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The Use of Visual Thinking Strategies to Enhance Observation Skills of Entry-Level Occupational Therapy Students

Abstract

Observation is a critical skill that deserves increased attention in occupational therapy education programs as it can directly affect patient care. Art has been used as a pedagogical tool to explicitly teach observational skills in medical and allied health programs. The use of art has a positive effect on the clinical skills needed for patient care. The purpose of this descriptive study was to examine how students' observation skills changed using Visual Thinking Strategies (VTS) with works of art. This quasi-experimental, single-group, pretest-posttest design included 33 occupational therapy students who observed four different works of art using an observation log and the Observation Skills Questionnaire-modified (OSQ-m) before and after the session. Data were analyzed using descriptive statistics and paired t-tests. The results showed that most of the post-OSQ-m scores significantly improved, most notably the areas of remembering and the need for instruction surrounding observation. Students did report decreased ability to critically analyze what they saw. Themes were identified from the students' responses to reflection questions using manifest content analysis and results showed that they felt it was a positive experience. Overall, the students felt that learning how to observe was beneficial to them and to their future as practitioners.

Keywords

Art, pedagogical approach, occupational therapy education, observation

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ABSTRACT

Observation is a critical skill that deserves increased attention in occupational therapy education programs as it can directly affect patient care. Art has been used as a pedagogical tool to explicitly teach observational skills in medical and allied health programs. The use of art has a positive effect on the clinical skills needed for patient care. The purpose of this descriptive study was to examine how students' observation skills changed using Visual Thinking Strategies (VTS) with works of art. This quasi-experimental, single-group, pretest-posttest design included 33 occupational therapy students who observed four different works of art using an observation log and the Observation Skills Questionnaire-modified (OSQ-m) before and after the session. Data were analyzed using descriptive statistics and paired t-tests. The results showed that most of the post-OSQ-m scores significantly improved, most notably the areas of remembering and the need for instruction surrounding observation. Students did report decreased ability to critically analyze what they saw. Themes were identified from the students' responses to reflection questions using manifest content analysis and results showed that they felt it was a positive experience. Overall, the students felt that learning how to observe was beneficial to them and to their future as practitioners.

Observation skills are inherent to the practice of occupational therapy. The ability to keenly observe is a fundamental clinical skill for all occupational therapists. According to the Merriam-Webster's Dictionary (n.d.), the term *observe* is defined as, "to watch carefully especially with attention to details or behavior for the purpose of arriving at a judgment" (Transitive verb section, definition 4a). Observation is recognized as a major component of the occupational therapy professional reasoning process related to how occupational therapists gather information during the process of evaluation and

intervention (American Occupational Therapy Association [AOTA], 2020; Brentnall & Bundy, 2009; Laverdure et al., 2019; MacKenzie & Westwood, 2013). Brentnall and Bundy (2009) stated that occupational therapy students need to learn to describe and interpret what they observe as they evaluate and treat clients. MacKenzie and Westwood (2013) noted that improving observational skills is difficult due to limited research on "factors underlying effective observation in occupational therapy" (p. 4) but emphasized that students needed to be trained to provide ideal patient care. Research surrounding how the skill of observation is being explicitly taught in occupational therapy programs is limited (Edwards, 2002).

Boudreau et al. (2008) developed guiding principles for teaching observation in medical education. These principles focused on how it could be incorporated into programs' educational blueprint and provided specific pedagogical strategies, such as repetition, performance assessments, and detailed feedback. They also identified eight core principles of clinical observation, which included: 1) observation has a sensory perceptive and a cognitive component, 2) observation is distinct from inference, 3) observation is made concrete through description, 4) observation occurs on different levels, 5) observation is goal-oriented, 6) observation occurs over time, 7) observation is subject to powerful cultural determinants, and 8) observation carries ethical issues (p. 3). These core principles are applicable to the occupational therapy profession and could be implemented into curricula to help educators learn the language and teach students how to observe.

Manton (2004) described patient observation as "a complex mixture of art and science" (p. 5), which involves deduction and intuition. Those experienced in observation "know what they see" compared to inexperienced observers who "see what they know" (Manton, 2004, p. 5). Edwards (2002) focused on teaching this skill through a role-playing project in an occupational therapy assistant program and noted that scores associated with Level II fieldwork experiences improved. Furthermore, Edwards (2002) stated that observation skills could be improved with practice and structure.

The ability to observe is a necessary skill to possess as an occupational therapy practitioner but one that is not intuitive nor easily taught. To ensure occupational therapy students are provided with opportunities to develop and/or refine this critical skill of observation, it is imperative to explore pedagogical teaching strategies that have the potential to positively impact patient care. The effective means to teach observation within occupational therapy curricula has implications for instructional design, curriculum development, and student fieldwork experiences.

Literature Review

Art as a Pedagogical Tool

Traditionally, works of arts are routinely studied by art-specific disciplines on college campuses with a focus on the historical relevance of the art, the techniques, or the artists (Hailey, 2014). More recently, other disciplines, specifically the medical, health-related or social sciences, have begun to recognize the value art has on enhancing

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many of the critical thinking skills required to be successful in their majors (Hailey, 2014; Yenawine & Miller, 2014). Klugman et al. (2011) stated that “art is also ambiguous, rarely presenting right or wrong” (p. 1269) and presents as an ideal medium for learning and the development of skills.

Professional education has recognized the value art has on the development, refinement, and improvement of clinical skills (Bardes et al., 2001; Honan et al., 2016; Kumagai, 2012; Lapum & St-Amant, 2016; Naghshineh et al., 2008; Pellico et al., 2009; Schaff et al., 2011; Shapiro et al., 2006). Bardes et al. (2001) found that fine art added a “subjective dimension” (p. 1161) to the objective process influencing medical education. Medical students provided training in either art, or art and dance, identified a heightened recognition of empathy, an appreciation of others’ perspectives, and improved understanding of illness (Shapiro et al., 2006). Honan et al. (2016) found that 23 nursing students improved their observational skills using art and their auscultative interpretive skills using aural training. A study by Pellico et al. (2009) demonstrated that art significantly improved the observation skills of nursing students compared to the traditional teaching methods the control group received. In occupational therapy education, art has been used to improve learning and empathy (Peloquin, 1996a; Peloquin, 1996b) and as a pedagogical module that allowed students to embrace it as a “useful therapeutic tool” (Coppola et al., 2017, p.15).

Use of Visual Thinking Strategies to Improve Observation Skills

Visual Thinking Strategies (VTS) is an arts-based pedagogical model that can influence the observation skills of college students (Yenawine & Miller, 2014). Original works of art are used as the medium to assist students in developing or refining these skills with open-ended questions, or probes. The effectiveness of VTS in higher education is well documented (Rana et al., 2020). Poirier et al. (2020) described how the active learning associated with VTS enabled undergraduate students to become more intentional with their observations. Hailey (2014) reported the effectiveness of using VTS at a university’s museum across different disciplines while other studies have shown positive results using VTS in medical education and training (Klugman et al., 2011; Jasani & Saks, 2013; Miller et al., 2013; Nanavaty, 2018; Reilly et al., 2005). Klugman et al. (2011) found that the interpretation of the art deepened over the three-week period for the medical and nursing students as their observational skills improved. Furthermore, additional benefits of communication and collaboration were identified using VTS.

Research shows that observation is a skill that can be developed and refined through education and art. Through their programs, other healthcare professionals have benefited from this training. This effective teaching strategy essentially improved students’ ability to observe through the use of art, which positively impacted student learning outcomes. Therefore, the purpose of this study was to determine how occupational therapy students’ perception of their observational skills changed after VTS.

Methodology

Study Design

This quasi-experimental study obtained the approval of the university's Institutional Review Board prior to recruitment. This study explored how students perceived their observation skills using a pre- and post-survey design. Although most of the data collected were ordinal-level (Likert-scale), responses to open-ended reflection questions were also collected.

Participants

All matriculated occupational therapy students in upper-level courses (300-level and above) in a combined Bachelor of Science in Occupational Studies and Master of Occupational Therapy Program at a university in the Northeast were invited to participate via emails and flyers. In order to increase the number of participants, students enrolled in a specific 400-level course were given the choice between three equally weighted assignments, one of which was to participate in this study. The course's content focused on the development of professional reasoning skills in relation to assessments and contexts. The total number of participants in this convenience sample was 33 (N=33). Due to the small number of participants, demographic information was not collected in order to protect anonymity due to gender and age inequities.

Setting

A local art museum was used for this study. This public museum, founded in 1896, is nationally known and has a collection of 38,000 objects, which date from 3,000 BC to present-day (Worcester Art Museum, n.d.). There was no cost for entrance to the art museum or parking.

Instruments

Krpalek and Pavlovich (2016) created The Observation Skills Questionnaire (OSQ) and granted permission for use in this study. As the focus of this study was to make inferences surrounding students' perceptions of their own ability to observe rather than their actual performance of observing (Gall et al., 2007), the choice to utilize the OSQ, a self-report measure, was deemed most appropriate. As the OSQ was developed for observation of clients in a fieldwork setting, the modified OSQ (OSQm) was altered to meet the needs of this study, in particular any terms associated with a clinical context were removed. The OSQm contained seven statements rated on a 5-point scale ranging from *strongly disagree (1)* to *strongly agree (5),* which were identical on the pre- and post-OSQm. The post-OSQm was also modified as additional questions that allowed the students to reflect on the experience were added. An observation log, consisting of four legal-size pieces of papers with each clearly labeled (e.g., Artifact #1, etc.), was provided to each participant so that they could write down their observations of each artifact.

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Procedures

Students were organized into six groups with no more than six students in a group. Each group visited the museum once for approximately two hours. Upon arrival, students were provided with a cover letter detailing the study's procedures and processes surrounding voluntary consent and a folder containing hard copies of the data collection instruments (pre-OSQm, observation log, and post-OSQm). The pre-OSQm was completed upon arrival at the museum, the observation log during the session, and the post-OSQm at the end of the session. The data collection was anonymous, as no personal or identifying information was collected. Upon completion of the session, all the instruments remained in each folder in one specific location.

The museum provided two docents who were trained in VTS and had previous experience using VTS with a local medical school. The docents chose the artifacts and facilitated the art experience, which included four artifacts that varied in terms of the narratives displayed, the influence of the historical events surrounding it, details provided, and the level of ambiguity that could be interpreted. The four artifacts included: Robert and Shana ParkeHarrison's *These Days of Maiuma* (inkjet mural, 2013), Bernardo Strozzi's *The Calling of Saint Matthew* (oil on canvas painting, 1620), Nicholaes Maes' *An Old Woman Praying* (oil on canvas painting, 1655) and Paul Gauguin's *The Brooding Woman (Te Faaturuma)* (oil on canvas painting, 1891). These artifacts were presented in the same order for all six groups.

The three VTS probes were communicated to the participants at each artifact and in this order:

1. What is going on in this picture?
2. What makes you say that?
3. What else can you find?

The docent allowed the students 10 minutes to write down their observations. At the end of the time limit, the docent facilitated a 15-minute discussion as the students described their observations, followed by the historical information about the artifact. Immediately after the last artifact, students completed the post-OSQm, which included the additional reflection questions.

Data Analysis

The Likert-scale responses from the OSQm were analyzed using SPSS version 25. The ordinal-level data were coded as: 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = strongly disagree. Descriptive analyses and paired t-tests were performed on the quantitative data from the OSQm. Qualitative analysis was performed on the data from the reflection questions, which were categorized using a manifest content analysis (Bengtsson, 2016). Manifest content analysis was employed as it allows for the use of the exact responses given by the students (Bengtsson, 2016). Each researcher reviewed the data and categorized it separately, followed by discussions to reach consensus on the themes.

Results

Pre- and Post-OSQm

As evidenced by Table 1 and Figure 1, pre-OSQm scores revealed students perceived they possessed higher than average observation skills prior to their exposure to VTS as evidenced by the mean scores. All scores, except one, were higher on the post-OSQm. The only question on the post-OSQm in which the score decreased (i.e., perceptions were lowered) was the ability to critically analyze based on observation skills. Pre- and post-OSQm scores were analyzed using paired samples t-tests and many showed statistically significant changes indicating increased abilities to observe after VTS. The questions pertaining to the ability to accurately remember and the provision of instruction for observation were highly significant (p<.001).

Table 1

Pre- and Post-OSQm Scores

	Pre Means (SD)	Post Means (SD)	Change in Means (SD)	*t* (32)	*P*
Remembering	3.82 (0.63)	4.36 (0.48)	0.545 (0.75)	-4.157	.000***
Reasoning	4.00 (0.61)	4.36 (0.65)	0.363 (0.92)	-2.248	.032*
Objectively	3.87 (0.83)	4.12 (0.79)	0.250 (0.95)	-1.488	.147
Vaguely	2.78 (1.13)	3.15 (1.20)	-0.363 (0.65)	3.200	.003**
Analyze	4.21 (0.75)	3.93 (0.50)	0.281 (0.72)	-2.183	.037*
Observation Skills	3.51 (0.79)	3.69 (0.80)	0.181 (0.76)	-1.359	.184
Instruction	3.36 (1.08)	4.36 (0.65)	1.000 (1.27)	-4.506	.000***

*p < .05. **p < .01. ***p < .001.

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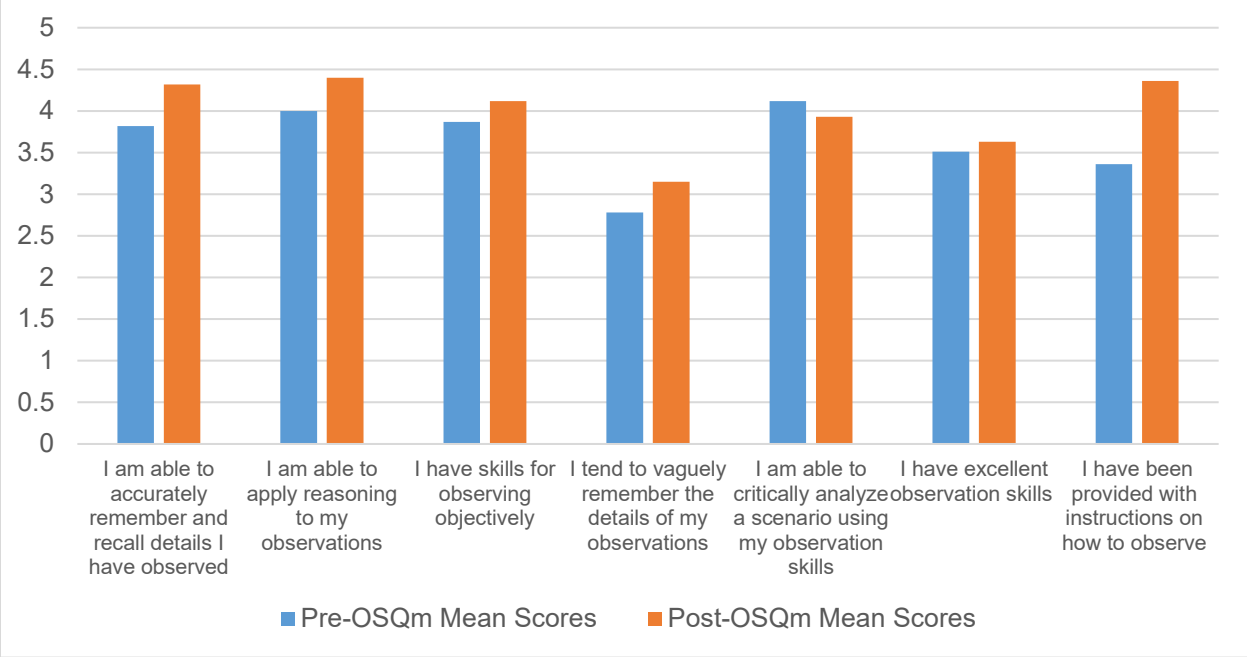
Figure 1

Pre- and Post-OSQm Mean Scores



Reflection Questions

Upon completing the post-OSQm, students were asked to reflect on the experience. Selected responses are presented in Table 2. All of the students felt that the experience had been positive and allowed them to understand how unseen details (e.g., historical context or symbolism) influenced their observations once revealed. The three themes that emerged from the students' reflections were: a) Intentional Discovery, b) Increased Awareness, and c) Contextual Influence. The first theme, Intentional Discovery, was demonstrated through the students' recognition of their own ability to observe. Their responses highlighted that a systematic process of how to observe and interpret was needed and it required them to be deliberate in what they perceived. Students also recognized they needed to make a conscious effort to understand what they were observing instead of what they were seeing. The second theme, Increased Awareness, emerged as students recognized that they needed to examine the whole picture, not only a detail, and learn how others' perceptions could differ from their own. The last theme, Contextual Influence, showed how the students understood that context could affect their observations and their clinical practice.

Table 2

Themes Based on Reflections from VTS Experience

Theme	Selected Responses
Intentional Discovery	"Now I am able to define what I saw and where it came from." "Understand how small details relate to a whole theme." "By learning to look deeper into certain aspects of art, like we'll need to look into future clients." "More confident in (my) observation skills." "Learned it can be helpful to look at a picture as a whole first and then break down smaller aspects." "I learned to pay attention to details, such as facial expressions."
Increased Awareness	"Learning to look at the whole picture, not just the background or center." "Discussion of observations allowed me to gain insight into others' perspectives."
Contextual Influence	"Learned not to take things at face value and to explore more in-depth." "Will look at the whole picture of the person, not just the detail or the disability." "Realized how important the context is when treating." "Will help me look at their body language and facial expressions for how they (clients) feel."

Post-Artifact Discussions

After the students finished writing in their observation log, they verbally shared their observations of each artifact as a group. The purpose of these discussions was to debrief the students on the artifact and facilitate collaborative discussions about their observations to stimulate learning. Anecdotal evidence, collected by the docents, revealed some of the students commented that they missed details that others had identified, or they felt as though they missed the "bigger" picture. When the docent

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provided the historical context or connected the artifact to current culture, the students reported that they viewed the details differently. Following the fourth artifact, one that portrayed less detail compared to the first three artifacts, students' verbal responses about their observations decreased.

Discussion

The use of art as a pedagogical tool to improve observation was utilized and provided a new experience for students. Moorman (2015) reported that nursing students felt they noticed more nuances and details that ultimately informed their patient assessments. Similarly, the use of VTS in the context of observing museum artifacts provided occupational therapy students with an experiential learning opportunity to not only facilitate the development of these clinical observation skills but recognize the need for refinement and subsequent interpretation. The themes identified from the reflective questions further confirmed that VTS improved their ability to observe (Poirier et al., 2020). Additionally, student comments mirror occupational therapy's holistic approach to evaluation and intervention, further highlighting positive implications surrounding the use of VTS with occupational therapy students (American Occupational Therapy Association, 2020; Amini & Furness, 2018; Silva, 2018).

The findings of this study suggest that students may have had increased difficulty critically analyzing paintings that represented less detail. The first three artifacts portrayed a lot of detail, whereas the fourth artifact had the least amount of details to observe. It is possible that students may have had less difficulty identifying details that were both numerous and superficial in nature, therefore translating into easier observations. Consistent with Moruno-Miralles et al.'s (2020) findings, when challenged to analyze and synthesize as a result of fewer concrete external cues, or the demand to interpret those cues was heightened, students may have found themselves at a loss for words.

A parallel can be drawn between the first four core principles of clinical observation identified by Boudreau et al. (2008) and the use of VTS within the context of this study. Through the use of VTS, the first four principles were employed. Students were taught how to observe using art as a sensory perceptive and cognitive component, the recognition that observations are separate from inferences, the discovery that descriptions provide concreteness to the observations, and multiple levels can be examined. To a larger degree, the application of all of these core principles is mirrored in the occupational therapy profession. As such, it becomes clear that elements surrounding the use of art as a pedagogical tool to improve observation is supported by Boudreau et al.'s (2008) recognition of core principles of clinical observation and could be implemented into curricula to help educators learn the language and teach students how to observe.

As educators, it is imperative that observation be considered a skill and explicitly taught in occupational therapy programs. As Montessori (2009) stated, "We cannot create observers by saying 'observe', but by giving them the power and means for this observation, and these means are procured through education of the senses" (p. 174).

Students need to be able to describe their detailed observations verbally and in writing. In agreement with Boudreau et al. (2008), students would benefit from repeated practice and timely feedback to improve their skills. In this study, emphasis was placed on static images where discussion helped inform their ability to observe and identify missing clues to assist in a deeper understanding of what was seen. Students in entry-level health professional programs would benefit from structured experiences and active learning activities that provide scaffolding from static to dynamic images with added details. In addition to pieces of art, other types of media, such as movies, television shows, or YouTube videos, could be used as a way to introduce observation. Further still, as Rana et al. (2020) suggested, utilizing VTS probes with students in clinical settings may provide opportunities for reflection of initial observations to allow for exploration of more explicit, secondary observations that may not have been given due consideration prior.

Hall (2016) noted that training is needed for educators to understand the importance of clinical observational skills, the importance of explicit learning objectives, knowledge of the skills to be attained, and how to properly teach and evaluate them in the medical professions. Professional development opportunities could be developed to assist faculty and fieldwork educators with the language and the skills to formally teach observation.

Limitations and Future Research

Due to the small sample size and the use of only one occupational therapy program's students, generalizability of the quantitative results is limited. In addition, aspects of this study were qualitative in nature, further limiting generalizability. Another limitation was the participation in the study allowed the students to receive full credit on an assignment for a required course. This choice could have biased students into thinking that less than optimal effort would be acceptable. Some students with an interest in art may have been previously exposed to the paintings and been influenced by previous knowledge. Similarly, as two of the four artifacts contained religious aspects, students with strong religious affiliations may have been more impacted by these particular artifacts. Lastly, two different docents were used to conduct the tours. One docent led four tours and the other led two tours. Their styles were different and that may have influenced the level of participation among the students.

Further studies are needed to determine how observation skills are best developed and refined. Expanding the current study to include other occupational therapy programs would allow for a more comprehensive evaluation of how VTS can enhance observation skills among occupational therapy students and the generalization of findings across institutional settings. Also, comparisons could be included between different academic levels to allow for greater clarity as to whether observation skills among occupational therapy students continue to develop and/or become refined as students advance through their academic programs. Further still, exploring the use of VTS beyond the use of art as a pedagogical tool to enhance observation skills would coincide with the profession's *Occupational Therapy Education Research Agenda – Revised* (AOTA,

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2018), which prioritizes instructional methods as "specific strategies used to promote learning" (p. 7212420070p1). Lastly, exploring how clinicians with varying years of experience observe details within the clinical context would undoubtedly add to this growing body of knowledge.

Implications for Occupational Therapy Education

- Entry-level occupational therapy programs need to focus on developing and refining observation skills in their students. Emphasis on this particular skill should be incorporated into foundational courses and honed in advanced courses. Complex medical situations or heightened dynamics in a group situation will be best served by practitioners who know how to observe and react accordingly.

- The use of VTS among the different academic levels within occupational therapy programs and as interprofessional experiences with other allied health professions could be useful.

- Fieldwork educators may focus on clinical observation skills at the start of the Level I or Level II fieldwork experiences. As students begin to apply the concepts learned in the academic portion of their professional education, the ability to start with observation will assist with sound critical thinking skills.

Conclusion

Findings from this study provides valuable information to occupational therapy programs. In order to best prepare occupational therapy students for entry-level practice, observational skills should be explicitly taught. Art provided the ideal media to introduce and reinforce this concept.

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