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Facilitation: It's not as easy as you think - A novel approach to teaching handling skills, in neurology, to undergraduate physiotherapy students.

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Abstract

This paper discusses a learning intervention designed to help second year students bridge the practice/ theory gap as a basis for developing clinical reasoning skills in movement re-education.

Physiotherapists working in neurology aim to re-education movement dysfunction, often through the use a 'hands on' approach to facilitate muscle activity. This involves a high level of clinical reasoning requiring analysis 'of' and reflection 'on' the effects of handling based on theoretical principles, an area students' find challenging.

The intervention consisted of students randomly selecting and facilitating a movement task. No communication of any kind was allowed whilst the task was being facilitated, and only the facilitator was aware of the task selected.

The findings suggest that the exercise contributed to an improvement in students' confidence in clinical reasoning and that the link between theoretical knowledge and practical application was clearer. Student engagement in learning was enhanced, suggesting that this approach is an effective way of promoting clinical reasoning skills in regard to re-education of movement.

Introduction and Rationale

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Patients often present with movement control issues following central nervous system damage. Physiotherapists employ handling to facilitate activity within muscles as a way of addressing these issues. This requires an understanding of motor control theory, how sensory input influences motor output (movement), and an ability to apply this in a clinical situation (Arya, Pandian, Verma, & Garq, 2011). This application of theoretical concepts in practical situations is the basis for clinical reasoning and is a key skill which physiotherapists must develop (Babyar, Pivko & Rosen, 2010; Forsberg, Ziegert, Hult & Fors, 2016).

Clinical reasoning is a cyclical process built up through experience, combining cognitive strategies such as analysis, reflection and problem solving based on existing knowledge (Knecht-Sabres, 2013). Research suggests this is a high level skill and is inherent in expert clinicians but one novice clinicians often find elusive (Delaney & Goulding, 2014).

The neurology module seeks to develop student's clinical reasoning in relation to rehabilitating movement prior to clinical placements, in particular the concept of facilitation of movement through handling. Facilitation of movement is a complex process made difficult by the myriad of ways humans move. No one way of facilitating movement fits all and the therapist must use clinical reasoning to react to the responses of the patient when being handled. From observation in class students find this challenging and it is often seen as manual handling, rather than it being an interactive process between therapist and patient. Students have the underpinning theoretical knowledge but struggle to apply this in practice.

Previous sessions focussing on this skill have been frustrating as students often appear disengaged. Teaching has included a demonstration of the task by me with an accompanying explanation of where my hands are placed and what they are doing to the underlying structures and what I am feeling. As an expert in the field of neurological rehabilitation some of the subtle nuances of my handling are intuitive and have become part of an unconscious process and students miss some key elements (Delaney & Golding, 2014). This becomes evident when they try to reproduce my handling, leading to frustration

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and disappointment on the part of the student when they are unable to replicate the task. Students often complete the task quickly, as they are just passively moving the model, and then become disengaged. Feedback on their performance goes part way to addressing these issues but often formative feedback is ignored or forgotten soon after it is given (van de Vleuten, Schuwirth, Scheele, Driessen & Hodges, 2010). When the skills are revisited transferability of skills is not seen, which is desirable for students to achieve success in clinical practice. This lack of transfer of skills and disengagement of students were the drivers for developing a different approach to teaching these skills.

I wanted to foster an active, student centred approach to learning where students build on existing skills but question these in more depth, examining how they fit with theoretical concepts. Active participation can enhance clinical reasoning and foster a deeper understanding of the concepts that underpin the practical task (Coker-Bolt, 2010), which may aid transfer of skills from classroom to clinical practice (Patel, Yoskowitz, Arocha & Shortliffe, 2009; Schellhase, 2006). This approach to learning sits in the constructivist paradigm of learning theory (Joseph & Juwah, 2012) and encompasses the requirements for successful clinical reasoning. The stages of clinical reasoning share attributes of Kolb's experiential learning cycle and this will form the framework for my session (Schellhase, 2006).

Literature review and Theoretical framework

Experiential learning addresses the theory practice divide and seeks to make new meaning from existing knowledge with the idea that learning is a continuous, cyclical process (Kolb & Kolb, 2005). Learning emerges by involvement in experiences which are viewed from a different perspective, with the aim of creating new theories which are used to guide decision making and facilitate problem solving (Barr, 2013). It is the processes involved in learning rather than the outcomes of learning that are the focus of this approach and can promote self-directed learning. For this to be successful the students must be willing and able to involve themselves in the activity (Hean, Craddock & O'Halloran, 2009).

The experiential process of learning has been shown to improve clinical reasoning skills by enhancing student reflection and evaluation of their practice in relation to patient intervention. Forsberg et al, (2016) used virtual patient based formative assessments as a basis for developing clinical reasoning skills in paediatric nursing students. Results showed that involvement in a concrete experience and reflection on this developed the students' ability to confidently clinically reason in more challenging situations. Students reported that they felt the process had had a positive impact on their learning and had given them a different way of thinking when approaching unfamiliar and novel situations.

Coker-Bolt, (2010) & Knecht-Sabres, (2013) both used experiential learning to evaluate whether this approach enhanced the clinical reasoning skills in occupational therapy undergraduate students. The students actively engaged in clinical skills, reflecting on the outcomes of the intervention. Students were encouraged to work together and to try new approaches following on from their reflection. Results showed that active engagement in the process of evaluation of practice helped the students to make sense of the theoretical knowledge they had previously learned, with students reporting that collaborative working and reflection on the intervention was a key factor in their improved confidence in their clinical reasoning. Students attributed their increased confidence in problem-solving and clinical reasoning to the fact that they did not appreciate 'what they did not know' prior to the learning. The recognition of this contributed to a move forwards in their learning.

Encompassing these concepts may better prepare the student for integration into the workplace, making them more aware of how to partake more effectively in the community into which they are trying to integrate (Hodge et al, 2011). Naude & Bezuidenhant, (2015) echo this sentiment proposing that lecturers broaden the learning experience in order to help the students become self reliant learners. They advocate the use of strategies which promote collaborative learning as a way of developing critical thinking with the use of reflection to deepen understanding and make new meanings of experiences. If this stage is omitted or inadequately addressed this process can be adversely affected (Brackenreg,

2004). Despite reflective practice being acknowledged as being crucial in professional education there has been a common tendency for it to become oversimplified. The richness of reflection can be reduced to a superficial narrative of actions rather than an analysis of that action with a link being made to underlying knowledge base. It is this analytical process that develops new learning (Thompson & Pascal, 2012) with the reflective stage of experiential learning being crucial in advancing the students learning.

Description of session

The teaching took place towards the end of the module teaching prior to students engaging in clinical practice. This seemed the most appropriate time to conduct the session as students have had prior experience of analysis of movement, some experience of facilitation of movement and have covered the theoretical knowledge of underpinning principles. This is the basis for exploring the concepts of facilitation in more depth. A total of thirty two students attended the class, split into eight groups of three and two groups of four. Each student was an active member of the process with each student having a designated role (table 1).

Table 1

Student role	Role description
Operator – facilitate task	Using hands only guide the model to do the task selected.
Model – be the recipient of facilitation	Has to follow the guide of the operator's hands to complete the task. Only move where the operator's hands tell you to go. Do not anticipate the movement.

Observer/s	Make notes on facial expression and body language of both model and operator.
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The session content will be outlined in relation to Kolb's cycle of learning, Figure 1 (Finlayson, 2015).

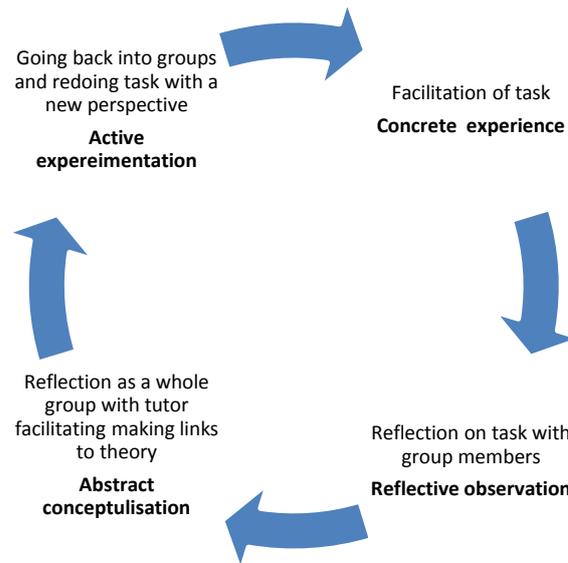


Figure 1

Concrete experience

The content was outlined to the students and the aims shown as a power point at the start of the session. As one aim was to try and foster a deeper understanding of how handling (sensory input) affects movement (motor output) other sensory modalities that can influence movement were reduced as much as possible. Therefore no verbal or non-verbal communication, in the form of gesturing to indicate the movement required, was allowed and no guidance on how to do the task from the tutor was given. The only feedback during the task is that of how the model responds, from a movement perspective, to the handling input the operator gives. Not allowing verbal communication or gesturing offers a challenge for the student to rethink how they will achieve the task. Challenging previous ideas is a fundamental process in new learning from which new meanings can be made and learning

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can move forwards (Hodge et al, 2011). This immersion in the task gives the student the opportunity to produce active feedback which may be a more effective way of students remembering feedback (van de Vleuten et al, 2010).

In previous sessions students became over-reliant on verbal instructions to achieve the goal which resulted in the models just doing the action or they just moved the model into position when they were unable to facilitate the activity through handling alone. By restricting the students to only handling to achieve the task it was hoped that a new/deeper understanding of how handling soft tissues affects movement and that facilitation is more than a manual handling procedure. Silence commenced as soon as the session outline was finished.

The operators randomly selected a card with a task written on it from myself, unseen at selection. They then facilitated the model to do the movement written on the card. The observer/s made notes as described in table one, this would form the basis for the reflective part of the cycle. The time given for the session was 10 minutes, which was deemed long enough for the students to experience the task but not too long that the student could become disengaged if the task was completed quickly. Each member of the group played each role, with a new task being selected each time. Models and observers were blind to the tasks chosen. The tasks differed in nature, some were abstract and some were more common everyday tasks (appendix A).

Reflective observation

After the operator had facilitated the activity the group was asked to discuss the notes made by the observer, how the operator had felt carrying out the task and how the model had felt whilst being facilitated. The former offered the students an opportunity to voice any frustration they felt in trying to facilitate a complex activity, which I had experienced in clinical

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practice. This aspect of practice was not something which was discussed openly in my practice and it negatively impacted on my self-confidence. I therefore wanted this aspect to be acknowledged and discussed so that students were aware of it and could use it positively as part of their reflection. Another tutor and I observed this process offering some direction if required or prompts if the reflection seemed superficial. I felt this to be an important part of the process as I did not want it to become a mere description of what had occurred but I wanted it to engender a deeper discussion and criticality of the observations made. This criticality needed to include analysis and links made to pre-existing knowledge which may enable the learner to make new meaning out of the experience (Thompson & Pascal, 2012). The stage of reflection is a key aspect of promoting self-directed learning which fosters the higher level thinking skills required in physiotherapists working in this field (Brackenreg, 2004; Naude & Bezuidenhant, 2015; Thompson & Pascal, 2012).

Abstract conceptualisation

After all students had played all roles the tutor facilitated a group discussion of the process. The topics for discussion were based on the observations of the tutors as they moved around the room during the task. It became clear during this discussion that some form of intervention from me would enhance the learning process further as some students were voicing that the tasks were impossible to achieve. With others saying that they had not been able to do the task and did not know where to start. Therefore I took one of the cards and demonstrated how I would facilitate the movement without verbal commands. . I tried to link what I was doing with my hands to the underpinning knowledge and voiced the steps I was taking in my clinical reasoning to offer some concrete detail about what information I was using when analysing and interpreting the models movement. It also allowed the students to see how I synthesised the theoretical and practical information in order to achieve the desired movement. This is a technique which has found to be useful when expert clinicians are trying to help novice clinicians develop their clinical reasoning skills as some steps that

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an expert takes when clinically reasoning can be too subtle for the novice to see (Delany & Golding, 2014).

Active Experimentation

Following on from this discussion the students then went back to try the facilitation of the movements again to see if they could apply this new way of approaching the task. The groups reformed and each again took one of the three roles, facilitating a new set of tasks.

Evaluation of session

Students were asked to give written feedback at the end of the class about the learning experience overall. The notes made by the observers were collected.

All feedback received was positive and although students felt it had been a difficult and challenging session most felt it had been a useful enjoyable way of learning more about what facilitation means and the difference between it and manual handling. It was viewed as having been a good way of developing their problem solving ability in a novel situation.

'The session was really useful in understanding facilitation and practising some more unusual movements. It was a great problem solving learning experience'

'The session was enjoyable with a good problem solving approach'

'Was useful to problem solve and think outside of the box. Difficult but helpful in differentiating between facilitation and manual handling'

Many of the students found that the non-verbal aspect to be frustrating as they struggled to get the model to move in the way they wanted them to.

'I found the fact that we could not talk very difficult as I think it would have been easier to give verbal prompts'.

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'It was interesting to observe as people were getting quite frustrated trying to facilitate the movements and trying to think of ways to do it.'

Feedback suggested that the process had created an environment that allowed and encouraged reflection and promoted a deeper level of analysis of the task and how it relates to theoretical principles.

'Found overall session useful as it made you realise if you were/weren't facilitating properly or if you were just moving the patient. This made you re-evaluate your positioning to think how you were going to get them to move'

'The operator was frequently puzzled, pausing and attempting new methods. Sometimes the operator wanted to give up'

Critical discussion

The overall aim of this session was to try and develop a greater understanding of the concept of facilitation. From the feedback given this appears to have been successful. From my own reflection on this session it became clear that the focus of this session was more student centred. Previous sessions, I have now realised, were more focussed on me leading and directing the content and students were not fully engaged in the process. In this experimental class the students have been placed in a situation whereby they are at the centre of the learning process and are responsible for monitoring and reflecting on their own experiences. Putting the students at the centre of the learning experience appears to have enhanced their involvement with the activity and produced a greater depth of analysis of their actions which is central to learning (Aadal, Kirkevold & Borg, 2014).

Students have previous experience of facilitating movement and this task built on this knowledge but was approached from a different perspective. By making the session non-verbal the students had to refocus their thoughts about how to achieve the set movement. As shown in the evaluation this caused considerable difficulties. However, it resulted in more

analysis of what they were doing with their hands and the use of a variety of different ways to achieve the task. This experimentation is a fundamental part of the reflective cycle (Barr, 2013; Forsberg et al, 2016).

When observing the groups during reflection the level of discussion was more in depth than had been seen in previous sessions with all of the students taking an active part in the discussion and offering their perspective on how the task could be achieved. This observation is in line with Coker-Bolt's, (2010) findings on the value of collaborative working in promoting critical thinking. The students also appeared to have a better grasp of the theoretical concepts and how these guide the practical application, which Knecht-Sabres, (2013) highlighted as a positive outcome for this approach to learning. The value of using an experiential approach was also highlighted in these reflective discussions as each student had a different level of knowledge or understanding, some had seen patients before and some had better handling skills, all of which was being shared within the reflective discussion and was a rich source of learning (Beard & Wilson, 2013). Giving each student a role which was part of the process of learning meant that all students had some responsibility for both their own learning and that of their peers and I felt was a particular strength of the session.

The reflection stage of the cycle, although producing a deeper level of discussion was a weaker area of the session. As Thompson & Pascal, (2012) highlight, this is an area that can be superficial and lack the depth of analysis required for it to be effective in promoting learning. This stage could have been given more consideration prior to the session and have some loose structure. Structure may have guided the students' thinking during the task as they are novices and have little experience of this kind of reflection and this may have enhanced their learning further. This was addressed at some level by my intervention and demonstration which initially was not included in the planning. It only became clear that the students were struggling to make the links in their thought processes in the whole group

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discussion that this intervention was included. Perhaps had this area been given more thought it could have been incorporated earlier (Breckenreg, 2004).

In the last part of the session (active experimentation) the students showed that they had built on the initial attempts at facilitation of the task and were much more able to apply these in the new situations. The demonstration and voicing of my reasoning seemed to help the students by opening new ways of thinking about what they were doing and having the confidence to try out some new ideas. The level of engagement increased and all students were eager to try out these new approaches. Observation of the student in the groups showed that the handling skills on display had changed considerably. Placement of hands was improved and was much more effective in making the model actively involved in the movement. This could also have been as a result of the students recognising 'what they did not know' prior to the activity and it was when they had to apply the skills in a novel way with a total focus on handling that they became aware of this and used this as a way to developing their skills (Knecht-Sabres, 2013).

This session will be embedded in the teaching of second year neurology module. However it will be timetabled to run over two sessions with half of the group of students in each session. This will allow more time to use the reflective element of the cycle to better effect. It will also be run twice, the first session coming sooner in the programme to help the students focus on linking theory and practice earlier and the second near the end to consolidate learning and aid transfer of skills. The first session will have simpler tasks to facilitate as an introduction to this concept with the second session having more complex, abstract tasks. This will hopefully allow the students to further develop this skill set as the intervening sessions will feed into this one. It will also give me a better opportunity to evaluate whether any transfer of skills has been achieved and for students to evaluate their progress. I also intend to gain feedback from those second years that had a neurological placement following this session to assess if it had an impact on their clinical practice, to further evaluate the session.

Conclusion

The aim of this session was to try and prompt a deeper understanding of how handling (facilitation) by a therapist can affect movement. The purpose was to show students that 'true' facilitation is more than just verbally asking the patient to move or just moving them around with no active involvement from the patient and promote a better understanding of the links between theory and practice. Using an experiential approach to learning appeared to have been successful in helping bridge this gap between learning and practical application (Schellnese, 2006).

It was hoped that the students would reflect on their existing performance within a supportive setting and using collaborative working to stimulate the development of critical thinking to gain a better understanding of the concepts of movement control. The feedback given by the students supports the assumption that this goal has been achieved with observations made by tutors in the last stage of the cycle also supporting this,

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Tasks given to facilitate

- Rolling over, using feet to facilitate the task
- Hopping
- Going from supine lying to four point kneeling
- Stepping over an object
- Moving from sitting to walking
- Turning around
- Supine lying to prone lying
- Sitting to lying but the head must end up on a pillow placed squarely at the end of the bed
- Backward walking