

## Visual Thinking Strategies in Nursing: a systematic review

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### Abstract

*It is generally accepted that the main skills a nurse should have are communication, critical thinking, responsibility, accountability for their decision and action, attention to detail and adaptability. Nurse educators are called to prepare students to pay close attention to detail and to describe them in a language that reflects what is actually occurring. Since the last '80, there are many experience to find innovative way to help these student to improve their need competence. Art Observation practice seems useful tool to achieve this purpose. In this context VTS (Visual Thinking Strategies) method has been applied in nursing education in partnership with Museum educator with positive results. It used PubMed, Google Scholar and Cochrane Database, to identify studies designed to evaluate the effectiveness of VTS on the observational skills of nursing students. The analysis of three qualitative studies founded demonstrate the potential educational benefit of the VTS method in under graduate nursing training. The review suggests that VTS can contribute to development of observational skill, communication, tolerance of ambiguity and to improve feeling safe in learning and collaborative work.*

**Keywords:** Nursing; Art; Visual Thinking Strategies; Nurse education.

### Introduction

It is generally accepted that the main skills a nurse should have are communication, critical thinking, responsibility, accountability for their decision and action, attention to detail and adaptability [1]. As nurses spend more time with patients than any other member of the health care team, they are often the first to interact with patients and make an initial assessment of their health condition.

There has recently been an increased emphasis on the use of physical assessment skills to train Registered Nurses (RNs). For example a review of undergraduate nursing education in New Zeland, which recommended that the “development of nursing assessment skills be a

critical area for emphasis within the undergraduate curriculum” [2].

The expansion of the RN role to include an increased focus on physical assessment has implications for nursing education and practice. A lack of confidence and competence in their ability to evaluate patients is often reported as a reason for nurses not implementing physical assessment skills. The challenge for nurse educators is to teach a holistic physical assessment model [3], its high quality is based, in part, on effective observational skills.

Nurse educators are called to prepare students to pay close attention to detail and to describe them in a language that reflects what is actually occurring [4].

The academic and clinical nursing education settings agree that these are necessary skills for graduates in today's complex health care environments. It is important

in this context to change teaching and learning approach. From a teaching-centred educational model where the crowding of content provides students to passively absorb knowledge, to a learning-centred educational model which encourages active and purposeful interactions between educational experience partners. In this way it is possible use a formal and informal content to encourage learners to foster higher order thinking and to enhance engagement in their education [5]. In the learning-centred way, the visual art is a useful informal content that provides nursing students the opportunities to train communication and observation skills, narrative sequencing abilities, power in relationships and empathy [6].

Several scholars have pioneered the use of art as a medium for enhancing or refining observational skills. There is evidence to support the claim that the use of artwork improves seeing, including observing, identifying, discriminating and clustering data that facilitate diagnostic ability [7-8]. For examples, in the Yale University the nursing students were going to participate in an experience in the Art Museum for looking at some paintings rich in visual details. Students in small groups were given 10 minutes to study their assigned painting discussing about their opinion, at the end of the time they had to described for all participants what they saw in the artwork [9]. At the end of this experience an observational test of patient photographs was administered to the students who attended the museum activity and to a control group. Students who participated in the experience of visual art have been shown to have greater abilities in observation and identification of signs and symptoms and in offer more alternative diagnoses than the others [9]. The museum visit helps to improve skills in students, increasing their reflective comments, and their ability to connect the art experience to the clinical objectives of the nursing course [6].

The art observation process can also help students to improve critical thinking competence [10], defining as “the process of searching, obtaining, evaluating, analysing, synthesizing and conceptualizing information, as a guide for developing one’s thinking with self-awareness and the ability to use this information by adding creativity and taking risks” [9]. This skill can help the decision making in nursing.

## Visual Thinking Strategy (VTS)

VTS is a teaching method, designed by Abigail Housen, a cognitive psychologist, and Philip Yenawine, an art educator, for using the artwork observation to engage students through discussion to develop critical thinking, communication and observational skills [11]. VTS practice provides an expert facilitator to guide

visitors in the artwork observation through the use of three questions: *What is going on in this picture?* “*What do you see that makes you say that?*” “*What more can we find?*”. This method encourage constructive dialogue and promotes the development of individual observation and reflection skills. It is based on the principle of the learner-centered method to examine and find meaning in visual art, to increase observation skills, evidential reasoning, and speculative abilities. Furthermore it improves the ability to find multiple solutions to complex problems, facilitating a discussion with respectful democratic and collaborative approach to problem solving among students or team members [12].

### VTS in the schools

The VTS method has successfully been applied in the education programs of several schools in the USA. In the classroom the teacher shows students a image of a work of art and encourages students to explain what they look at in artwork following the three questions. This cognitive challenge fosters students to rely on their skills and knowledge, thereby increasing self-confidence to expose their thoughts and conclusions. In this way, the teacher can also use a work of art as an instruments to improve student learning in various and different disciplines. Furthermore the visual language highly helps profit and integration of students with special needs in social, physical or linguistic issues [10].

### VTS in medical and nursing school

Since the last '80, there are examples of how works of art could be used to help medicine and nursing students develop their diagnostic skills [13]. Other experiences demonstrated the usefulness of art observation to improve the skills in the medical career [14].

In this context VTS practice has successfully been applied in undergraduate medical education in some settings. In 2003, Harvard Medical and Dental School introduced a multidisciplinary course “Training the eye: Improving the art of physical diagnosis”, applying the VTS method.

It was an elective eight- session course. Each class includes a museum session, drawn upon VTS and clinical didactics that integrate fine arts concepts with physical diagnosis topics and clinical rounds. Qualitative analysis of students’ post-test answers suggested that this experience improved participants ability to make accurate observations and to incorporate fine art concepts relevant to physical diagnosis (e.g. colour and symmetry) [15].

In addition, subsequent qualitative studies, related to VTS courses for medical students, have demonstrated that the art interpretation shares many of the same skills required of physicians. This includes problem-solving, observation, analysis, empathy and seeing an issue from

multiple perspectives [16]. In recent years, VTS has also been applied in the context of nursing courses. This review aims to critically analyse current evidence of the effectiveness of VTS-based interventions in influencing nursing students' attitudes, behaviour, critical thinking and observational skills.

## Method

We used PubMed, Google Scholar and Cochrane Database, to identify studies designed to evaluate the effectiveness of VTS on the observational skills of nursing students. The search strategy was based on the terms "visual thinking strategies", "nursing", "observational skills", "critical thinking" and "art". The searches were performed up to January 2016. We identified a series of studies on the use of art in the teaching of nursing. We included only studies in which VTS was employed as method of teaching in nursing curriculum. According to the inclusion criteria we obtained three qualitative studies. Two of them show results about interdisciplinary courses open to both nursing and medical students and the other one involves only nursing students.

Inclusion and exclusion criteria based on methodological quality were not applied because of the low number of relevant articles.

## Results

All the studies suggest that VTS interventions can have positive effects on diagnostic observation skills [17-18-19].

### *Art Rounds: teaching inter-professional students visual thinking strategies at one school*

Pilot project qualitative study involving both medical and nursing students at the University of Texas Health Science Centre S. Antonio [17]. Thirty-two students (eighteen from the medical school and fourteen from the nursing school) were voluntarily recruited and randomly assigned by discipline to one of three groups to ensure proportional disciplinary representation. Each group visited the same three works in 90-minute sessions at the McNay Art Museum in San Antonio, Texas. To evaluate the effect of the Art Rounds program, students completed a pre and post intervention test, consisting of Geller and colleagues' variation of Budner's Tolerance of Ambiguity Scale and the Communication Skills Attitudes Scale (CSAS). In addition students had to describe what they saw in three images of artworks and three clinical images of patients affected by visible sign of their disease, including examples of lupus, rosacea, alopecia and

thyroid goiter. For the free response answer number of words and observations was counted, without focusing on the content or quality of observations.

Students increased the raw number of words and the number of observations of the six images in the post-test. Furthermore students spent significantly more time looking at patient images after art round than before. They had a meaningful improve tolerance of ambiguity and interest in communication. Four themes emerged from the question "What did you learn": listening skills, learning more about collaboration and group process, learning to appreciate multiple perspectives on the same image, not to jump to conclusions.

### *One Thousand Words: evaluating an interdisciplinary Art education program*

The article describes an evaluation of the interdisciplinary elective education program, following the pilot project of Art Rounds[18]. The enrichment program consisted of a 16 week elective course, divided into nine sessions: four 2.5 hour-long sessions at the McNay Art Museum and five 2-hours-long sessions on the Campus of the University of Texas Health Science Centre at San Antonio. A total of 19 students (12 medical and 7 nursing students) were divided into two groups to ensure proportional representation of both disciplines in each group. To evaluate the effects of the semester-long program, students took the same pre- and post-assessment examinations, structured likewise in the pilot project of Art Rounds. In this case there were no significant differences between the CSAS and Ambiguous pre-test and post-test scores. Overall, there was a significant increase in the number of words and of observations for both art images and patient photos. The students also showed significant changes in the appearance of themes in their free responses for pre- and post-test images, for example students, after the course, discussed emotion much less while they increased use of medical or scientific terms in describing their images. Moreover, analysing the open responses relating to lessons learned, three major themes emerged: importance of communication and collaboration, the benefit of patience and the consequences of jumping to conclusions.

### *The Meaning of Visual Thinking Strategies for Nursing students*

Phenomenological study to explore the meaning of VTS for students and how they use it in caring for patients. A sample of eight students were recruited from the 7th semester Bachelor of Science in Nursing(BSN) [19], who had participated in an optional VTS experience during a 6th semester obstetrical course at a

large Midwestern University.

Both the first and the second VTS sessions were held at the local art museum and were led by a trained VTS facilitator. Three pieces of art were discussed using the standard VTS process during the one-hour session.

The researcher conducted audio-recorded, individual face-to-face interviews with each student 1 to 2 weeks after the second VTS session. Guiding questions for the interview were “Tell me what meaning VTS has for you” and “Tell me how you have used VTS in nursing”. Interpretative phenomenology was used for data analysis.

The research team identified two themes from the VTS experience: ‘feeling safe in learning’, and ‘seeing and thinking differently’. Participants identified the role of the facilitator in VTS as a key component of feeling safe. Another component associated with feeling safe in learning was that they were able to express themselves freely, without judgment or criticism. Other students explained that being in the art museum instead of the hospital or a classroom made them feel safe. They found the art museum relaxing, comfortable and welcoming.

After experiencing VTS in two separate sessions, students noticed that they were able to assess their patients more critically and noticed more nuances and details. They also discussed that they were more precise in providing details to nurses, physicians, and other members of the healthcare team after the VTS experience when they went into the clinical setting.

## Discussion

The analysis of the studies above demonstrates the potential educational benefit of the VTS method in undergraduate nursing training. In particular, studies suggest that VTS can contribute to the development of core nursing skills:

Observation: all the studies suggest the use of VTS in nursing curriculum improves observational skills. The VTS facilitator encourages students to observe and describe the artworks [18]. Klugman et al. studies demonstrated that students spent more time looking at art after the VTS intervention [18-19]. Time spent looking at artwork and the number of words used to describe them was both representative measures of deep observation. Students learned that the longer you look at an image, the more you see. The researchers think that this experience can help students to spend more time in face to face interaction with patient for improving their diagnosis ability. Moreover students showed significant changes in the appearance of themes in their pre and post free responses. In the post-test they described the art and patients images using more medical observations and less personal remarks.

After experiencing VTS, students found they were able to assess their patients more carefully and noticed more nuances and details. They also discussed they were more precise in providing details to nurses, physicians and other members of the healthcare team after VTS experience [19].

Communication: since communication is the key tool for the nurse in the care and education of the patient, nurse educators need to find better strategies to help nursing students to speak out. In this context the discussion promoted by VTS practice allows students to consider each other’s observations, building a rich talk about the artwork in order to reach a shared view. The findings of the three mentioned studies confirm that VTS improves communication skills, teaching students to speak out in safe ways, which may help contribute to effective patient care. In particular Klugman et al used the Communication Skills Attitude Scale (CSAS) to evaluate several aspects of communication. In the Art Rounds study, the statistically significant increase in participants’ CSAS scores suggests that students had more positive feelings about the active feedback and group processing of VTS. The scores also show that students are more aware of the importance of communication skills in nursing practice [18].

Feeling safe in learning: according to Bradbury-Jones et al. nursing students are often silenced in clinical practice [20]. To ensure that the learning process takes place properly, it is necessary that students feel comfortable in expressing their views and any concerns. The articles analysis shows that VTS is an educational method that creates a comfortable setting in which students are encouraged to express themselves freely without judgment or criticism. In VTS practice, students are not constrained by right or wrong answers but are rather encouraged to express their individual thoughts and opinions. The interviews from the Moorman study revealed that previous to VTS, the students did not feel they had a voice in their nursing education experiences because of shame and fear of being wrong, but VTS offered them the opportunity to speak out without judgment or fear of consequences. The student statements suggest that, in the practice of VTS, the safe environment is promoted by the neutral, relaxing and welcoming setting of the art museum and by the role of the facilitator who guides but does not judge [19].

Tolerance of ambiguity: the practice of VTS increases the tolerance of ambiguity because it promotes the comparison of different observations,

equally possible, in the description of an artwork, without establishing the correctness of an opinion over another. Klugman et al. study suggests an improvement of the students tolerance for ambiguity after the VTS experience, as shown by the significant increase of the Budner' Tolerance of Ambiguity Scale' score in the student post-test results [18]. Developing tolerance of ambiguity is important because illness can present and progress in a variety of different ways.

Power in relationship: graduating nursing students are entering a complex health care system that requires constant work with other professionals who embody the health care team [4]. In all the studies students explained the importance of communication and collaboration. In the Moorman article students found that considering others' opinions expanded their thinking [20]. Given in VTS practice participants work in small groups and everyone can speak freely and express their own opinion, students noticed they learned more about collaboration and group process and to appreciate multiple perspectives on the same image. The multidisciplinary course involving both nursing and medical students improved the collaboration and team working, fostering patient-centred care.

### Limitations of the study

The limitation of the review has represented by the small number of papers analyzed. Furthermore in the primary studies there were few volunteer students and the researches have not considered control group to compare the effectiveness positive impact of VTS method.

### Conclusions

The analysis of the selected articles shows students appreciate VTS as it improves many essential skills for nursing profession.

Literature stresses the importance to introduce medical humanities in healthcare degrees to foster the achievement of behavioural models necessary for the realization of so called "humanistic medicine". This is characterized by an empathic and holistic approach, including the development of communicative and relational skills, the achievement of decision a making and problem solving skills and the ability to observe and interpret sign and symptoms.

The selected studies show that VTS is a teaching method able to enhance "humanistic medicine" as it fosters observation, attention to detail, teamwork and communicative and relational skills.

VTS is an innovative method since it grants space to the

learner protagonist, so that they can actively participate, showing meaningful collaboration capabilities.

In this context, VTS can be considered a learning-centred teaching model as it promotes students active engagement which leads to improve their understanding and abilities in a comfortable setting.

Considering the small number of studies about VTS in nursing and the demonstration that the longer the VTS intervention is, more significant results are [19], it should be useful to introduce new VTS courses into the nursing curriculum in the future.

### References

1. Yildirm B, Özkahraman S, Critical Thinking in Nursing Process and Education in International Journal of Humanities and Social Science Vol. 1 No. 13 [Special Issue – September 2011].
2. KPMG Consulting Strategic review of undergraduate nursing education. Report the Nursing Council of New Zeland., Wellington, 2001 May.
3. R. Lesa RN, PG Cert. & A. Dixon RN, PhD Physical assessment: implications for nurse educators and nursing practice in Journal compilation. International Council of Nursing, 2007.
4. Benner et al 2010 *Educating nurses: A call for radical transformation* Stanford, CA .
5. Dalley K, Candela L, Benzel-Lindley J, Learning to let go: the challenge of de-crowding the curriculum in Nurse education today, 2008.
6. Judith Frei, Ways of seeing: using the visual arts in Nursing education, 2010.
7. Dolev JC, Friedlaender LK and Braverman IM, Use of fine arts to enhance visual diagnostic skills in Journal of the American medical Beck, 2001
8. Shapiro J, Rucker L and Beck J, Training the clinical eye and mind: using the arts to develop medical students' observational and pattern recognition skills in Medical education, 40, 2006, 263-268.
9. Pellico LH, Friedlaender L, Fennie KP, Looking is not seeing: using art to improve observational skills in Journal Of Nursing Education, 48(11), 2009, 648-653.
10. Lampert N., Critical thinking dispositions as an outcome of art education. Studies in Art Education, 47(3), 2006, 215-228.
11. Housen, Abigail. (1999), Eye of the beholder: Research, theory and practice in Aesthetic and Art Education: A Transdisciplinary Approach conference, Lisbon, Portugal, 1999.
12. Visual Thinking Strategy Website

- <http://www.vtshome.org/> last accessed December 10, 2016.
13. Hoshiko, BR, Nursing diagnosis at the art museum in *Nursing Outlook*, 33, 1985, 32-36.
  14. Bardes CL, Gillers D, Herman AE. Learning to look: Developing clinical observation skills at an art museum. *Med Educ*. 2001;35:1157–61.
  15. Naghshineh S., Katz JT et al. Formal art observation training improves medical students' visual diagnostic skills in *Journal of general internal medicine*. Jul 2008; 23(7): 991-997.
  16. Jacques A. et al., Art of analysis: A cooperative program between a museum and medicine in *Journal for Learning through the Arts*, 8(1), 2012.
  17. Klugman CM et al., Art rounds: teaching interprofessional students visual thinking strategies at one school in *Art and medical education*, 2011; 86:1266-1271.
  18. Klugman CM and Beckmann-Mendez D, One thousand words: evaluating an interdisciplinary art education program in *Educational innovations*, 2014.
  19. Moorman M, The meaning of visual thinking strategies for nursing students in *Humanities*. 2015;4:748–759.
  20. Bradbury-Jones C, Sambrook S, Irvine F, Nursing students and the issue of voice: a qualitative study in *Nurse Education Today*. 2011;31:628–632.