

WHAT'S IN THE BOX? A CREATIVE LEARNING ACTIVITY DESIGNED TO DEVELOP CRITICAL THINKING SKILLS

Liz Ditzel and Josie Crawley

ABSTRACT

In this paper we describe a creative learning activity used to foster the development of student nurses' critical thinking skills. The activity is designed in four stages and uses a set of small wooden boxes and a children's picture storybook. First, students are placed in small groups and each presented with a box. Using only observational skills, they are asked to infer and list the box's contents. Second, students have a children's story read aloud to them and are asked to reconsider the contents of the box, given the reading. Third, students are invited to examine the box through touch and sound and reach a consensus about its contents using this information. The activity concludes with a discussion of how to apply the skills used in this activity to a different nursing context that requires evaluation and judgment.

INTRODUCTION

Experienced nurses engage in multiple clinical reasoning (critical thinking or problem solving) episodes for each person in their care, many times a day. Because of their knowledge, skill and experience the expert nurse may appear to perform these processes in way that seems automatic or instinctive. Clinical reasoning however, is a learnt skill that requires a different teaching approach to that used when learning routine nursing procedures. Taking this into consideration, we have developed a creative learning activity to develop critical thinking skills among first year nursing students.

LITERATURE REVIEW

The literature on critical thinking provides a range of conceptions ranging from a focus on generic skills (Ennis, 1989; Halpern, 1997) to a notion of critical thinking for critical being (Barnett, 1997). Critical thinking is an essential part of self-directed learning and self-assessment in all education disciplines, particularly nursing and is a defining characteristic of a registered nurse (McDrury, 2006). Nurse educators expect learners to be reflective and self-aware; curious, open and motivated, and develop and use criteria for evaluating (Cooper, 2000; Dieklemann, 2003; Nelson, 2017). For the learner, critical thinking is a part of a variety of activities where there might be alternative viewpoints with different intended outcomes (Brookfield, 1997; Moon, 2008). This approach leads the learner to assess the evidence in order to make a judgment, for example, when evaluating the likely contents of an object such as a box. However, little research attends to the practical aspects of how to teach critical thinking skills.

Stories and the act of storytelling help nursing students to develop an understanding of peoples' lived experiences and learn about practice and the world around them: building, interpreting and deconstructing narrative knowing (Banks-Wallace, 1998; Ironside, 2003; McDrury & Alterio, 2002; Wadsworth, Colorafi & Shearer, 2017). Stories contribute to the critical thinking process by opening up students' thinking to new possibilities (Stowe & Igo, 1996).

Reflective stories about nursing practice along with others' experiences of health or illness bring teaching to life (Schwartz & Abbott, 2007). They also connect relationships and offer a subjective dimension that students are more likely to remember (Cooper, 2000). Working reflectively through stories can also instil sensitivity toward others in a way that cannot be garnered from a standard nursing textbook (Overcash, 2010). Through self-reflection, stories can provide students with opportunities to integrate their own life experiences into their clinical practice (Schaefer, 2002). Critical thinking is promoted when listeners become immersed in the process of sequencing, analysing and synthesising information as they write, tell or listen to stories (Carroll, 2010; Nehls, 1995). In this way, stories link personal and professional experiences with classroom learning (Lordly, 2007).

Educators can enrich teaching and further capture the attention of students by using narratives from popular literature, films, poetry, and depicted in art that link theory to practice and inform student experiences (Brown, Kirkpatrick, Mangum & Avery, 2008). Books written for children have also been used to "awe and inspire" nursing students (Krautz, 2007, p. 223). Such books are an interesting and valuable teaching resource because readers can more easily identify with characters and the choices that they make. They help students to vicariously participate in an experience such as grief and loss, suffering, joy and helplessness that may be outside their personal experiences (Crawley, Ditzel, & Walton, 2012). Picture books are particularly valued, as illustrations often take the place of words and are open to multiple interpretations designed to capture the reader's imagination (Thacker, 2003; Vallone, 2004).

Our interactive classroom learning activity uses a children's narrative and a four-stage process (Ditzel, 2015). The sequence of events is important as it allows time for critical reflection. Two teaching tools are used, one a set of five custom-made small sealed wooden boxes that makes a distinctive 'klinky' sound when an object inside it moves around. The other tool is a children's storybook called *The Box* (Lightfoot, 2005) telling the story of Flora and Annie who discover a box outside their house. While Annie wonders what's inside the box, Flora's concern is that it belongs to her so she can care for it. The sisters imagine what could be in the box and suggest a wide range of possibilities.

THE STRUCTURED LEARNING ACTIVITY

Stage 1: Observing the box

The first stage requires students to observe, discuss, describe, and infer the contents of the 'kinky box' by using only observational skills. Students are allocated into small groups (five is ideal) and ground rules for safe group discussion are established (Vallone, 2004). This time is well spent as it builds an atmosphere based on respect and professional relationships. The teacher's role is to be a participant and facilitator in the discussion. We expect students in their groups to listen to each other with attention, contribute to the discussion if they wish and provide reasons for disagreeing and agreeing with each other. Students are then directed to observe and take turns to orally describe the box's appearance and attributes to their group before writing a description of the box on their learning worksheet. The observational part of this activity concludes when students brainstorm their ideas about the box's contents, record all of these possibilities on yellow Postit notes and place them on the classroom whiteboard.

Stage 2: Reading the book

Next, the book is read aloud to the combined class making sure the audience can see the pictures. Learners are seated where they can see the pictures or a projector is used to show the book pages on the whiteboard or screen. Although intended for children, the book must be appropriate to the adult's experience and relate to a teaching theme. The Box was chosen for its short but simple language, imaginative content, and emotionally appealing colourful illustrations. Before reading the book, we suggest that facilitators should practice reading it aloud, paying attention to pitch, tone and rhythm as your enthusiasm for story will be infectious, create interest and make the story memorable (Crawley, 2007). Also consider aspects of non-verbal communication like how much eye contact you want to have with the audience, and the effect that your own facial expression, frowns, quirks, gestures or mannerisms may have on the listeners. To help learners draw on their experiences related to the teaching theme(s) without limiting the specific factors the learners will bring from their engagement with the story it is important to ask reflexive questions such as: What could possibly be in the box that is outside Flora and Annie's house? Is this box different or the same as the one in front of you? How are you going to find out what is really in the box? Why do we need to find out what is in the box?

Stage 3: Reflecting

After reading the book to the students it is essential to pause for thought and allow time to reflect upon the book's story and images. After a short break, return students to their groups, invite them to reconsider their box's contents, add new possibilities to the list and record new ideas on the whiteboard using different coloured Postit notes. When students run out of ideas and lists are completed, ask each group to group and sort and group their ideas into categories on the whiteboard. Using a different colour shows the difference between the contents before and after the reading.



Figure 1: Postit notes showing categories of ideas

Stage 4: Manipulating the box

Next, invite group members to pick up, touch and listen to the sound made by manipulating the box. Ask groups to discuss their perceptions of the box's contents based on the new information gained from touch and sound. Now is decision time! Each group must come to a consensus as to what is in their box. Allow time for discussion and debate and once all members agree, ask each group to draw their interpretations on a separate piece of paper before transferring these drawings to the whiteboard (see Figure 2).

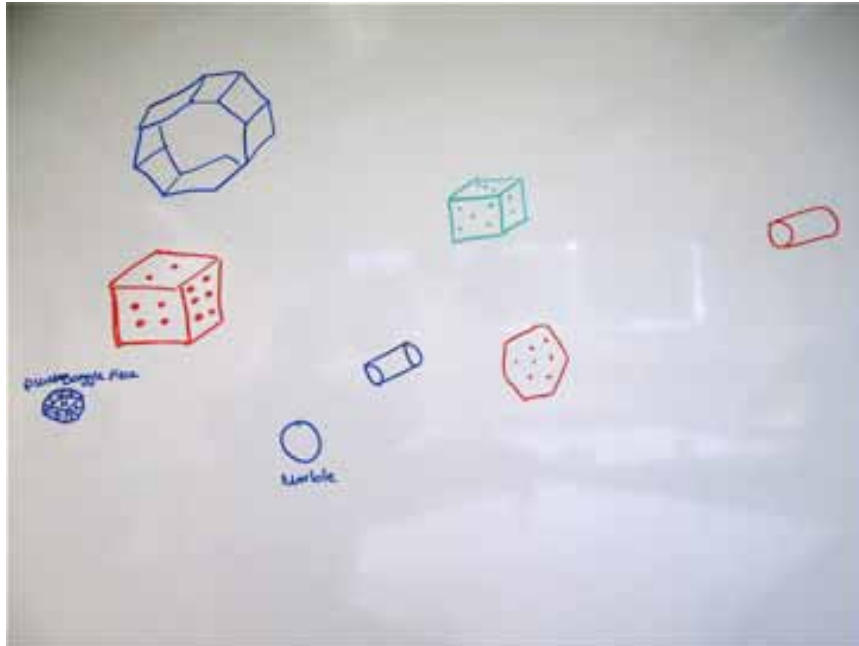


Figure 2: Student drawings of possible contents

Once the drawings are completed invite each group to present and explain their perceptions to the class. At this point, check that the key learning points have been covered and recorded on a worksheet that contains the lesson's learning objectives. A written record of learning helps students to see the point of the exercise. Finally, much to the students' frustration, the contents of the box are never revealed! This is a deliberate strategy designed to illustrate that not all problems in healthcare are easily solved.

DISCUSSION

In this learning activity the boxes and the book help students to see the world differently, to challenge the status quo by asking important questions such as: 'why?', 'why not?' and 'what if?' The central activity of critical thinking is "the assessment of what might be called evidence, in order to make a judgment" (Moon, 2008, p. 33). Here the teaching tools interplay to help students evaluate the evidence and judge the contents of the box. While the 'klinky' boxes are tangible objects open to inspection and manipulation, the book offers words and pictures that encourage invite scepticism and stimulate student's imagination. As participant observers in this activity, we note that learning starts by sharing personal experience, is facilitated by open-ended and semi-directed discussion, employing the many processes people use in daily living to perceive, imagine, intellectualise, decide and evaluate, i.e., to think critically.

The structure of "gathering, examining and analysing data, before determining what to do next" concurs with Nelson's (2017, p. 62) four characteristics of critical thinking among nursing students. It also correlates with Phillips and Bond's (2004) dimensions of critical thinking among first year management students, a process they they categorised as: "weighing up, looking at it from all angles, looking back on and looking beyond what is there (Phillips & Bond, 2004, p. 283). For example, in our activity nursing students judged the contents of the box by 'weighing up' and 'looking at it from all angles'. The relationship between the stage uses in our learning activity and the critical reflection categories (named as A-D) identified by Phillips and Bond (2004) is shown in Table 1.

Learning activity stages	Critical reflection categories
1. Observing the box	weighing up (A)
2. Reading the book	looking beyond what is there (D)
3. Reflecting on the boxes' contents	looking back on (C)
4. Manipulating the box	weighing up (A) looking at it from all angles (B)

Table 1. learning activity stages and critical reflection categories

Visual inspection (looking) and oral description help students to determine the physical attributes of the box (e.g., it appears to be wooden and there is no apparent way to open it). Listening to the sounds produced by the contents of the box provide more clues when the object moves and makes a distinctive 'klinky' sound. Information gained from shaking and touching the box, feeling its weight and the object move within it, also helps students to think reflectively. In this way, the evidence is evaluated using simple comparisons, identifying the pros and the cons, and the positives and negatives of the list of alternative solutions. Students also demonstrate reflective thinking and problem solving skills when they discuss different ways to test their ideas about what is in the box, such as weighing, X-ray, and scanning, without it being opened. Knowledge develops from shared pieces of information that are inferred from group members' previous experience.

The essential part of this critical thinking exercise is to apply the skills used in this activity to a different context. In debriefing this activity we challenge students to think of ways that evaluating the contents of a small wooden box could be transferred and applied to other situations. The discussion includes how to best relocate such learning and exploring reasons for using the same sequence - look, describe, evaluate, listen, touch - to safely perform a nursing procedure such as a physical health assessment on a person. This conversation introduces novice nurses, who have little clinical experience, to the possible medical tests and specific nursing assessments that could be used to examine the internal parts of people. Students' reactions to being allowed to handle the box (this is usually with great excitement as they can't wait to get their hands on it) are also related to the high standard of professional behaviour required when nurses examine parts of the body or take a person's vital signs (i.e., blood pressure, pulse, temperature and respiratory rate). We also explore student's feelings including disappointment, frustration and sometimes anger; to not being able to open the box and relate this to patient conditions that cannot be diagnosed or treated.

Before the book is read	After the book is read
Objects: other boxes, trinkets, wads of notes, marble, tennis ball, toy car, gall stone, Lego bricks, paper:	<i>Small sculpture, musical instrument, beach ball, clothes. A spaceship.</i>
Living creatures: bird, spider	<i>Snake, fish, cat, plant, rabbit Bonsai tree</i>
Nothing, i.e. empty box	<i>A mystery, ashes of the dead, torn love letters, poisonous gas, liquid or creature, treasure, ghost, evil spirit.</i>

Table 2: List of the boxes' possible contents

In stages two and three of the learning activity, students look “back on” and “beyond what is there” (Phillips & Bond, 2004, p. 277). Looking back on involves reflecting upon a situation and seeing it differently to how it was originally seen. Changes in thinking are obvious to students because new items are recorded in a different colour. The role the book’s imaginative narrative and images play in opening up students’ thinking to look beyond what is there is shown in italics in Table 2.

Prior to the book being read aloud to students, items typically include objects smaller than or the same the same size as the box such as, an apple, toy car, bracelet, keys, mobile phone, etc. After the reading, students seem to ‘look beyond what is there’ and items tend to be larger (e.g., a beach ball, set of clothes) and alive (e.g., a cat, plant, snake or fish); more ethereal (e.g., a ghost, or spirit) or curiously; more sinister (e.g., a toxic gas, virus or deadly organism or poisonous creature). Sinister items on this list alert the novice nurse to the possibility that a person may have an undiagnosed viral illness that is contagious, emphasising the importance of taking protective measures when performing a health assessment. Ethereal items flag the importance of the nurse not being judgmental or dismissive of a person’s concerns however ‘fanciful’ they may appear to be. The range of items prompt us to keep an open mind to the unexpected or improbable, for example, a person reporting that ‘evil spirits’ possesses them, may be suffering from a mental health illness. In the same vein, a person reporting they have a rabbit inside them, may have deliberately or accidentally, ingested a soft toy rabbit.

CONCLUSION

Hands-on activities that promote curiosity and questioning, together with reflective storytelling, facilitate learning by enlivening the classroom and supporting students to build confidence and capability, especially for new or abstract concepts. Using the picture storybook in a safe classroom-learning environment invites students to use their imagination and open up their thinking to new possibilities. Listening to the children’s story and looking at the illustrations in the book helps students to think reflectively by considering things from a different perspective. This activity can be used in a range of disciplines, such as health, social work, design, that require students to use problem solving skills based on a sequence of observation, description, assessment, and evaluation of alternatives such as researching an essay topic or exploring and valuing difference.

The ‘what’s in the box?’ lesson yields some surprising results and is fondly remembered by students. Although students are firstly frustrated by the problem of what is in the box, they arrive at solutions by inferring from their past experiences and collective knowledge. The depth and breadth of the discussion facilitated by this structured learning activity is truly rewarding and is well worth the time and effort.

Dr Liz Ditzel is a Principal Lecturer in Nursing at Otago Polytechnic. She is a RGON and has a Certificate in ICU nursing. Previous research has investigated mentoring experiences and the relationship between nurses' job stress, psychological sense of community and burnout among New Zealand nurses. Current research interests focus on immersive learning through simulation and creative teaching in nurse education.

Josephine Crawley is a Senior Lecturer in Nursing at Otago Polytechnic. She is an RN and her Masters in Education is endorsed in counselling. She has particular interests in communication, narrative pedagogy, and health promotion.

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