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Developing 21st century graduate attributes: incorporating novel teaching strategies in a physiotherapy curriculum

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Abstract

Given the continuing economic climate, the issue of employability: the acquisition of a range of knowledge, skills and attributes that support continued learning and career development, is high on the agenda for many Higher Education Institutes (HEIs). To address employability Scottish HEIs have identified a set of attributes that are considered necessary for graduates in the 21st century. However, teachers often assume students automatically master generic skills that enhance employability throughout their course, while the explicit teaching of generic skills is recognised as difficult given already full programmes.

The current report describes the background to incorporating novel teaching strategies, aimed at increasing students' generic skills, into the curriculum of level 1 physiotherapy students in a west of Scotland university. To support the inclusion of new strategies, the authors also investigated the knowledge and perceptions of level 1 physiotherapy students relating to generic skills. Level 1 Physiotherapy students were invited to participate in a focus group, with the aim of ascertaining issues of relevance and concern to the cohort. This was undertaken to ensure the novel teaching strategies would be relevant to the needs of the students on the programme. A total of eight students contributed to the focus group. Thematic analysis was undertaken on the data, and three themes were identified reflecting the shared student experience: importance of peer feedback, perceptions of lack of knowledge, and low confidence levels. The three themes are discussed in relation to generic skills, along with an overview of the strategies that were developed for implementation.

Introduction

In the continuing economic climate improving graduates' chances of employment at the completion of their studies can be challenging for Higher Education Institutes (HEIs). Employment figures are often used when ranking academic institutions, and can therefore be used as an important criterion for potential applicants. Consequently, employability: acquiring a range of knowledge, skills and attributes that will support continued learning and career development, is high on the agenda for many HEIs.[1] To address this, HEIs have identified a set of attributes that are considered necessary for graduates in the 21st century.[2] Graduate attributes include discipline specific knowledge; communication skills; leadership; a commitment to learning and research; as well as creativity and confidence.[3] Attributes ideally should be possessed by all students, certainly by the time of graduation, thereby enhancing their chances of, and indeed choices for, employment. At this point clarity of terminology needs to be made: while an attribute suggests a characteristic or quality that is intrinsic to an individual, a skill can be viewed as ability that is usually acquired through some form of training. In the context of this paper the words "graduate attribute" and "graduate skill" will be used interchangeably as both are considered to result from learning in higher education. Using the word "generic" before skills or attributes refers to qualities held by individuals that are transferrable across education and workplace environments, are valued by employers, and are important for employability.[4]

While it is expected students will be graduating with generic attributes and skills that enhance their employability, learning of these should begin (and be embedded) early on in students' learning programmes, as these same skills and attributes are required for successful completion of their degree. Learning in HEIs is not just about acquiring knowledge and a specific set of skills related to the course programme, but also involves personal change and development, which should facilitate learner autonomy.[5] While disciplinary grounding is important in the first year of a student's programme, so too is the ability to critically appraise their own work; to communicate effectively with others in the learning environment and having the confidence to do so; and very importantly, moving from academic dependency to taking responsibility for their own learning needs. Thus, higher education is transformative, and learning and teaching strategies need to ensure this happens from the beginning of a student's course.

Although the concept of generic skills, which embraces communication, critical thinking and problem solving, appears unambiguous, it has been argued that the teaching of generic skills is not as straightforward as current thinking would indicate.[6] Jones states that while generic skills are valued by teaching staff, and seen as integral to the degree, they are not explicitly taught and might even be assumed to be skills already possessed by the students. Therefore, with HEIs emphasising the importance of graduate attributes, teaching staff can no longer assume students automatically pick up such skills. As the explicit teaching of generic skills will necessarily take time in already full programmes, incorporating them in the curriculum will require some creative thought.

So what might assist the explicit teaching of generic skills in the classroom? Lindblom-Ylanne et al.[7] identify a shift from the teaching of facts and low-level cognitive skills that are tested via examinations, to an emphasis on assessment of students' learning of competencies and higher-order thinking skills, such as evaluation, critical thinking and problem-solving. While this provides a necessary framework to approach the issue, providing feedback on the students' proficiencies is also required, as feedback has been noted as a positive and powerful influence on students' learning and achievement, occurring through both formative and summative assessments.[8,9] Providing specific feedback on students' competencies and higher-order thinking skills should help students develop the generic attributes students in higher education require. However, feedback has traditionally been a process of transmission from the teacher to the student, and this one-way transference of information does not necessarily result in improved learning. Instead, the careful development of appropriate teaching, learning, assessment and feedback strategies are required to ensure feedback is realizing its potential to facilitate the acquisition of competencies, such as critical thinking and problem solving.

Using feedback to enhance learning

More recent critiques of feedback mechanisms suggest students should be actively constructing their own knowledge,[10] which should also enable students to acquire the skills for life-long learning.[11] One method is suggested by Nicol[10] who proposes a dialogue between student and teacher, rather than a one-way transmission of feedback. Influenced by a social constructivist approach to learning: learning by the construction of knowledge in social contexts,[12] this strategy should facilitate an 'inner dialogue' within the student, allowing the student to understand the teacher's intended meaning as well as actively use their new

knowledge in future work.[10] Nicol refers to inner dialogue as the student "…actively decoding feedback information, internalising it, comparing it against their own work, using it to make judgements about its quality and ultimately to make improvements in future work" (p. 504). However, with increasing student numbers and time constraints in higher education, committing time for teaching staff to engage in individual interactions with students will not always be practical. Other ways of producing an inner dialogue for students are therefore necessary. One method involves the use of peers in the assessment process, where students provide feedback to their fellow students.[13] Judging others' work requires the ability to evaluate and appraise output of their peers. It is suggested that exposure to others' efforts should then help the student appraise their own work. Taras[14] links the ability to self-assess as an important attribute for students to become independent learners and practitioners; yet another generic skill.

In summary, for students to be able to effectively self-appraise their own work, strategies should be in place that ensure students move from the dependency of feedback by their teachers to being able to judge the quality of what they are doing themselves.[15] Formative assessment tasks and other teaching and learning strategies, therefore, need to be carefully designed and carried out to move students along this trajectory, building on their ability to provide feedback to their peers, and thereby assisting the development of their self-appraisal skills.

Prior to the development and incorporation of novel learning and teaching strategies to enhance self-appraisal and peer feedback into the classroom the authors wished to understand the current perception of physiotherapy students in their academic institution regarding these two themes. This was undertaken to ensure new teaching strategies would be relevant to the needs of the students on the programme. This study therefore reports on Level 1 physiotherapy students' perceptions of self-appraisal and peer feedback, and outlines the strategies that have since been utilised in the classroom.

Methods

A qualitative methodology was chosen to explore the perceptions of learning in students' first year in higher education, as it provides rich descriptions of students' understandings. Ethical approval was obtained from the university's Learning Research Ethics Committee prior to commencement of the study.

Participants

Approximately 75 students are enrolled in any one year of the BSc (Honours) programme for Physiotherapy. All students in level one physiotherapy cohort were invited to participate in the research project at the completion of their first year of physiotherapy studies. Emails were sent to all level 1 physiotherapy students via the university Virtual Learning Environment email system. As the data collection period coincided with a busy time of the academic year for students, only 8 students replied, and all eight participated in the research. The 8 students consisted of a mix of males and females, the majority of whom were mature students (i.e. they did not enter the programme straight from school).

Data collection

A focus group was chosen as this method of data collection incorporates an element of peer discussion, whereby participants would be able to explore and expand on other group members' comments. This would enable more in-depth discussion and clarification of unique and shared experiences and perceptions of the phenomena. While Holloway and Wheeler[19] state focus groups can comprise between 4 and 12 participants, eight students in the focus group allowed for an adequate variety of perspectives.

The focus group was facilitated by one of the researchers (JS) who has experience with qualitative research, but who had not been involved in teaching the level 1 physiotherapy cohort. The focus group lasted one hour, and took place in a meeting room where refreshments were provided for participants. Informed consent was obtained from each participant prior to the commencement of the focus group.

Focus group questions centred on student understanding of the nature and relevance of feedback to learning; their understanding of self-appraisal; and experiences of providing feedback to peers during classroom

learning activities. Probing questions were used to elucidate further detail, while specific questions were included at appropriate junctures, to identify students' thoughts and suggestions regarding teaching methods (see Appendix 1 for structure and questions used in the focus group).

The focus group was audio-recorded, and later transcribed. To ensure anonymity, participant's names have been changed to pseudonyms.

Data analysis

Focus group data was analysed using Thematic Analysis (TA), an interpretative qualitative method of data analysis that is a flexible research tool, able to identify and analyse patterns in qualitative data, and which transcends a range of theoretical approaches.[16]

The focus group transcript was analysed manually and independently by two researchers (CS & JS). Themes were generated in a deductive manner; therefore driven by the theoretical interest of the researchers, and identified at a manifest (explicit) level.[17]

Analysis began by an initial reading of the data for the researchers to familiarize themselves with the transcript. Reading the transcript was repeated a number of times for the researchers to become further immersed in the data, and to generate initial codes, which were related to the specific research questions.[20] Therefore, interest focused on comments related to generic skills. The entire transcript was coded and repeated patterns or themes (associations between comparable issues) were noted. These emerging themes were checked for relevance to the transcript. Overarching themes were then identified, and again reviewed to ensure they were relevant to the entire data set. At this stage both researchers undertaking the analysis compared themes and discussed any variations. Final themes accounted for the participants' understanding that emerged from the transcript.

Results of the Focus Group

Following analysis of the focus group transcript, three themes were identified that accounted for the participants' experiences and understanding, and each have been named using the words of the participants themselves:

It's really beneficial to give and get feedback; I don't know if I'm doing the right thing; It all comes down to confidence. This section will discuss each theme in more detail.

1. *It's really beneficial to give and get feedback*

In line with previous research, the physiotherapy students overwhelmingly saw the importance of feedback from their tutors, which they viewed as a very constructive process. Feedback provided the students with guidance, allowing them to gain greater understanding of both knowledge and skills acquisition relating to their course. There was consensus on what constituted "good feedback"; that it be supportive, provide better understanding, and provide the student with suggestions for how to improve their work.

> *It's (feedback) good because it gives you a bit of understanding.* Ppt 1

> *You get feedback … which was good. It was quite beneficial because I think you are very much in the dark…you don't really know what kind of expectations there were for you to kind of meet.* Ppt 6

Participants felt feedback they were getting in their first year was a two-way process between themselves and their teachers, and interestingly they also noted that feedback from their peers was useful. Indeed, they felt the giving and receiving of feedback to each other was a positive learning experience:

> *It makes you more observant. You're critically analysing another group more because you're seeing what, comparing it to yours and seeing what the differences are.* Ppt 8

A number of participants commented on how the feedback from their peers was at times more direct and critical, as well as being more negative, than from the tutors. The students saw this as a good thing as they

valued constructive criticism. While participants felt tutors often paid attention to not hurting the recipient's feelings, they saw their peers as being more open and honest. However, there was also consensus that providing good feedback to their peers was difficult, as they acknowledged they lacked the skills and confidence to do so appropriately and effectively.

2. *I don't know if I'm doing the right thing*

The second theme related to participants' perceptions of lack of knowledge, and is encompassed by the above quotation. Lack of knowledge is linked to the first theme, that is, their need for personal feedback to enhance their learning, and having the confidence and skills to give useful feedback to their peers. When the discussion centred on the participants' understanding of and ability to self-appraise, lack of knowledge and confidence to do this was also apparent. Instead participants were reliant on external appraisal, rather than their own:

> *… you're not going to know if you're doing this right or wrong unless someone tells you. You need a second opinion, I think.* Ppt 4

> *I think you always need that wee bit of reassurance and feedback; reassurance, to say, "No, that's right," or, "Change this, change that."* Ppt 6

Interestingly, students saw reflection as a form of feedback and self-appraisal, however, most of the participants appeared to struggle with this. However, of the participants that felt they were able to reflect and self-appraise, there was a tendency to focus on negative aspects of their work rather than the positives, which suggests a lack of confidence in their abilities. Indeed, confidence appeared to underpin the first two themes, and emerged as a feature in its own right.

3. *It all comes down to confidence*

Low confidence levels were interwoven throughout the focus group transcript, and related to a number of issues, including their reflective (self-appraisal) abilities, providing feedback to their peers, and their ability to speak in front of a class. The majority of the participants discussed their lack of confidence in their ability to self-appraise, as noted above, and exemplified in the following quotation:

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> *And I think again it's a confidence thing, it's having the confidence to say that, "I did that really well," when you're maybe not so sure if you did it really well. And again I think that's confidence.* Ppt 2

Despite the acknowledgement that peer feedback was a good learning experience, students were unsure of their abilities at providing feedback to their fellow students, especially in front of the class which they found daunting. It was noted that it was often the same few students who spoke out in class, while the majority of students seemed content to let the more vocal, or confident students, voice their opinions. How to encourage the quieter students became a focus for discussion, with practice being identified as a crucial means for achieving this. The participants were also able to see the transferability of speaking out in front of other people in their professional life, and realized the importance of giving feedback, and having the confidence to do so.

> *I think it's practice as well. When I came to Scotland and I'd done my first HND course in [X] I was really shy; I was always quiet, but I think it comes with practice.* Ppt 3

> *But also it's good to practice this because we're going to be facing patients, so it's good to get rid of this shy problem in the first year.* Ppt 4

Discussion and Conclusion

For the purposes of the current study, thematic analysis was able to identify shared patterns in students' accounts of their classroom experiences and understanding of feedback in their first year As with previous research, the students overwhelmingly identified the importance and usefulness of feedback for future learning. Interestingly the participants in the current study valued the open and honest feedback they received from their peers, suggesting they welcome peer feedback, both positive and negative, as a chance to move forward. Their perception of their teachers as not wanting to hurt their feelings when negative feedback

is required, suggests a diminution of the power differential between teacher and student, that has been identified in previous literature, as a potential issue.[18]

Feedback also needs to be timely, so that the student can use feedback for future learning and assessments. Despite the negative perceptions of peer feedback that has been identified by other authors[19, 20, 21] the positive view that the participants in the present study articulated concerning feedback provision by their fellow students was very encouraging, and confirmed peer feedback as an integral and regular aspect of classroom activities, that addresses the timely requirement for feedback. For Participant 8 in the current study, providing feedback on others' work helped him/her identify differences between their own and that of others', suggesting the beginnings of a 'critical eye', and therefore nascent self-appraisal.

Providing repeated opportunities for discussing others' work as students give and received feedback, reduces the novelty of the process, and should result in enhanced confidence in students' verbal communication skills: skills noted by the participants to transfer to professional practice (see comment from Participant 4, above). With this in mind, teaching and learning strategies were designed to integrate the learning of discipline specific skills with generic skills in two level 1 modules. Along with providing feedback related to discipline specific knowledge and skills, students would begiven ample practice at leading, and taking on the responsibility for the effective functioning of their group in which these activities take place (leadership being a key 21st Century Graduate attribute), as well as providing a summary of the activities to the whole class. Following the research process, new learning and feedback activities were undertaken by the next Level 1 cohort in a low-stakes environment throughout the 12 week teaching period, prior to the students' high-stakes summative assessments. To assist the students in their endeavours, the students were given 'helpful hints' and a framework to help them structure their feedback, posted on the university's VLE. Assisting them in this way is an example of 'scaffolding', which is a key learning concept in social constructivist learning theory.[22]

Yet another aspect, for peer feedback activities to be successful students need knowledge of appraisal terms and concepts,[13] as well as the confidence to knowledgably discuss the quality of their peers' work. The perception of lack of knowledge and low confidence were the final two themes identified from the transcripts. The participants focussed on this in relation to their abilities in self-appraising their own performance, for

example reflecting on their practical skills (see quotation from Participant 2 above). To facilitate student familiarity with the use of appraisal terms and concepts, while helping guide their feedback discussions, an assessment rubric was introduced as part of the learning strategy. The rubric was a template consisting of performance descriptors that clearly specified the expected outcomes of a task, provided students with a structured way of giving feedback, and was incorporated in the learning and feedback strategy throughout Trimester A, after its introduction in Week 6. Stevens and Levi[23] indicate the use of performance descriptors in an assessment rubric does indeed improve communication amongst students, and results in enhanced learning.

Furthering communication amongst students that specifically focused on critical appraisal of work, allows the students to engage in critical thinking; one of the key generic skills required of students in HE. Familiarity in providing feedback to others should also lead to increasing confidence at reflecting on their own performance, thereby facilitating students' "inner dialogue", as suggested by Nicol.[10] Self-confidence and reflection are linked in Dacre Pool & Sewell's[4] model of employability, whereby reflecting and evaluating learning experiences results in the student developing greater degrees of self-efficacy, self-confidence and self-esteem. Dacre Pool and Sewell identify these internal attributes as crucial links to employability.

Based on current evidence, and following the focus group discussion, a mix of classroom strategies, were developed and have since been implemented in two Level 1 physiotherapy specific modules:

1. Providing students with "What went well - what didn't go well" proforma to all students in practical classes to help students reflect on their own performance (self-appraisal), and to help structure feedback to their peers. As this was undertaken on a regular basis, giving structured feedback became a common activity that assisted group discussion on what constituted accurate skills and appropriate knowledge, aiming to improve their analytical thinking within a group setting, and their communication skills.

2. Rotating leadership, whereby all students were expected to lead their group for at least one week. Responsibilities included timetabling group meetings, chairing the meetings, delegating tasks to other

group members, giving out and collating the feedback from the "What went well' - 'what didn't go well" sheets, and providing a short summary of the results to the rest of the class.

3. The use of an assessment rubric in one of the level 1 modules. Class tutors instigated group and class discussions around specific skill acquisition tasks, specifically relating to the expectations of good performance within the rubric.

4. Posting supporting information on the university's Visual Learning Environment (VLE) that included "Guidelines for Group Work"; videos and advice on communication and effective feedback; information on employability skills.

There were a number of limitations to the current study. Only one focus group was undertaken, however this was due to the timing of the focus group, and related to the availability of students to participate. The majority of participants were mature students; therefore they may not be representative of the entire cohort. While new learning and teaching strategies were informed by concerns identified from the focus group: that of the students' lack of confidence and perception of poor knowledge, the developed strategies were to be used in the next cohort of Level 1 students. In this respect the researchers made the assumption that the same issues would apply to the next cohort. However, previous experience of the researchers in teaching level 1 Physiotherapy students had identified the prevalence, albeit anecdotally, of similar issues in previous cohorts. In this way the strategies have been applied to the needs of a specific programme.

Lastly, an element of realism is needed to ensure there is not an over-reliance on student practice of supportive strategies to improve confidence. Yorke[24] states that for some students their psychological status can overpower the effect of good supportive feedback, with the result that lack of confidence can remain and adversely affect outcome of the student's studies. In such cases where psychopathology can impede improvements in confidence, other approaches will need to be put in place.

The outcome of the focus group helped inform the authors' subsequent actions to integrate the teaching of profession specific knowledge and skills with generic skills, beginning in the first year of the programme. It was felt careful planning of strategies to enhance confidence could also support other skills and attributes, such as communication, team-working and leadership. Evidence-based teaching activities have since been added to the programme, facilitating students of all abilities and confidence levels to develop and build on important knowledge and skills necessary for successful completion of their studies.

Evaluation of the strategies that were developed will be presented in a future paper.

Declaration of Interests:

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Appendix 1: Topic Guide for Focus Group:

Introduction:

- Welcome participants and introductions
- Explain the general purpose of the discussion and why the participants were chosen.
- Discuss the purpose and process of focus groups
- Explain the presence and purpose of recording equipment.
- Outline general ground rules and discussion guidelines such as the importance of everyone speaking up, talking one at a time, and being prepared for the moderator to interrupt to assure that all the topics can be covered.
- Review break-schedule and where the toilets are.
- Address the issue of confidentiality.
- Inform the group that information discussed is going to be analysed as a whole and that participant' names will not be used in any analysis of the discussion.
- Read a protocol summary to the participants.

This study is intended to elicit and clarify the knowledge, attitudes and experiences of level one students related to assessment, group work and feedback.

We would like the discussion to be informal, so there's no need to wait for us to call on you to respond. In fact, we encourage you to respond directly to the comments other people make. If you don't understand a question, please let us know. We are here to ask questions, listen, and make sure everyone has a chance to share.

If we seem to be stuck on a topic, we may interrupt you and if you aren't saying much, we may call on you directly. If we do this, please don't feel bad about it; it's just our way of making sure we obtain everyone's perspective and opinion is included.

We do ask that we all keep each other's identities, participation and remarks private. We hope you'll feel free to speak openly and honestly.

As discussed, we will be tape recording the discussion, because we don't want to miss any of your comments. No one outside of this room will have access to these tapes and they will be destroyed after our report is written.

Background:

Let's start by introducing ourselves. Can we go round the group one by one, tell us your name and a little bit about yourself, including:
- *What group you are in*
- *Why you decided to study physiotherapy*
- *What experience you have had of further education, if any*

Assessment:

"Assessment defines what students regard as important, how they spend their time and how they come to see themselves as students and graduates" (Brown and Knight 1994, p12)
- *Please discuss this statement*
- *How do you see assessment?*
- *How do you think it affects your learning?*
- *Can you describe some examples, from your current learning, of self-assessment?*

Group Work:

"Students are capable of performing at higher intellectual levels when asked to work in collaborative situations than when asked to work individually" (Gokhale 1995, p28)

- *Please discuss this statement*
- *Do you enjoy working in groups and why?*
- *What, in your opinion, makes a good group?*

Feedback:

"Feedback is Information describing students' performance in a given activity that is intended to guide their future performance in the same or in a related activity" (Ende 1983, p777)
- *Please discuss this statement*
- *How do you feel the feedback you receive affects your performance?*
- *Can you give some examples of times you have received feedback on your performance?*

Closing:

- *Closing remarks*
- *Thank all participants*

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