Visual Thinking Strategies: Experiences of an Arts-based Curriculum in an Irish University Medicine and Health Faculty.

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Abstract

Visual Thinking Strategies (VTS) is a student-centred curriculum designed to engage students in examination and discussion of pieces of art/images. Recent studies have identified the use of VTS as an effective tool in improving observation, critical-thinking and problem-solving skills among undergraduate healthcare students. To date, research regarding VTS within healthcare training has focussed primarily on student outcomes. We are not aware of any research investigating facilitators' beliefs and experiences of facilitating VTS.The aim of this study was to gather qualitative, descriptive data exploring facilitators' and students' experiences of VTS in the health disciplines of one Irish University. It was conducted in one higher education institution in Ireland where VTS is delivered as part of the undergraduate programmes within medicine and health disciplines. Eight facilitators and seven students participated. A qualitative research design was employed. One-to-one, semi-structured interviews using open-ended questions were conducted. Descriptive thematic analysis was employed to analyse the participants' responses. Four main themes emerged from the data: VTS as a teaching method, student engagement with VTS, potential of VTS to transfer to clinic and the future of VTS within medicine and healthcare settings. Facilitators reported belief in the potential of VTS, however, expressed concerns that this potential is not yet being reached. Student data supports the use of VTS for development of clinical skills. Timing of delivery of VTS in relation to clinical practice was identified as a key consideration to increase opportunities for clinical transference, thus improving client outcomes. The need for curriculum embedment, further research and resources were identified as important factors contributing to further development of VTS within healthcare curricula.

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Keywords: Clinical skills, education, healthcare, Visual Thinking Strategies.

1. Introduction.

As today's healthcare environments become increasingly complex, a primary goal for university healthcare curricula is to equip students with necessary skills for the clinical environment including observation, evaluation, critical-thinking and problem-solving (Bach, Haynes & Smith, 2007; Goldstein et al., 2005). Bose, Jarreau, Lawrence & Snyder (2004) believe the traditional lecture-based approach is not always the most effective way to transmit information nor does it effectively foster these necessary skills. In education today, rather than simply being producers of knowledge, educators are increasingly encouraged to be facilitators of an educational process (Bach et al., 2007). Medicine and health education today faces the on-going challenge of teaching students ever increasing rigorous science whilst attempting to maintain humanism as a core foundation regarding its application (Strickland, Gambala, & Rodenhauser., 2002). The current fast-paced, technology-driven environment making up many healthcare settings has resulted in medical educators recognising this as an imperative concern requiring attention (Cooke, Irby & O'Brien, 2010; Klugman, Peel et al., 2011). Consequently, interest in and the use of humanities arts-based mediums as a teaching practice within medicine and health has emerged over previous decades (Auerbach & Baruch, 2012; Boisaubin & Winkler, 2000; Charon et al., 1995; Kirklin, 2001). An arts-based approach refers to purposely using a form of art to foster the development of skills in individuals from a non-arts based discipline (Rieger et al., 2015). According to Rieger and Chernomas (2013) an arts-based approach supports learning through creating art, interpreting other's art or performing art. Visual Thinking Strategies (VTS) is one such form of arts-based pedagogy that involves the process of viewing and interpreting the art of others (Housen, 2001).

VTS is a student-centred curriculum which was originally developed by Abigail Housen, a cognitive psychologist, and Philip Yenawine, an arts educator. VTS has been described as a tool which can assist students to develop observation, communication, team working and critical-thinking skills (Reilly et al., 2005) through engagement and participation in group thought and discussion processes (Klugman, Peel & Beckmann-Mendez, 2011). The discussion of an image (e.g. the painting 'July 7' by Frederick Jones) is coordinated by a VTS facilitator who uses three open-ended questions: "What is going on in this picture?; What do you see that makes you say that? and, What more can we find?" (Housen, 2001, p. 7), to create an open and safe

space whereby students can offer and provide rationale for their thoughts whilst remaining open when listening to others' views. The facilitator also paraphrases the ideas offered by a student each time, in order to capture the structure of their thinking and to guide the flow of the discussion. This allows and encourages students to further re-evaluate their own thinking (Housen, 2001; Moeller et al., 2013). Figure 1 shows a picture of a VTS session delivered by the third author (FG) who stood next to the image projected onto a screen, with a student expressing her observations of the image.

Yenawine and Miller (2014) discuss the role of VTS within college and university settings and recent studies have identified the use of VTS as an effective tool in improving skills in observation, communication, critical-thinking, and problem-solving, and promoting empathy, resilience, team building and cultural sensitivity among undergraduate medicine and health students (for a review see Moorman & Hensel, 2016; Mukunda et al., 2019; Rice, 2016). For example, Naghshineh et al. (2008) compared the frequency of accurate observations of three patient photos and two pieces of visual artwork between two groups of pre-clinical students recruited from a medical and dental school, before and after an elective course on eye training for the experimental group. The course consisted of 8 weekly sessions of 75-minute observation exercise using VTS and 60-minute lecture on linking visual art concepts with physical diagnosis. The authors found that the experimental group showed a significant increase in the number of accurate observations after the course, and their post-training performance was significantly better than the control group. There was no significant change in the number of accurate observations for the control group. In addition, the experimental group used more fine arts concepts (e.g. colour, shape, symmetry) in their observations of the physical features of patients in the photos than the control group (Naghshineh et al., 2008). Another study by Klugman et al. (2011) investigated the effect of VTS on the observation skills, level of tolerance for ambiguity (as measured using the Budner's Tolerance of Ambiguity Scale), and communication skills (measured using the Communication Skills Attitudes Scale) of a group of medical and nursing students. Each participant received one 90-minute session of VTS within a single month. The authors found that post-VTS the participants spent longer time on average in completing a written description of 3 art images and 3 patient photos. They also showed an increased number of words used in the description and number of observations made after undertaking VTS. The finding of positive changes in observation skills is congruent with other previous VTS studies. In addition, Klugman et al. (2011) reported a significant increase in the students' tolerance for

ambiguity and interest in communication. The application of these skills must be translated to the clinical setting in order to prove its effectiveness as a teaching method within medicine and health (Miller, Grohe, Khoshbin & Katz, 2013). In order to achieve this, students require the support of their educators; thus, educators facilitating VTS as a teaching method must do so with understanding and belief in the potential ability of VTS training (Miller et al., 2013; Moorman, 2014).

Figure 1. A Visual Thinking Strategies (VTS) session with a facilitator (stood next to the image[1]) and a student expressing her observations of the image. The facilitator and students have given permission to use this photograph.

Because of the various benefits of VTS for enhancing the different important skills in university students of healthcare programmes that have been shown in the literature, VTS was introduced to one Irish University – University College Cork (UCC) – and the VTS curriculum has been implementing across the undergraduate programmes in the College of Medicine and Health since 2012 (Gibbon & Lee, 2014). The university has also supported VTS in a few local primary schools. Currently, VTS is available to a number of primary schools in Dublin through an initiative called “Project 20/20” (Visual Artists Ireland, 2017).

To date, research studies exploring the use of VTS as a training tool within medicine and healthcare curricula at university level have used quantitative methods to measure student experiences and outcomes (e.g. Auerbach & Baruch, 2012; Jasani & Saks, 2013; Klugman et al., 2011; Naghshineh et al., 2008; Pellico, Friedlaender, & Fennie, 2009). The need for qualitative research investigating student experiences, including their levels of engagement and impact on learning and practice has been identified (Rodenhauser, Strickland & Gambala, 2004; Strickland et al., 2002). Thus, this study aims to begin to provide valuable insight regarding

[1] Image has been blurred.

student experiences of VTS and the impact of this on their clinical training. Additionally, no known study focussing on facilitators' experiences exists. With the use of VTS increasing within this sector and the paucity of studies investigating facilitator experiences, it is imperative that research is conducted to explore this aspect of an arts-based curriculum. This study sought to address current gaps in the available literature and had two aims: to gain insight into, and describe the lived experiences of teaching staff members facilitating VTS at university level to students within healthcare disciplines; and to gain insight into, and describe the lived experiences of students receiving VTS as part of their undergraduate training from one discipline within a faculty of medicine and health.

2. Methodology.

A qualitative descriptive research design was employed. Tetnowski and Franklin (2003) support the use of qualitative methods for the purpose of allowing individuals to describe their lived experiences, whilst at the same time explaining beliefs, values and emotions in relation to a specific situation (Creswell, 2009; Damico & Simmons-Mackie, 2003; Neergaard, Olesen, Andersen, & Sondergaard, 2009). Study participants were purposively selected (Ritchie & Lewis, 2003) from one University located in Ireland (UCC) where VTS is being delivered across all 5 schools in the College of Medicine and Health. Educators identified as being trained and experienced in facilitating VTS within the College of Medicine and Health (n=18) were invited to take part in this study. The facilitators involved in this study were from a range of disciplines which included Speech and Language Therapy (SLT), Occupational Therapy, Medicine, Nursing and Midwifery, and Pharmacy. They had attended two 2-3 day training workshops on VTS facilitation by certified trainers and members of the VTS team based in the USA and they had facilitated 1-3 cohorts of students at the time of this study.

For the student participants, all fourth year students undertaking the BSc (Hons) SLT undergraduate programme and identified as having undergone VTS (n=22) were invited to take part in the final semester of their studies. The VTS sessions were delivered to the class as part of an existing module that is compulsory for all fourth year SLT students. An attendance record was kept for the module, but the record is no longer available after the end of the academic year. For the VTS sessions, the class was divided into 2 groups of 11 students, with each group guided by a facilitator. The two groups received five weekly 1-hour VTS sessions; typically, three

images were explored per session. The number of sessions and number of images used were based on census between facilitators from the different disciplines that this is the maximum number of sessions possible for fitting into the existing timetable of the different healthcare programmes.

The facilitators and students were chosen as they are appropriate for purposive sampling whereby the goal was to select participants that could provide detailed, contextually rich information relevant to the study (Lodico, Spaulding, & Voegtle, 2010). In total 8 facilitators (44% response rate) and 7 students (32% response rate) participated. Ethical approval was granted by the Clinical Research Ethics Committee of the Cork Teaching Hospitals. To avoid coercion, the students were invited to take part in the study by a visiting international speech and language therapy student who studied in the Department of Speech and Hearing Sciences at UCC for one semester. She was not involved in teaching or grading any of the student participants. The visiting student met face-to-face with the entire class of the Speech and Language Therapy students at UCC, explained succinctly the content of the study, and provided the students with an information sheet. Students who wished to ask further questions and/or were interested in taking part in the study were asked to contact the visiting student directly. The facilitators were invited to take part in this study by email. Email correspondence was sent to all facilitators identified as trained in and having experience of facilitating VTS sessions within the College of Medicine and Health. The email contained an attached information sheet about the study. Facilitators who wished to ask further questions and/or were interested in taking part in the study were asked to contact the first author by email.

2.1 Data Collection.

Data was collected using individual (n=15) face-to-face, semi-structured interviews consisting of open-ended questions (Clisset, 2008; Miller, 2004; Shenton & Dixon, 2004). Tables 1 and 2 summarises the interview questions for the students and facilitators respectively. Student questions 1-6, 8 and 12 were adopted from the study by Shapiro et al. (2006). Modifications to the wordings were made to suit the Irish context. Student questions 7, 9 and 11 were developed by the visiting student interviewer. Facilitator questions were developed by the first author of this study. These questions aimed to begin to investigate facilitator experiences of VTS. The student data was known to the first author prior to developing these questions, thus question 3, aimed to gather information regarding facilitators' thoughts of student gains from VTS.

Table 1: Student Interview Questions

No.	Question
1	What are some of the main things you learned from the VTS sessions?
2	What did you find most useful about the VTS sessions? Least useful?
3	What was most interesting about the VTS sessions? Least interesting?
4	What was most surprising to you about the VTS sessions?
5	What did you enjoy about this method of teaching? Was there anything about the session you didn't like?
6	Did you learn anything that you think might be relevant?
7	Is there any change in your clinical skills that you could attribute to VTS?
8	Do you believe that this session is relevant to your training as speech and language therapists? If so, in what ways?
9	Over the 5 sessions, did you change your opinion towards the benefits of VTS for SLT students?
10	Would you recommend the facilitators to make any changes to the VTS sessions?
11	Would you like to know more about the background and evidence of VTS?
12	Is there anything else you'd like to add that we haven't discussed?

Table 2: Facilitator Interview Questions.

No.	Question
1	Can you tell me about your experience of training in VTS?
2	Can you tell me about your experience of facilitating VTS?
3	Can you tell me about how students experience VTS, in your opinion?
4	From your experience, how do you see the use of VTS going forward within the medicine and health disciplines?

The student interviews were carried out by the visiting student mentioned above, whereas the facilitator interviews were carried out by the first author of this study. All interviews were audio

recorded using a digital recorder. The interviews were carried out either in a quiet room in the Department of Speech and Hearing Sciences, or in the office of the facilitators at a date, time and location convenient to the participant. The facilitator and student interviews lasted for an average of 32 and 9 minutes per person respectively.

2.2 Data analysis.

Thematic analysis was conducted following the 5 phases set out by Braun and Clarke (2006). Each recorded interview (n=15) was listened to and transcribed verbatim by the first author. Transcribed interviews were then read and re-read to ensure familiarity with the raw data and to identify initial key words, recurring meanings and prominent opinions in order to prioritize the findings (Flick, 2004). Each interview was then coded within preliminary categories in an attempt to derive meaningful groups (Tuckett, 2005) using NVivo 11 Plus software designed for qualitative analysis (QSR International, 2015). Following this, categories were reviewed, merged and modified utilising the constant comparative method described by Glaser and Strauss (1967). This method was utilised to allow for the emergence of fixed themes (Boeije, 2002). Throughout the process the original transcripts were revisited to ensure appropriate and accurate interpretation of meaningful segments of text (Thomas, 2003). Finally, when no new themes emerged, suggesting major themes had been identified (Marshall, 1999), the fixed themes were classified and interpreted in order to establish and organise the data into prominent and sub-themes (Braun & Clarke, 2006; Howitt & Cramer, 2007; Matthews & Ross, 2010).

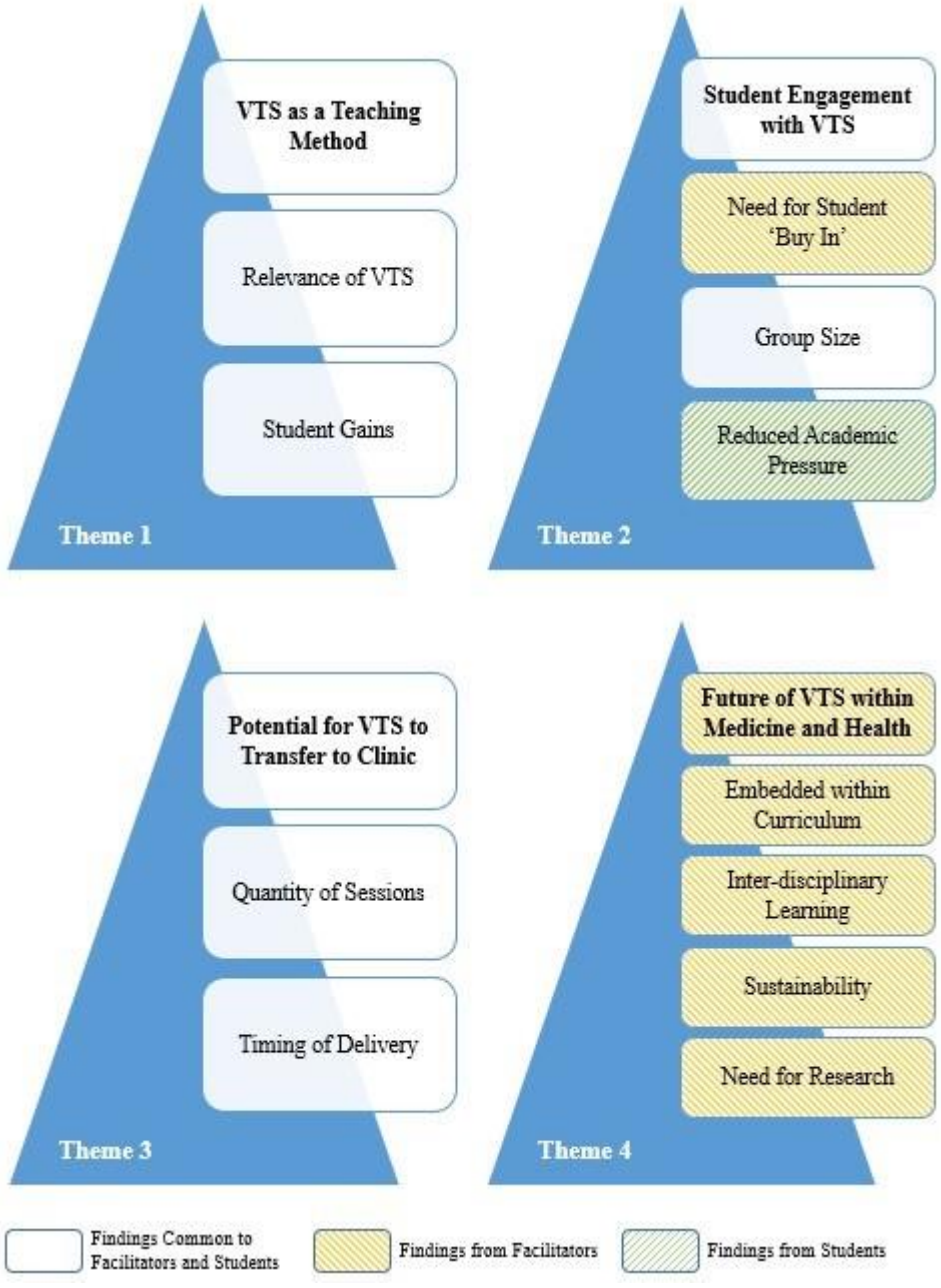
Triangulation in the form of peer scrutiny was employed (Thomas, 2003). One randomly selected transcription with no identifying details was provided to a speech and language therapy student not involved in this study but with experience of qualitative research. This transcription was coded by this second judge with comparison and discussion carried out with the researcher afterwards. Trustworthiness was further upheld throughout as the researcher clarified interpretation of information with interviewees throughout interviews thereby allowing for immediate correction of misinterpretation (Thomas, 2003).

3. Results.

Four main themes emerged: VTS as a teaching method; student engagement; transference to clinic; and the future of VTS within medicine and healthcare settings. Figure 2 provides an overview of the sub-themes within each main theme, identifying those which were common to

both facilitators and students and those which were unique to each group.

Figure 2. Summary of findings from facilitators and students.



3.1 VTS as a Teaching Method.

3.1.1 Relevance of VTS.

All facilitators reported believing VTS is an appropriate and relevant teaching method within medicine and healthcare professions. For example,

> *"…there is an important part of the curriculum which VTS could fill … there's a place for it in … all healthcare disciplines." (Facilitator P1)*

> *"…it's hugely transferable to medicine … I do believe that…"* (Facilitator P7)

In addition, the relationship or synergies which can be drawn between art and health professions was identified:

> *"…art and … healthcare professions also might seem to be … two polar opposites - when you're observing art or you're looking at it, it is all about assessment as well, it is about pulling together the information, it's about making use of what you have in front of you … and that's the same in 'healthcare professions' when you're observing a person."* (Facilitator P7)

Whilst the facilitators expressed belief in the value of VTS they did discuss concern and uncertainty regarding the use of VTS, primarily due to difficulties in measuring the impact and benefits of this method:

> *"…but we have nothing … to say that this is going to make a difference, there is nothing"* (Facilitator P3).

> *"I'm not sure the evidence is there yet … very hard to research this robustly … 5 hours out of … a module … there needs to be strong evidence to … say that it works"* (Facilitator P5).

For the students, belief in the relevance of VTS as part of their training in relation to clinical skills was expressed. For example,

> *"…by the end of the sessions we realised there was relevance to speech and language therapy and we had taken points away from the sessions*" (Student P5).

> *"…a kind of empowerment of skills … even just … developing … discussion … in an MDT [multidisciplinary team] … throwing ideas back and forth, playing with them around using … what you know as … rationale for what you think…"* (Student P4).

However, the students felt these skills were also gained through other aspects of their undergraduate programme. In this regard, VTS was described as relevant but possibly not necessary:

> "*We have been in MDT situations on placement, we have been in PBL [problem based learning] which is about a group discussion regarding things so I'm not so sure if it's completely necessary but it is relevant and I … do see … the thinking behind it and why they think we should do it*." (Student P3)

3.1.2 Student Gains.

Both facilitators and students expressed belief in the use of VTS to increase observation skills. For example,

> *"…improve their observation and it certainly does that … because you're making them observe and you're asking them to say what they see…"* (Facilitator P6).

> *"…training myself to … look at a picture and … see more of the detail…"* (Student P4).

In addition, the facilitators discussed the value of group settings promoted by VTS and the role this played in increasing students' awareness of different perspectives:

> *"…surprising sometimes as to what … students … think is obvious and then somebody else comes out with something completely different … I think that's been something that has come out of VTS"* (Facilitator P2).

Equally, the students identified the recognition of different perspectives and the subsequent impact this had on their ability to see more within images as important learning achieved from VTS:

> *"…to listen to other perspectives and that different people see different things and that's important"* (Student P3).

Furthermore, the students described the importance of seeking opinions from others and the implications this may have for clinical practice:

> *"…it's great to get a second opinion … you might miss something that could totally change the profile of the client and how you treat them."* (Student P6).

3.2 Student Engagement.

3.2.1 Need for Student 'Buy In'.

While the facilitators believed in VTS, they felt students often did not understand the purpose or relevance, therefore, establishing student 'buy in' was described as essential to promote student engagement:

> *"…if you can … present to students that this is … how it's relevant within the context of you as a student … then you might get a bit more buy in."* (Facilitator P4).

> *"…making clear to them why this might be good for them … to get engagement from a group who are very busy and have other pulls on their time"* (Facilitator P7).

The facilitators described this as challenging and a 'hard sell' at times and discussed the importance and necessity of student openness in achieving this:

> *"…some students … don't see the relevance … but if students are open-minded they see it's not really about that"* (Facilitator P8).

3.2.2 Group Size.

Both facilitators and students identified group size as having an impact on student engagement with smaller groups identified as most beneficial and desired:

> *"…you need them in smaller groups" (*Facilitator P3).

> *"…at a minimum next year I'd look at splitting it into two but I think ideally it would be three groups of ten"* (Facilitator P5).

The students found smaller groups more comfortable and cohesive resulting in more students willing to express their opinions:

> *"…the smaller groups were better because I think people were more willing to share when it was less people, whereas when it was the whole class, I think it was kind of a bit harder to share your opinion then"* (Student P1).

> *"…people are more willing to share in the smaller group"* (Student P6).

3.2.3 Reduced Academic Pressure.

The students described a reduction in the level of stress and pressure felt within VTS sessions and felt positive about the lack of marking which allowed them to be present and take part

without feeling there were expectations or demands placed on them:

> *"…it wasn't as pressurised … it wasn't graded, there was no exam or assignment … so a lot of the pressure was taken off"* (Student P3).

Additionally, the students in this study commented on the lack of 'rights or wrongs' and the freedom and confidence this provided them with in voicing their opinions; however, a few facilitators mentioned that they have come across students who looked for the right answers regarding their observation and interpretation of the art pieces:

> *"…it was nice to have that kind of atmosphere where people felt they could express their thoughts without being marked right or wrong for it…"* (Student P6).

> *"I enjoyed that … there wasn't … really a right or wrong answer"* (Student P1).

> *"…it is not important to know the real story behind the picture but students really want to know the answer, that's massive for them."* (Facilitator P4).

3.3 Potential for VTS to Transfer to Clinic.

Transference to clinic was identified by all facilitators as the ultimate and imperative aim of using VTS with students:

> *"…the ultimate outcome is … its impact on practice…"* (Facilitator P4).

The facilitators expressed concern regarding the potential for transference to clinical practice to occur. Concerns identified included the number of VTS sessions and timing of delivery as important factors related to this. The facilitators identified discrepancies across undergraduate programmes as to when students experienced VTS. In one undergraduate programme, VTS was reported to be delivered in the first year with students not commencing clinical placement until their fifth year. In contrast, other students experienced VTS at the end of their undergraduate programme at a time when they had completed all of their clinical placements.

3.3.1 Number of VTS Sessions.

The facilitators expressed concerns that the current implementation of VTS delivered within a maximum of 5 sessions in each undergraduate programme could possibly reduce the potential benefits for transference to clinical settings:

> *"…unlikely that … a couple of sessions in third year is going to have any realistic impact in practice"* (Facilitator P2).

> *"…because it's delivered in semester one in year one it's too early to say that."* (Facilitator P5).

In contrast, the students believed that five sessions were more than enough, reporting a sense of repetitiveness and pointlessness as sessions progressed:

> *"…there was no need to bring us in 5 times to just look at endless photos when all you're learning is … the same thing"* (Student P2).

> *"…the same kind of things being repeated … every week so … that was … not that useful"* (Student P3).

3.3.2 Timing of Delivery.

As previously mentioned, the year of delivery of VTS varied across undergraduate programmes and subsequently the point at which each student received VTS training versus when they undertook clinical placements varied. The student participants in this study were in their final semester of final year when undertaking VTS. The students discussed recognition of the ability of skills within VTS sessions transferring although they did discuss the lack of opportunity to trial or reflect on this within clinical placements, as they had passed that point of their training when undertaking the VTS sessions:

> "*I didn't really get a chance cos we were coming to the end of the placement when we were starting the VTS I didn't really get a chance to apply it then."* (Student P1).

However, the students acknowledged VTS could be beneficial in developing students' confidence and abilities in relation to forming and articulating rationales whilst on clinical placement and, to this end, they felt that VTS would likely be more appropriate earlier in their training:

> *"It might be more beneficial because that's the time when you're like … someone saw this in clinic, I didn't see it … I must be wrong so if they gave it then you'd be more the mind-set of actually expressing your opinion on placement*." (Student P2).

> *"If there is an evidence base to support it then … proceed with it but maybe at a better time … I don't think we'd be mature enough in first or second year to understand why we were doing it, but maybe third year"* (Student P6).

Furthermore, the students felt negatively about the timing of VTS sessions in relation to other course demands and pressures and described that this affected their opinion and feelings

towards VTS:

> *"…at the final semester of final year my head was … on my final year project*." (Student P3).
>
> *"…timing of it … wasn't the most appropriate with everything else going on…"* (Student P1).
>
> *"…it's not ideal in the final semester of fourth year…"* (Student P6).

The facilitators also acknowledged the timing of sessions from a student perspective and the impact this can have on students' opinions towards VTS:

> *"…from the students' point of view … this is coming up to three weeks left in term, there's exams, there's continuous assessment and then suddenly we're showing them a piece of art."* (Facilitator P2).
>
> *"I try to have my VTS sessions early … not later in the term when students are becoming a lot more assignment and exam focussed."* (Facilitator P4).
>
> *"…time is precious … and it's appreciating that within their timetable."* (Facilitator P7).

3.4 Future of VTS.

3.4.1 Embedded within Curriculum.

The facilitators discussed the importance of VTS being more integrated within curriculums for it to have any likelihood of benefiting students and clinical practice. The current format of between 4 to 5 sessions per course was identified as being 'stand-alone', 'segregated' and almost 'novelty' with a call for it to be integrated and ingrained within the teaching throughout each year of each undergraduate course:

> *"…the more we keep it segregated … the less relevant it becomes … actually incorporating it and then having it throughout the years is the only way that I think it can have any impact on practice."* (Facilitator P2).
>
> *"I think it should be embedded in the curriculum*." (Facilitator P3).

3.4.2 Inter-disciplinary Learning.

Seven facilitators described their student cohort as being relatively homogenous in terms of race and gender in comparison to larger, more diverse courses. In this regard, the facilitators

felt mixing students from various disciplines, backgrounds and gender could serve to further develop the use of VTS for student learning and clinical benefit:

> *"…in an ideal world so much of our training should be mixed…"* (Facilitator P7).
>
> *"…mixing people of … different … cultural background or different age … that would be interesting.."* (Facilitator P8).
>
> *"…would like to see … more mixing of the different professions in the group*." (Facilitator P1).

3.4.3 Sustainability.

Concerns regarding the sustainability of VTS were highlighted by facilitators:

> *"…it'd be nice to see money actually being thrown at the implementation of it as opposed to just the training of it."* (Facilitator P5).
>
> *"…we just don't have time in … the timetable … we need to look at how we're going to incorporate it…"* (Facilitator P2).

3.4.4 Need for Research.

The facilitators described the need for research in order to establish the benefit of VTS to students and clinical practice:

> *"…to be able to really stand over what we're saying about it we'd have to do a lot more research about the … impact on students"* (Facilitator P4).
>
> *"…the studies that are out there … it is very positive but there's a paucity of research … that's why we need to … build research … and build the evidence…"* (Facilitator P6).
>
> *"…a lot of research we need to do about is it effective, what are students gaining … how can we increase that … how can we enhance students' experience of it…"* (Facilitator P1).

4. Discussion.

Recent studies have identified the use of VTS as an effective tool in improving observation, attitudes, recognition of varying perspectives, critical-thinking and problem-solving skills among undergraduate healthcare students (Dolev, Friedlaender, & Braverman 2001; Klugman et al.,

2011; Naghshineh et al., 2008; Pellico et al., 2009; Reilly, Ring & Duke, 2005; Yang, Lin & Chang, 2011). Consistent with these findings, both facilitators and student participants in this study expressed similar positive views about the skills VTS could develop. Additionally, students revealed increased self-awareness of their own observational style and that of their peers. Students reported the likelihood that this would encourage them to engage in self-reflection and seek the perspective and opinions of future colleagues in the work setting. Thus, these findings suggest the potential to increase future clinical performance and outcomes and are consistent with previous findings (Auerbach & Baruch, 2012; Elder, Tobias, Lucero-Criswell & Goldenhar, 2006; Jasani & Saks, 2013; Klugman et al., 2011).

A theme emerging from both participant groups was the question of the quantity and timing of VTS delivery. In this study, although VTS was delivered to each clinical undergraduate programme, the year of delivery varied between courses. Some facilitators felt VTS was delivered too early, whereas for some programmes VTS was delivered up to four years prior to commencing clinical placement. In contrast, student participants within this study underwent VTS training at the end of their programme and expressed feelings that whilst they understood the relevance of VTS, it was too late as they did not have the opportunity to attempt to utilise the skills gained from VTS within their placement settings. Positively, no student suggested VTS was irrelevant for them, they instead suggested VTS might occur at earlier points of their training when they felt more gains may accrue.

Another common theme between the two groups of participants was the preference of a smaller group and the positive influence it brought to the VTS experience. As far as we know, there is no recommended group size for running a VTS session for university students. Most previous VTS studies have usually included about 10-15 students in a single group (e.g. Klugman et al., 2011; Naghshineh et al., 2008; Shapiro et al., 2006). Based on our own experience of running VTS, we agree that a group of about 10 students is an optimal size, as it can be difficult to elicit a keen discussion from the students if there were only a few of them. And at the same time, there would be less opportunities for each participant if the group was too large.

Student engagement and the impact this had on VTS sessions was a key theme to emerge from facilitator data. While this study identified that facilitators believed in the potential of using VTS to support clinical skill development with their student cohorts, concerns were expressed that this was not always being realised. Thus, facilitators identified the importance and necessity of student ‘buy in’ and stressed the need to provide students with a brief overview of VTS and

importantly, the purpose and relevance to students within their disciplines, prior to commencing their VTS sessions. Student findings supported this with over half of the student participants stating they believed this information would have increased their understanding regarding VTS sessions. This limitation has been identified in previous research findings with Yang et al. (2011) suggesting a short introduction highlighting the relevance and benefits of using visual arts with healthcare students as beneficial. Furthermore, Auerbach and Baruch (2012) reported student understanding increased when the relevance between creative arts and clinical training was made explicit and concrete.

The use of art within healthcare training has been identified as providing an "even playing field" whereby there is no requirement for expertise in art (Klugman et al., 2011, p. 1269). As such this allows students to engage in the process of VTS with no demands or expectations to provide specific knowledge or know the answer (Hailey, 2014). Facilitator data from this study identified the value in this whilst also highlighting challenges for facilitators when faced with some students' need for the 'right' answer, as experienced within sessions and reported in previous literature (Hailey, 2014). In contrast to this finding, student participants within this study welcomed the experience of participating in a group discussion whereby they felt there were different perspectives to be explored. Whilst this study identifies challenges for facilitators when faced with students' requests for the 'answer' it does support previous research findings regarding the role of art in increasing students' ability to tolerate and accept ambiguity within their various healthcare professions (Auerbach & Baruch, 2012; Geller, Tambor, Chase & Holtzman, 1993; Klugman et al., 2011). It is important to consider the discrepancy between facilitator and student experiences regarding the need for an 'answer'. In this study, facilitators were involved in facilitating VTS across a range of disciplines within the College of Medicine and Health. In contrast, student participants were one cohort of Speech and Language Therapy students. Thus, it may be surmised that facilitators' experience of students' 'need' for an 'answer' derived from other disciplines. This may raise an interesting point regarding a contrast in student experiences across disciplines, a consideration which would require further study and exploration.

Learning is regarded as being maximally beneficial to students when it becomes a way of thinking within a discipline (Miller et al., 2013; Moorman, 2014). Thus, the implementation of VTS occurring at one point of time in one year of study, as occurred in the current study, was deemed by some facilitators to be limited, reducing the potential benefits VTS could deliver. Facilitators felt that in order for VTS to continue to be implemented within their disciplines it

should be embedded across the curriculum of teaching. In contrast, student participants felt 5 sessions were too many and some thought that the desired learning and skills from VTS could be achieved in less than 5 sessions. Furthermore, Miller et al. (2013) stressed the necessity of students being supported within clinical contexts to ensure transference of skills gained from VTS sessions. Their findings highlight this as an important concept which was also identified by some facilitators in the current study. Facilitators explored the possible benefits of VTS being revisited with students when they were on clinical placement, to further enhance their learning. In this regard, students would be supported by their educators to understand and transfer skills gained from VTS within the clinical setting (Miller et al., 2013).

In the current study, facilitators expressed the importance but also the difficulty of measuring and evaluating VTS within their relative disciplines. Some difficulties identifying measurable outcomes to evaluate VTS as a teaching method were expressed. Student participants also questioned the evidence base behind VTS, at times feeling it an unusual practice for implementation within a course that focuses so strongly on ensuring an evidence base across its teaching. There is clearly a need for both quantitative and qualitative research to measure the effectiveness of VTS in health care curricula.

4.1 Future research.

As mentioned, students described VTS sessions as an environment whereby varying interpretations and perspectives both existed and were welcomed, as is the reality in complex clinical settings. In contrast, facilitators noted their students' expectations for the 'right' answer as difficult to satisfy in an arts-based curriculum. Thus, this raises the key issue of ambiguity, acceptance of which is described by Geller et al. (1993) as increasing a clinician's ability to be open with clients and colleagues, positively impacting clinical practice. As such, a tool such as Budner's (1962) Intolerance of Ambiguity Scale may be appropriate to consider as an outcome measure for future research. Furthermore, students felt VTS increased their awareness of varying perspectives whilst also highlighting the value and importance of seeking the opinion of others. Students identified this learning as likely to impact on future clinical practice. Thus, further examination of these findings using the Communication Skill Attitude Scale (Rees et al., 2002) as carried out by Klugman et al. (2011) may be an appropriate measurement tool when seeking to evaluate the effectiveness of VTS and its potential impact for practice.

4.2 Conclusion.

Findings of this study were consistent with previous studies in relation to student gains regarding observation, varying perspectives, providing rationale and valuing the opinion of others (Auerbach & Baruch, 2012; Bardes et al., 2001; Jasani & Saks, 2013; Klugman et al., 2011; Naghshineh et al., 2008). To date, this is the first known study exploring facilitator experiences of implementing VTS as a teaching method. The results highlight that whilst facilitators expressed belief in the potential of VTS they did not feel this potential is yet being realised. To that end, a need for further research examining the effectiveness of VTS on student learning and transfer of that learning in the clinical setting is required.

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