing in the corner of the room, hidden from the mirror. The study also found that training in absence of the mirror can improve dancers' connection to the space and proprioception, enhance their movement, and improve their experience in the studio.

Many participants stated that their mindset is healthier when training in mirrorless environments, which makes the class more enjoyable. In the presence of a mirror, a mindset shift occurs. Instead of viewing one's body as an alive organism, a dancer views the body as a disembodied object. By viewing the body as an object, the dancer can distance their mind from their physical body. Dance students look to the mirror to view their objectified bodies against others. Viewing the body as an object entices dancers to be able to compare themselves against each other. Dance researcher Jill Green found that the presence of mirrors in collegiate-level dance classes can increase the dancer's self-consciousness negatively. This can result in self-evaluation of the body, regulation of behavior, objectification of the body, and competition among the dancers (Green, 1999). All possible outcomes can cause the dancer to become overly critical of the self.

Despite these negative effects, some participants in the study described the benefits to training in the absence of a mirror. These benefits included improved proprioception, enhanced movement, and improved experience.

RQ2: *Is the relationship that dancers have with mirrors and users have with social media comparable experiences?*

The findings of this study suggest that there are similarities between the relationships that dancers have with mirrors and the relationships that users have with social media. Participants in

this study reported negative effects of mirror use on their mindset, view of self, and self-talk. These negative effects mirror the negative effects of social media use reported in previous research, including negative self-talk, comparison, and pressure to conform to idealized standards (Vogel et al., 2014; Fardouly et al., 2015; Perloff, 2014). Many of the quotes regarding the use of mirror directly correlated to secondary research regarding the use of social media; The word ‘mirror’ could be replaced with the word ‘social media’.

One of the most notable similarities between mirror use and social media use is the promotion of comparison. Participants in this study reported that the mirror promotes unhealthy comparison and negative self-talk, which is consistent with previous research on the negative effects of social media use (Fardouly et al., 2015; Perloff, 2014). All participants stated some version of how the mirror can negatively affect the image that the mind has of themselves but continue to train in dance because of the rewarding feelings that can develop. They also reported that the gaze reflected by peers in the space can cause comparative thoughts to develop. This is like social media, where users can often compare themselves to others and feel pressure to conform to idealized standards.

Another similarity between mirror use and social media use is the promotion of an idealized body type. Participants in this study reported that dance promotes an ideal body type, and that the mirror creates unrealistic expectations of the body. This is like social media, where users can be exposed to unrealistic beauty standards and feel pressure to conform to these standards (Fardouly et al., 2015).

Participants in this study reported that the mirror can create a false image of oneself. This is like social media, where users can create a curated image of themselves that may not be an accurate reflection of who they are in reality (Vogel et al., 2014). Social media and dance are

both two-dimensional. As a result of both phenomena, many people are developing a skewed view of how they should look and feel about themselves, which can lead to trust issues. This is because users of social media are constantly exposed to images of other people that are perceived as more attractive or successful and dancers are expected to reach unrealistic body standards, both which can lead to feelings of envy and insecurity.

Social comparison theory can also be used to explain why people become more self-conscious and anxious when using social media. Users and dancers constantly compare themselves to others. This can lead to feelings of envy and inadequacy. Users might feel envious of someone's success, or of the way they look, just as dancers do in class. Dancers may also feel inadequate if they do not receive the same type of feedback in the mirror as their peers, just as a female might feel if she does not receive as many likes on her Instagram post. Social media is used as a mirror to reflect one's own self-image, and this leads to the same feelings of envy and inadequacy that dancers experience when training in mirrored environments. Users of social media can become anxious when using due to the constant comparison of our lives to what we see on the screens.

Despite these similarities, it is important to note that the use of mirrors in dance training environments is a necessary and valuable tool for dancers. Participants in this study reported that mirrorless training can challenge proprioception and make them more aware of their bodies in space, but they also reported that the mirror can enhance movement and provide valuable feedback for self-correction. Similarly, social media can be a valuable tool for communication and self-expression, but it can also have negative effects on mental health.

Implications

The findings of this study have several implications for dance educators and practitioners. First, educators should be aware of the negative effects that mirrors can have on dancers' perception of self, mindset, and ability to experiment. They should also be aware of the pressure to achieve an ideal body image that can be promoted by the mirror in dance training environments. Educators should consider offering classes in absence of the mirror to improve dancers' connection to the space and proprioception, enhance their movement, and improve their experience in the studio.

Second, educators should be aware of the similarities between the mirror and social media. They should educate their students on the unrealistic expectations that can be created by social media and the negative effects of comparison and unhealthy self-talk that can be promoted by social media platforms.

Third, practitioners should be aware of the negative effects that mirrors can have on their mindset and the pressure to achieve an ideal body image. They should also be aware of the similarities between the mirror and social media and the negative effects of comparison and unhealthy self-talk that can be promoted by both. Practitioners should consider limiting their use of mirrors and social media platforms to improve their mindset and overall mental health.

Further Research

The researcher believes that the findings highlight major-mutual elements that exist between dance and social media. It is visible to the reader the applicability of dance research to other fields of study. This research highlights only some of the parallelism that exists between dance research and general research in academia.

Moreover, this research can be replicated on a target group with a different background than the participants in this study (for example other demographic makeup or other training backgrounds), since these elements can have a large influence on the findings of a study, and a larger representative sample of dancers.

Conclusion

The findings of this study indicate that the use of mirrors in dance training environments can have negative effects on dancers' perception of self, mindset, and ability to experiment. However, training in absence of the mirror can improve dancers' connection to the space and proprioception, enhance their movement, and improve their experience in the studio. Educators should be aware of the negative effects that mirrors can have on dancers' perception of self, mindset, and ability to experiment, as well as the similarities between the mirror and social media. They should consider offering classes in absence of the mirror and educating their students on the unrealistic expectations that can be created by social media and the negative effects of comparison and unhealthy self-talk that can be promoted by social media platforms. Practitioners should also be aware of the negative effects that mirrors can have on their mindset and the pressure to achieve an ideal body image, as well as the similarities between the mirror and social media, and consider limiting their use of both to improve their mindset and overall mental health.

The study found that both mirrors and social media can create unrealistic expectations and promote comparison and unhealthy self-talk. Participants in the study reported that the negative effects of comparison are promoted by the mirror in dance training environments. They described how the mirror can perpetuate comparison and just being disappointed with oneself

and one's own dancing. The pressure to achieve an ideal body image also promotes comparison, as dancers compare themselves to their peers in the studio. These negative effects of comparison on dancers are like the negative effects of social media on users.

Secondary and primary research supports the idea that the relationship that dancers have with mirrors and users have with social media is comparable. Social media has been found to negatively impact users' self-esteem, body image, and mental health by promoting unrealistic expectations, comparison, and unhealthy self-talk. Similarly, the study found that mirrors in dance training environments can have negative effects on dancers' perception of self, mindset, and ability to experiment.

In conclusion, the findings of this study suggest that the relationship that dancers have with mirrors is a comparable experience to the relationship that users have with social media. Both mirrors and social media can promote negative self-talk, comparison, and pressure to conform to idealized standards. However, it is important to note that the use of mirrors in dance training environments is a necessary and valuable tool for dancers. Like social media, the negative effects of mirror use can be mitigated through conscious and intentional use.

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Appendix

Appendix A: Topic Guide

1. Introduction:

- Thank participant for being a part of my research
- Introduce self, reiterate length of interview
- Purpose: To understand the use of mirrors in your dance training.
- Participation: Voluntary. Ability to withdraw at any time with no consequences.
- Confidentiality of information
- Importance of stating your opinions. There are no right or wrong answers.
- Do you have any questions?

2. Respondent Introduction

- Name, age
- Primary styles of study

3. Topics of discussion:

- Tell me about the use of mirrors in your earliest training as a dancer, practicing and learning in a studio. Do you recall any conversations about early use of mirrors?
- Tell me about the use of mirrors in your current dance training.
- Have your teachers or peers emphasized mirrors in conversation or instruction?
- How have your instructors talked about mirrors?
- How have your peers talked about mirrors?
- How do you use mirrors?
- What do you see as the benefits of using mirrors in dance training environments?
- Do you see any disadvantages of using mirrors in dance training environments?
- How have mirrors shaped your own perception of yourself?
- Have you noticed if the mirror affects your mindset when you walk into the studio?

- How do you self-correct?
- Are you effected by the standards of perfectionism?
- Have you ever noticed any similarities between social media use and mirror use?

Appendix B: Recruitment Email

Hello,

I hope this email finds you well. I am working towards completing my undergraduate thesis research. The purpose of this study is to learn more about the use of mirrors in dance training.

I would like to interview you by phone, Zoom, or email as part of my project, using a topic guide to lead our discussion. We expect your participation would take between 20-30 minutes.

If you agree to participate voluntarily, please respond back to this email so we can proceed with scheduling the interview. You will see information about providing consent and the ways we will protect your anonymity and provide confidentiality.

As part of my project, I am working with two faculty advisers from my program at TCU, Dr. Nina Martin, MFA, Ph. D, and Jacqueline Lambiase, Ph.D. Dr. Martin may be contacted at nina.martin@tcu.edu. Dr. Lambiase may be contacted at j.lambiase@tcu.edu or at 817.257.6552.

Please let me know if you are willing to participate in my research. We are hoping to begin interviews at the end of November, so your timely response is appreciated. I thank you for your consideration of my request.

Sincerely,



Lyvia Baldner

lyvia.baldner@tcu.edu
608-799-2061

Appendix C: Information Guide Attached to Recruitment Email

Title of Research: Hindering Twins: Comparison Between Mirror Use and Social Media

Principal Investigators: Nina Martin, MFA, Ph.D., Jacqueline Lambiase, Ph.D., and Lyvia Baldner

Overview:

You are invited to participate in a research study. To participate, you must be between the ages of 18-25 and have 8+ years of experience training in dance.

Study Details:

This study is being conducted virtually through zoom or phone call. The expected duration of your participation in the study is 20-30 minutes. Audio recording will occur to assist the researchers during data analysis.

Participants:

You are being asked to take part because you have trained in dance for over 8 years. We are interested in learning more about the use of mirrors in your dance training. If you decide to be in this study, you will be one of 4-8 participants in this research study at TCU.

Voluntary Participation:

Your participation is voluntary. You do not have to participate and may stop your participation at any time without any penalty.

Confidentiality:

Even if we publish the findings from this study, we will keep your information private and confidential. Anyone with the authority to look at your records must keep them confidential.

Appendix D: Informed Consent Form

Informed Consent to Participate in Research

What is the purpose of the research?

The purpose of this research is to understand the use of mirrors in dance training. I hope my research can reveal common themes that result from use of mirrors in dance training.

What is my involvement for participating in this study?

Your involvement in the study asks that you attend a 20–30-minute virtual interview that will be held over Zoom or phone. We expect your participation to take about 20-30 minutes. Once you have completed the interview, you may be contacted via email by the researcher to participate in a follow-up interview.

Are there any alternatives and can I withdraw?

You do not have to participate in this research study.

What are the risks for participating in this study and how will they be minimized?

We don't believe there are any risks from participating in this research that are different from risk that you encounter in everyday life. Individuals may feel uncomfortable with some questions, although every question is voluntary. Participants who feel uncomfortable may withdraw from the study at any time.

What are the benefits of participating in this study?

Your participation in this study will provide valuable information to further research in the field of dance as well as improve pedagogical tactics in dance.

Will I be compensated for participating in this study?

No compensation will be awarded for participation in the interview.

How will my confidentiality be protected?

Data will be recorded and stored by the researchers, Dr. Nina Martin, Dr. Jacqueline Lambiase and Lyvia Baldner, and only they will have access to the data. Data will be stored in Dr. Martin's office for five years. Digital files will be stored on the researcher's laptop that is secured by a password. Identifying information obtained from the consent forms will undergo the same process and be kept in Dr. Martin's office. Responses of willing participants will not be linked to any survey or interview responses.

Who should I contact if I have questions regarding the study?

You can contact Dr. Nina Martin, Dr. Jacqueline Lambiase or Lyvia Baldner at 608-799-2061 with any questions that you have about the study.

Who should I contact if I have concerns regarding my rights as a study participant?

Dr. Brie Diamond, Chair, TCU Institutional Review Board, (817) 257-6152, b.diamond@tcu.edu; or Dr. Floyd Wormley, Associate Provost of Research, research@tcu.edu

By signing this document, you are agreeing to be in this study. Make sure you understand what the study is about before you sign. You will be given a copy of this document for your records. A copy also will be kept with the study records. If you have any questions about the study after you sign this document, you can contact the study team using the information provided above.

I understand what the study is about, and my questions so far have been answered. I agree to take part in this study.

Printed Participant Name

Signature

Date

Printed Name of the person obtaining consent

Lynia Baldwin

Signature

Date

*Appendix E: Informed Consent Form***Consent to be audio/video recorded.**

I agree to be audio recorded. Yes _____ No _____

I agree to be video recorded. Yes _____ No _____
