Perceptions of the usefulness of peer coaching to facilitate clinical reasoning – a survey of physiotherapy students

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Abstract

Peer coaching involves a non-evalutive relationship, in which students work collaboratively by observing each other and providing consultative assistance. This model of learning has been used in physiotherapy education with promising results, but to date the perceptions of physiotherapy students as to the usefulness of the method to develop clinical reasoning has yet to be explored.

Methods

A paired design framework was employed, with paired students examining another student acting as a patient. The peer coaching sessions were weekly, over ten weeks and lasted 1 hour. After the tenth session individual students were surveyed regarding the usefulness of peer coaching to develop clinical reasoning skills. A total of thirty students were surveyed.

Results

Using an 11-point numerical rating scale, with a score of 10 rated as 'most helpful', all students rated the usefulness of peer coaching at 7/10 or higher. The responses behind this include the collaborative nature of working, the reduced perceived threat and the development of cognitive and metacognitive skills.

Conclusion

The feedback obtained from the students participating in peer coaching suggests that they found it a beneficial, enjoyable and productive method for developing clinical reasoning skills. In a wider picture, the encouragement of including peer coaching to clinical placements should be considered.
Keywords: clinical reasoning, peer coaching, physiotherapy education

Introduction

Clinical reasoning is considered a cornerstone of patient management (Butler, 2000) and is becoming a primary educational goal (Higgs et al., 2008). Clinical reasoning has been defined by Higgs and Jones (2000) as a process in which the therapist, interacting with the patient and significant others, structures meaning, goals and health management strategies based on clinical data, client choices and professional judgement and knowledge. Simply put, it is the ability to take wise action in patient care (Butler, 2000).

Peer coaching refers to a model of learning in which the students work in collaboration with each other, and may consist of students observing each other and providing consultative assistance to each other (Claessen, 2004). It is a non-evaluative relationship between two practitioners who share similar experience and training and wish to embed knowledge and skills into practice (Ladyshewsky, 2010). Many terms have been used to describe peers learning from peers for example: ‘collaborative learning’, ‘cooperative learning’, or ‘two to one teaching’. However, for the purpose of this paper the term peer coaching will be used. The concept was originally developed as a strategy to support teachers, who often worked alone in the classroom. Peer coaching was devised to help support the implementation of novel concepts effectively in the classroom. Since its inception, it has been used in the education of healthcare professionals, and specifically physiotherapy with promising results (Ladyshewsky, 2004 & Ladyshewsky, 2002). Ladyshewsky (2010) suggests there are many advantages to the peer coaching model including; encouragement of student responsibility for learning, helping students to wean themselves from considering clinical educators as the sole source of knowledge and understanding, opportunity for students to explore alternative problems solutions in a safe environment, development of social interaction and communications skills, enhancement of student satisfaction with the learning experience and enhancement of self-esteem. However, physiotherapy students’ perceptions of the usefulness in developing clinical reasoning skills have yet to be explored. Consequently, the purpose of this study was to implement peer coaching into physiotherapy students’ education and evaluate their perceived usefulness of peer coaching to develop clinical reasoning skills.

Methods

A paired design framework was employed, with the paired MSc (pre-registration) first year students examining another student who simulated as a patient case (Ladyshewsky, 2002). However, rather than have the paired students jointly assess the simulated patient, one of the pair led on the examination and the other observed and acted as the peer coach. The peer coach was encouraged to make notes of the other’s performance and clinical reasoning for a pre-planned discussion at half-way through the examination and post assessment. In the discussion, the peer coach was encouraged to use a free choice of prompting questions which may encourage self-disclosure. These are usually preceded by ‘who’, ‘what’, ‘where’ and ‘how’. For example, ‘how did you think your hand placement influenced the success of the technique’ or ‘what were your hypotheses at the end of the subjective examination’ or ‘who else might you need to refer this patient to’. The peer coaching sessions were weekly and lasted 3 hours (1 hour each student – allowing for rotation of roles). A total of ten sessions were undertaken on a Friday afternoon. After the tenth session the students were surveyed for their opinions regarding the usefulness of peer coaching as an aide to develop clinical reasoning skills. A total of thirty students were surveyed and thirty responses were received.
Results & Discussion

Listed below are the questions and summarised responses from the students who participated in the peer coaching sessions. To form the discussion, each question and response will be presented followed by a critical reflection utilising relevant literature to inform the discussion.

Responses to Question 1): Please rate the usefulness of using peer coaching as a method of developing your clinical reasoning skills on a scale of 0-10, with 0 being no help at all and 10 being the most helpful.

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<td>12</td>
<td>7</td>
<td>8</td>
<td>3</td>
<td>30</td>
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The responses to question 1 clearly suggest the students felt peer coaching was a useful method to develop their clinical reasoning skills. Developing problems solving skills has been suggested to be most effective in a situation or environment where students felt free to test out their thinking skills, discover approaches and explore alternatives that may not match other clinicians’ solutions (May & Newman, 1980). Consequently, fear of negative appraisal (from a superior) may inhibit this. Erickson (1987) pointed out that in situations where novice performers are subjected to continuous evaluation they are likely to be reluctant to test out their thinking. Using peer coaching appears to have fostered an environment that has allowed useful discussion, exposure of the students’ thoughts and encouraged a more effective restructuring of knowledge to take place. The cognitive load of clinical reasoning challenges the capacity of the working memory and can create a very stressful and anxious time (Ladyshewsky, 2010). The positive responses to question 1 suggest the support of peer coaching can be valuable in overcoming these stressors; it can reduce errors and allow an increase in practice efficacy.

Responses to Question 2): Do you feel asking the questions as a peer coach also helped develop your clinical reasoning skills?

<table>
<thead>
<tr>
<th>YES</th>
<th>SOMEWHAT (or synonyms)</th>
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<tr>
<td>26</td>
<td>4</td>
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Responses to Question 3): Can you explain your answer to question 2?

Of the 26 that responded ‘YES’ to Question 2, 25 made reference to either questioning themselves more or developing thinking and reasoning skills: ‘you come up with your own answers and can debate the reasoning with the student physio’ and ‘got you thinking about why questions and procedures are being performed’ and ‘...asking questions as a coach allowed me to think about the questions I might be asked yet didn’t know the answer to, I thought more deeply about what I may be asked whilst getting the answer’ and ‘it helped me think and look deeper into the reasons to ask / do certain things along an assessment’. 1 made reference to ‘getting in the mind set for what you will be expected to know and discuss’.

Three of the four that responded with ‘SOMEWHAT’ (or synonyms) made reference to being underprepared: ‘more useful later on in the module as knowledge of clinical reasoning developed’ and ‘...in the first 3-4 weeks I felt that I could not do the role very well as my own understanding of things was limited / developing’ and ‘at times, depending on how far in front you are with reading...’. One made reference to favouring the role as the student physiotherapist rather than the coach: ‘I didn’t feel that I had many questions as a peer coach, more that I benefited from others
The responses from question 2 and 3 generally (26 from the 30 respondents) suggest that students felt they benefited from acting as the coach. Twenty-five of the responses made reference to the coaching role developing their thinking skills: ‘got you thinking about why questions and procedures are being performed’ and ‘asking questions as a coach allowed me to think about the questions I might be asked whilst getting the answer’ and ‘it helped me think and look deeper into the reasons to ask / do certain things along an assessment’. This implies that acting a peer coach has a reinforcement role, encouraging the student to think about what they would do if they were in those circumstances.

Bandura (1997) described three kinds of reinforcement that influence learning outcomes. The first is ‘direct external reinforcement’. Under this form of reinforcement, people adapt their behaviour according to the consequences they experience directly. The second is ‘vicarious reinforcement’. This is the modification of one’s own behaviour by observing the experiences of others and the consequences they experienced. The third is ‘self-administered reinforcement’. This involves regulating one’s behaviour in line with given standards. Acting as a peer coach directly links with Bandura’s (1997) second type of reinforcement, where students have modified their behaviour based on an observation whilst acting as the peer coach: ‘it helped me think and look deeper into the reasons to ask / do certain things along an assessment’. As a result, acting as the peer coach encouraged the students to take an interest in self-reflection and self-knowledge. This is termed ‘emancipatory learning’ and seeks to establish the correct reason for one’s problems through critical self-awareness (Meizirow, 1981). Meizirow (1981) also argued that metacognition enhances cognition. That is, personal awareness about knowledge enhances cognition. Metacognitive skills are cognitive skills necessary for the management of knowledge and other cognitive skills and have been shown to enhance problem-solving and learning (Biggs, 1988). Higgs & Jones (2000) argue academic programmes which aim to develop students’ capacity to generate new knowledge and foster clinical reasoning skills need to be able to develop student’s metacognitive skills.

With the approach highlighted by Higgs and Jones (2000), from the responses to questions 2 and 3 it is possible to hypothesise that metacognition is being developed whilst the students are acting as the peer coach. Metacognition can be promoted by encouraging dialogue and discussion amongst peers and by leading learning groups, such as acting as the coach in a peer coaching session (Meizirow, 1981). Evidence of this can be found in the responses from students: ‘you come up with your own answers and can debate the reasoning with the student physio’. Meizirow (1981) contends that such debate helps learners to identify real problems including power relationships and institutional ideologies that may exist in their own feelings. By critiquing these, alternative perspectives can be discovered. Higgs et al (2008) state this type of emancipatory learning is critical to developing clinical reasoning skills, particularly as it may seek to develop moral, political and economic dilemmas in practice. The joint problem solving nature suggested by the feedback from students has been proposed to heighten the cognitive and metacognitive experience by consciously engaging in specific discussion at various stages of the experience (Jones, 1995).

Those who felt that they ‘somewhat’ benefited from playing the role of the coach cited two main reasons. Firstly, that they felt underprepared. For example: ‘in the first 3-4 weeks I felt that I could not do the role very well as my own understanding of things was limited / developing’ and ‘at times, depending on how far in front you are with reading...’ This is a pragmatic problem of the students requiring sufficient biomedical knowledge in order to engage in the clinical reasoning process. Not achieving this reflected a barrier for 3 students not fully benefiting from the role of peer coach. Secondly, 1 student responded ‘I didn’t feel that I had many questions as a peer coach, more that I benefited from others coaching me’. This response hints at lacking in cooperation between the coach and the student during the process. Cooperation in peer coaching is reflected on in detail from the responses to question 5 and the...
reader is directed to this section for a detailed analysis of this notion.

**Responses to Question 4): What was most helpful about using peer coaching?**

Seventeen respondents made specific reference to enjoying collaborative working to develop their clinical reasoning skills: ‘non-threatening / pressured environment, easier to relate to peers / less embarrassing than asking tutor’ and ‘learning from others and noticing what was right and wrong yourself’ and ‘it meant Friday afternoons were collaborative as a three we put our knowledge together to problem solve...’ and ‘having someone to bounce ideas off and learning from each other’.

Eleven respondents made reference to developing clinical reasoning skills, but did not mention collaborative working specifically but focused on…: ‘allowed you to complete a full assessment, then able to look at strengths, weaknesses and explain rationale’ and ‘feedback on subjective and clinical reasoning on objective’ and ‘feedback on area for development’.

One respondent thought… ‘practising verbalising what you already know’ was most useful. One respondent considered... ‘allowed you to get familiar with someone watching assessment as in viva’ was most useful.

The responses to Question 4 suggest that the students placed a high value on the collaborative nature of peer coaching and the benefits that this was perceived to have on problem solving: ‘it meant Friday afternoons were collaborative as a three we put our knowledge together to problem solve...’ Fostering peer discussion in this simulated clinical setting promotes exposure of learners’ thoughts and arguments and can allow for restructuring of knowledge through the discussion that takes place (Regehr & Norman, 1996). This collective problem-solving approach that occurs during peer coaching sessions has been suggested by Resnick (1988) to facilitate insights and solutions that would otherwise not occur by bringing to light misconceptions that have been previously directing novice practice. Indeed, this can be seen in some of the students’ feedback, for example: ‘learning from others and noticing what was right and wrong yourself’ and ‘having someone to bounce ideas off and learning from each other’. Graham (1996) found the value of discussion as one of his key themes from his qualitative study of ten physical therapy students from an entry level Master of Physical Therapy programme. The discussion with peers was seen to be the conceptualisation strategy that was key to their development.

Iwasiw & Goldenberg (1993) used an experimental design to investigate the effects of collaborative learning. Measures of cognitive and psychomotor gains of nursing students taught by peers and those taught by nursing instructors to change a surgical dressing were taken. Cognitive gains were significantly higher from the peer-taught group. Psychomotor gains also showed greater improvement in the peer-taught group. The results from Iwasiw & Goldenberg are in line with several other studies suggesting the benefits of peer discussion (Ladyshewsky (2002) and Ladyshewsky (2004)). This value of collaborative support is also seen in the comments from this survey, for example, ‘feedback on subjective and clinical reasoning on objective’ and ‘feedback on area for development’.

Two responses – ‘practising verbalising what you already know’ and ‘allowed you to get familiar with someone watching assessment as in viva’. These responses provide an indication of peer coaching being interpreted as a useful method for delivering a version of formative feedback. Asghar (2010) interviewed a group of first-year physiotherapy students to study their perceptions of the peer coaching. These interviews showed that peer coaching can play a role as a formative assessment strategy and that it helps train the process of self-regulation. Asghar (2010) also suggests that using peer coaching as a part of the formative assessment has value in promoting not only independent study, but also the social aspects of learning and creating culture where learning is shared. These social and cultural benefits are also evident from students’ responses as previously illustrated: ‘non-threatening / pressured...
Responses to Question 5): What was least helpful about peer coaching?

Eight respondents felt there was insufficient time to complete the full process: ‘you only really have time for two out of the three people in an afternoon to play the role of the physiotherapist’ and ‘didn’t always get as much done as if in a group of two’ and ‘limited time to perform a full assessment, could only do one every other week at best’.

One respondent thought ‘the pressure!’ was least helpful. One respondent highlighted ‘my fault, but I worked within the same group a lot, which has meant I’m less confident with male bodies!’ was least helpful. Three respondents considered ‘nothing’ was least helpful.

7 respondents considered that some of the questions used by the peer coach were least helpful e.g. ‘sometimes the peer coach did not ask relevant questions or questions that were too easy’ and ‘people confusing you with things that are either wrong or do not make sense to you’ and ‘quite often the peer coach may not know the correct answer to their question so you don’t get good feedback on your justifications’.

Eight respondents thought the peer coaches’ engagement in the process was least helpful: ‘some people unwilling to criticise or pick you up on things you did wrong and some people’s lack of co-operation or offence at being questioned and ‘some coaches didn’t engage as fully as others and at times it felt like you were waiting around for your turn’ and ‘if you were working with someone who didn’t really act as a peer coach, just watched what you were doing’ and ‘the level of coaching was dependent on the coach – some were very quiet and agreed with your methods so didn’t really question anything’.

Two respondents considered the process too repetitive: ‘got a bit repetitive, could have focused each session on a particular point of assessment e.g. one week subjective and next week handling’ and ‘similar questions each week’.

Responses from question 5 regarding the peer coach’s engagement such as ‘if you were working with someone who didn’t really act as a peer coach, just watched what you were doing’ and the level of coaching was dependent on the coach – some were very quiet and agreed with your methods so didn’t really question anything’ suggest that some coaching skills or pre-arranged feedback requirements may need to be developed or built into the approach before engaging in peer coaching. For a successful peer learning experience to take place Ladyshewsky (2006) suggests positive interdependence, individual accountability and group processing ability need to be present. Positive interdependence requires a cooperative goal structure to be in place and that these goals can only be attained if the others with whom the goals are linked also obtain their goals. During the peer coaching sessions no formal goal setting took place and this appears a possible reason for the coach lacking direction in feedback. In the future, asking the students to each set goals from the session, for example: ‘can you give me feedback on the balance of open and closed questions I use’, can help the coach maintain focus and attention to the student’s needs. In providing this specific feedback, the coach is being accountable for their input and facilitating the group processing in the post-assessment discussion. It is hoped this may also combat the feeling that the sessions were becoming repetitive: ‘got a bit repetitive, could have focused each session on a particular point of assessment e.g. one week subjective and next week handling’ and ‘similar questions each week’.

Some responses from Question 5 make reference to a feeling that coaching alliance is crucial to the success of reporting positive outcomes. The apathy of the coach and possible solutions have been discussed above, but other feedback suggests the process became quite evaluative: ‘some people’s lack of co-operation or offence at being questioned’. Ladyshewsky (2010) suggests that often the feedback can become evaluative in nature and this must not be a focus of the peer coaching relationship otherwise a status difference emerges between the peers. This problem
is born out of type of questions the peer coach chooses to ask. Rather than focus on what they have just observed and heard they instead focus on telling the student what they did wrong. To evade this negative response, the student may withdraw from the process and hold information back as to avoid being questioned. Ladyshewsky (2010) proposes that to avoid this evaluative process the peer coach should avoid ‘why’ questions as it alters the status dynamic between players and often makes the student defensive. Instead, they should focus on supporting the student by asking open ended questions, actively listening and probing the student during the self-assessment process. The perception of a status difference may also explain why some kept to their own groups - ‘my fault, but I worked within the same group a lot, which has meant I'm less confident with male bodies!’ and why another felt ‘the pressure!’ from the sessions.

With regard to the student feedback about the time available for the session: ‘you only really have time for two out of the three people in an afternoon to play the role of the physiotherapist’ and ‘didn’t always get as much done as if in a group of two’. The reader is directed to the responses from Question 2 and 3 regarding the benefits felt by the students from the coaching role. It is not thought that during the session, should one student not have time to be coached that this significantly negatively impacts on their learning. It is also hoped that this format can be translated to self-directed work and that any ‘lost’ coached time can be made up for as necessary.

Responses to Question 6): Would you have preferred a different format for Friday afternoon sessions?

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<th>YES</th>
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<th>UNSURE</th>
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<tr>
<td>5</td>
<td>24</td>
<td>1</td>
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Responses to Question 7): if yes what would you suggest?

Of the 24 respondents who would not have preferred a different format 3 made suggestions to improve the sessions: ‘write things on the board for the peer coach to think about / ask’ and ‘maybe more time practising the end discussion instead of questions chucked in as you do the subjective / objective’ and ‘I think it worked well but it may work better if roles were pre-delegated so everyone does each’.

The respondent who was unsure suggested: ‘as the weeks progressed, maybe more focus on the exercise prescription and patient education – felt like I did subjective and objective over and over’.

The 4 respondents who would have preferred a different format suggested: ‘quiz on what needs to be asked, why and how and discussing things as a whole group’ and ‘shorter peer coaching session – 3 hours too much’ and ‘revision session of the weeks work with peer coaching in the morning’ and ‘yes – possibly done in the morning – having three in a group to go around gets tiring by last thing of the week’.

The responses from Questions 6 & 7 suggest the students overall would not have preferred something different instead of using peer coaching. Some suggestions for improvement have already been covered previously in this discussion. For example, by utilising goal setting and enhancing the peer coach’s accountability it is hoped that the comments: ‘write things on the board for the peer coach to think about / ask’ and ‘maybe more time practising the end discussion instead of questions chucked in as you do the subjective / objective’ and ‘I think it worked well but it may work better if roles were pre-delegated so everyone does each’ and ‘as the weeks progressed, maybe more focus on the exercise prescription and patient education – felt like I did subjective and objective over and over’ will be addressed by increasing each individual’s responsibility for the success of the process. By ensuring the peer coaching sessions are tailored to the participants needs it is also hoped that this will address the comment: ‘quiz on what needs to be asked, why and how and discussing things as a whole group’ and ‘shorter peer coaching session – 3 hours too much’. As
discussed earlier, these are the types of questions that participants in the peer coaching session could set out as goals to reach at the outset of each session.

Of the 4 respondents who would have preferred a different format, 3 make reference from changing it from a Friday afternoon, as: 'revision session of the weeks’ work with peer coaching in the morning and ‘yes – possibly done in the morning – having three in a group to go around gets tiring by last thing of the week’. Friday afternoon sessions were chosen as it allowed for the rest of the preceding week to develop the knowledge-base for example of physical examination skills with a view to these being employed in the simulated patient scenario. It would not be possible to have the simulated patient scenario before the students have developed adequate skills and related knowledge. Each week the students were learning new skills for example shoulder examination one week and hip examination the next, again reinforcing that it would not be possible to have the simulated patient scenario and peer coaching session earlier in the week as each week the students were developing a new knowledge and skill set.

Conclusion

The feedback obtained from the students participating in peer coaching suggests that they found it a beneficial, enjoyable and a productive method for developing clinical reasoning skills. The critical review has identified areas in the peer coaching process which need to be addressed to enhance students’ perceptions of its relative usefulness. This includes a pre-coaching session to explicitly identify the purpose of peer coaching, clarifying the each student’s role, and ensuring the students have pre-identified goals for each peer coaching session.

In a wider picture, the encouragement of including peer coaching whilst students are in clinical placements should be considered. The logistics of available placement spaces can often be short and the evidence from this survey suggests that students and clinicians may benefit from a 2:1 ratio of supervision which could be highlighted in clinical educator training.

Take Home Messages

- Students perceive peer coaching as beneficial to developing clinical reasoning skills
- Peer coaches should pre-identify goals for each session
- Ensure the purpose of peer coaching and the responsibility of each student is clear prior to commencing peer coaching sessions.

Notes On Contributors

Adrian Mallows: Adrian qualified as a physiotherapist in 2002 and has worked in both NHS & private sectors. Adrian has been in physiotherapy education for 3 years and has taught undergraduate and postgraduate students.

Mark Francis-Wright: Mark qualified as an occupational therapist in 1983 and since then he has practiced in the fields of learning disability and mental health/forensic mental health. Mark has been in occupational therapy education for 18 years and has taught undergraduate and postgraduate pre- and post-registration health students.
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Appendices

Declarations

The author has declared that there are no conflicts of interest.