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Open the VALT™: Creation and application of a visually authentic learning tool

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ABSTRACT

This paper describes the process of creating and applying a Visually Authentic Learning Tool (VALT™) in an undergraduate midwifery program. The VALT was developed to facilitate learning in the topic "bleeding in pregnancy". The VALTs objective is to open the mind of the student to facilitate learning via the visual representation of authentic real life simulations designed to enhance and bring to life the written scenario. Students were asked for their feedback of the VALTs. A descriptive analysis was performed on the collated results to determine how the students rated the VALTS in terms of satisfaction and meeting their learning needs. Overall the students seemed to value the VALTs as they present an engaging and unique opportunity to promote learning whilst acknowledging and valuing different learning style within the student group.

Background

It is well documented throughout the literature that there are many approaches to learning and learning styles; for example VARK – Visual, Auditory, Reading & writing and Kinaesthetic, surface and deep learners and Kolbs experiential learning cycle (Fleming and Mills, 1992; Ramsden, 2003; Rose and Best, 2006). It is recognised that successful learning is often based on individual preferences. It is therefore important that teachers are aware of those preferences in order to provide a basis for planning flexible student centred learning environments (Rose and Best, 2006; James, D'Amore and Thomas, 2011). Traditionally students were taught didactically, congregating in large lecture theatres with experts centre stage sharing their knowledge and then the students may exhibit characteristics of passive or surface learning by, for example, cramming for exams or rushing assignments to meet the due date (Ramsden, 2003; Herrington and Herrington, 2006). However, there has been a swing in the last ten years in undergraduate education towards student focused, authentic learning environments based on current research and learning theory (Herrington and Herrington, 2006; Goldsworthy et al., 2012).

Student focused learning calls for the student to take the responsibility or ownership of their learning (Taekman and Shelley, 2010). The teacher takes the spotlight from themselves and shines it on the learner, taking more of a directional role to guide the student on their individual pathway of learning (Harden and Crosby, 2000; Taekman and Shelley, 2010). Students can be encouraged to develop deeper approaches to learning if the task is meaningful and appropriate, is genuine and if it calls for them to work conceptually (Biggs, 1999). Simulation is one way that this kind of engagement can be fostered.

Generally speaking, simulation can be said to be an activity which attempts to approximate an authentic learning environment (Herrington and Herrington, 2006; Rochester et al., 2012) for the purposes of learning in an immersed, guided and safe environment (Gaba, 2004; McAllister et al., 2013; Reid-Searl et al., 2012; Warland, 2011). Literature reporting simulation activities usually consider these in terms of their fidelity (Jeffries, 2007). High fidelity refers to those activities which most often use highly technological equipment such as computer based manikins to provide visual, auditory cues and feedback, to students (Warland, 2011). Beaubien and Baker (2004) also discuss fidelity in terms of environment, equipment and psychology. Simulation is a useful and successful pedagogy because students often report feeling it is real (Ogilvie et al., 2011) and its use also allows them to acquire knowledge, skills, behaviours and attitudes in a safe and supported learning

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environment (Gough et al., 2012; Reid-Searl et al., 2012). However, research into high fidelity simulation has illustrated some downfalls with it being viewed expensive in time, preparation time and equipment, requiring large volumes of space, staff expertise and not being very mobile (Baxter et al., 2009; Brown et al., 2012; Reid-Searl et al., 2012) Therefore the development and use of low fidelity simulation tools can also play a part in undergraduate nursing and midwifery education (Warland, 2011).

Method

An important component of teaching in any environment is understanding the student group and how they learn is integral when developing activities that support student learning styles and needs (James et al., 2011; Phillips and Bradford, 2011). Therefore, prior to the teaching period students (n = 27) were asked to complete an online survey which included questions about how they learn. There was a 33% (n = 9) response rate; students who did not respond were not questioned regarding their lack of participation. Visual learning is a popular style of learning with health care professionals (Ramirez, 2011) and thus it was no surprise that these students expressed that they were visual learners. When given the opportunity to comment on their learning styles students made comments such as:

I'm a visual learner so mind maps, algorithms and videos are helpful for me" and interactive activities are fun and I find a lot of the information sticks because it is an enjoyable way to learn".

Students were also asked to provide feedback on the current tutorial teaching method of written scenarios saying these were "tedious, confusing" and "repetitive." Six of the nine respondents indicated general disagreement (Disagree/Strongly Disagree) to the question "Scenario based directed learning assists my learning" and instead expressed their preference for learning inclusive of visual and kinetic activities e.g.

More placement … ..provides better learning with continuity

Workshops need to be more realistic and

The more hands on the better

These responses provided the information needed to create a different more visual learning environment that better suited the students stated learning preferences. The challenge was to respond to this feedback from the students and provide them with a learning environment which was based on reality, was visual and safe that they could become immersed in and most importantly gain disciplinary knowledge and understanding. The tool needed to be portable, economical and be able to implemented by staff to different tutorial groups. It was also important that it complemented their high fidelity laboratory based simulation activities. Also the tool needed to be able to assist in the development of clinical reasoning on visual prompts whilst supporting multi modal learning styles (Higgs et al., 2008). Scenarios needed to be as realistic as possible (Gough et al., 2012). Finally the tool also needed to be adaptable, so that it could be used with a variety of scenarios and topics. Thus the VALT was developed.

Creation and application of the VALTs

Visually Authentic Learning Tools (VALTs™) were conceptualised by the first author. The VALT is a box, a plain shoe box, with a lid that has the scenario attached to the inside of the lid.

When making the VALTs, photos of a real clinical environment were taken and included along with pregnant dolls and doll furniture to further enhance the 3D nature of this learning tool. The inside walls of the box are laminated with images of a clinical setting i.e. maternity wards, emergency departments, and/or birthing wards. Details were as authentic as possible and included posters that are often seen on the walls in a hospital such as evacuation plans and hand hygiene reminders. Images of sinks, oxygen and suction outlets and other forms of monitoring and equipment were also included. The woman and her family in the scenarios were represented by small hard plastic dolls similar in size to Barbie and Ken dolls. Thus the VALTs made the scenarios presented more than one dimensional, making them accessible to other senses such as visual and tactical (e.g. Image 1).

The VALTs were used in a second year undergraduate midwifery course "Complications of pregnancy and childbirth." Four VALTs were created and designed to teach second year undergraduate midwifery students the topic of bleeding in pregnancy e.g. abruption and placenta praevia. Images of blood loss were taken from estimating blood loss resources, copied, reduced to fit the size of the doll or bed in the VALT. The images on the walls of the VALTs acted as prompts for the students to successfully engage with the scenario such as remembering to say that they would set up an intravenous (IV) pump, put oxygen on, press the call bell and commence monitoring. The visual cues within the VALT thus enabled the students to link the material that was in the written scenario to the visual cues in the VALT. Students were grouped into numbers of three to four participants and were all asked to read the scenario and examine the VALT in order to determine the likely cause of the bleeding, then to discuss and plan appropriate midwifery action and produce an outline of the care they would provide. No alternative activity was offered to the students. The VALT also promoted student collaboration, problem solving and decision making processes in regards to clinical management of the scenario.

At the end of the tutorial session in which the VALTs were used students were given a short paper-based survey to complete. This survey met the University's guidelines for an evaluation activity undertaken without need for formal ethics approval. Under these guidelines students were informed that their participation was voluntary and their contribution would be anonymous both verbally and by way of the following statement heading each survey form: *Data collected through this survey will be used to improve the quality of teaching and learning at* [the university name] *and could also be used in external publication and presentation. Individual*

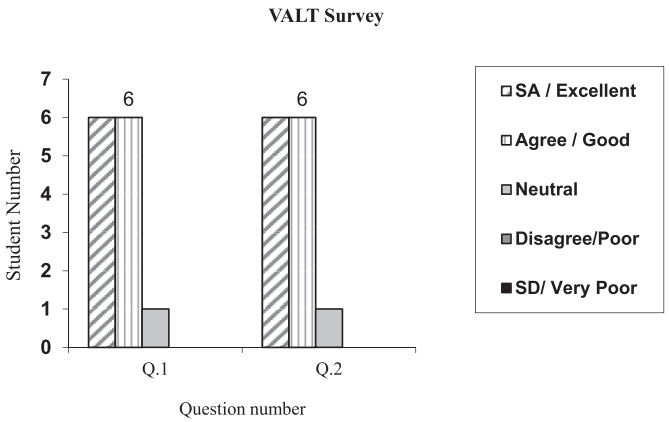

Fig. 1. Student response to VALT survey: Q1: The VALTs helped me to connect to the written scenario. Q2: Overall I would rate my experiences with the VALT as … . *There was a 48% response rate (n = 13) to this paper based survey.