Using student centred evaluation for curriculum enhancement: An examination of undergraduate physiotherapy education in relation to physical activity and exercise prescription

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ABSTRACT

The purpose of this study was to examine physiotherapy students' perceptions of current education content of entry-level physiotherapy programmes in terms of physical activity (PA) and exercise promotion and prescription (EPP). Sixty-two physiotherapy students from three Irish Universities participated. Three Structured Group Feedback Sessions (SGFS) were conducted. Using open-ended questions, group opinions were sought in relation to their PA and EPP education. In accordance with SGFS methodology, comments that received majority support were recorded. Data were analysed using 'Framework Analysis' methodology. Emerging themes related to (i) course content, (ii) clinical education, and (iii) methods of teaching and learning. The SGFS approach was found to be a useful method, providing an opportunity for students to substantiate and expand on their views.

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Background

Worldwide, physical inactivity has become a major risk factor for chronic non-communicable diseases and is one of the most important public health issues of the 21st century (Blair, 2009). It has been suggested that physical activity (PA) and exercise promotion and prescription (EPP) become a standard part of a disease prevention and treatment paradigm (Sallis, 2009) and that health professionals in clinical medicine, exercise science and public health become more aggressive in implementing PA recommendations (Blair, 2009; Sallis, 2009; WCPT, 2009).

Incontestable epidemiological trends highlight the fact that for the foreseeable future, illness care will be dominated by an escalation in lifestyle related diseases such as hypertension, obesity and diabetes, diseases in which physical activity has proven to play a significant role in both their prevention and management (Dean, 2009a).

In concordance with this, physiotherapy professional bodies worldwide have testified that it is crucial that "the profession enhance its perception, knowledge and skills in contemporary and emerging health trends and the delivery of care in several areas including health promotion and wellness, healthy aging and

physiotherapists as exercise experts" (APTA, 2006; WCPT, 2009). In order to address these needs, the World Confederation of Physical Therapy and the American Physical Therapy Association, through its Educational Strategic Plan (2006–2020) recommend professional bodies identify the scope of what is being taught at entry level. Despite these clear recommendations, consensus curricula for PA and EPP education in undergraduate physiotherapy do not exist.

In Ireland, the Irish Society of Chartered Physiotherapists (ISCP) is the sole body representing the physiotherapy profession and, as such, it establishes and maintains educational accreditation and ethical standards. In terms of curriculum content, specifications are broad and experience of clinical practice in a diverse range of settings recommended (Blake, Cusack, Doody, & Hurley, 2007). In the United Kingdom, the Health Professions' Council (HPC) regulates the profession. The Council's interest is the extent to which the programme will ensure entry to the register of appropriately qualified, safe and effective practitioners. However, the HPC does not prescribe curriculum content (Bithell, 2007). The Chartered Society of Physiotherapists (CSP) as the professional membership organisation is empowered to recognise and accredit programmes. The CSP publishes a Curriculum Framework which must be used as a basis for the development and review of all professional entry-level programmes (CSP, 2002). The core activities of assessment, clinical reasoning goal setting, intervention and evaluation are presented. Expectations about the nature of the learning processes are strongly stated, with emphasis on active

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and student-centred learning. In relation to curriculum content, on the other hand, there are far less prescriptive requirements (Barclay, 1994). Curricular content in physiotherapy programmes has been addressed in a number of studies focusing on topics including pain (Scudds, Scudds, & Simmonds, 2001), geriatrics (Wong, Stayeas, Eury, & Ros, 2001), paediatrics (Cherry & Knutson, 1993) and electrotherapy (Chipchase, Williams, & Robertson, 2005), but none have investigated PA and EPP, highlighting the need for evaluation of this topic.

Curriculum evaluation requires cooperative activity involving multiple interests, including those of the students. Student feedback can be a valuable source of input in particular when it identifies knowledge, skills and competencies that help prepare students for future employment (Diamond, 2009). Only students experience the curriculum in its entirety, making their views as valuable as those of individual staff (McCuddy, Pinar, & Gingerich, 2008). Moreover if students see their feedback being incorporated into curricula, this could generate more active participation by students in developing their competencies, in turn, enhancing their commitment to learning and learning outcomes (Walton & Matthews, 1989). In short, student input to curriculum evaluation is critical because students constitute an important stakeholder, if not the most important group, in educational enterprises (McCuddy et al., 2008).

Traditional methods of gathering student feedback on curricula generally involves filling in questionnaire rating scales on which students rate aspects of their course (Ashcroft & Foreman Peck, 1994; Marsh & Dunkin, 1997). However, if the primary purpose of evaluation is to gather information to improve course quality then the use of rating scales has been shown to be problematic as curriculum developers only find out about what is asked which may not necessarily respond to the students' greatest concerns (Chapple & Murphy, 1996; Husbands & Fosh, 1993; Saffran, Conran, & Lacher, 1994). Another popular approach is using focus groups. Focus groups are a form of group interview that capitalises on communication between research participants in order to generate data; focus groups explicitly use group interaction as part of the method (Kitzinger, 1995). Participants are encouraged to talk to one another and are stimulated to develop their initial response in relation to the comments of the other participants. Through discussion and debate, a more elaborate group view can then be gained which builds upon individual views. However, the main limitation of focus groups is that there is no opportunity for uninterrupted personal thought, views obtained will be those of the most dominant or vocal members of the group, rather than those of the majority and articulation of group norms may silence individual voices of dissent (Kitzinger, 1995).

An alternative approach to collecting student feedback, previously used in university settings is 'Structured Group Feedback Sessions' (SGFS). Although a number of universities have used the SGFS technique as a means of eliciting student opinion about aspects of a course, a search of the education literature yielded limited results (Brennan & Williams, 2004; Scott, 2003). SGFS is a group feedback session with a three staged process; giving students time to think through their own views before being confronted with other people's, allowing for modification of extreme or minority views and affording students the opportunity to reach a group consensus on the issues they considered to be most important. It also gives the group facilitator a more neutral role and ensures the outcome is fully recorded (Gibbs, Habeshaw, & Habeshaw, 1988).

For these reasons, SGFS was used in this study to evaluate physiotherapy undergraduate curricula in relation to physical activity (PA) and exercise promotion and prescription (EPP), from final year physiotherapy students' perspectives'.

Method

Sample recruitment

All final year students on the BSc Physiotherapy Degree (n = 135) in three Irish Physiotherapy Schools were invited, via email to attend feedback sessions, investigating PA and EPP content of their physiotherapy undergraduate curricula. They were informed the main purpose of these feedback sessions was to gather feedback on the physical activity and exercise aspects of the curriculum. At the time of recruitment, all students had completed the clinical (1000 h) component of the course and were within three months of gaining professional qualification. Sixty-two (male n = 14) out of a total of 135 (45.9%) final year students participated in the SGFS. The three physiotherapy schools that participated run a four year programme and are accredited with the regulating bodies and professional bodies for the physiotherapy profession in Ireland (ISCP) and internationally (WCPT).

Procedure

One SGFS was conducted in each of the three participating universities (University A: n = 18, University B: n = 24, University C: n = 20). The sessions were conducted in a spacious room within each physiotherapy school. This location was chosen as it was easily accessible, familiar to the students and they were used to expressing their opinions openly in these surroundings.

Facilitators

Each session was conducted by two facilitators. The principal researcher (GO'D) moderated each session. Neither the principal researcher nor the assistant facilitator was known to the participating students. The assistant facilitator observed the participants' behaviour during the session and took notes on the discussion.

Structured Group Feedback Session (SGFS)

Each SGFS was scheduled for 90 min and the following protocol was used for all three sessions (Gibbs et al., 1988), as illustrated in Fig. 1.

Opening section

The facilitator welcomed the group, presented the purpose and context of the meeting, explained how it would flow and introduced herself and the assistant facilitator.

Course evaluation

The feedback section was divided into three distinct stages

Stage 1: Students work alone
The students were presented with three opened ended questions exploring (i) good and (ii) bad features of the course and (iii) what they would like to see changed in terms of PA and EPP education. Each student worked alone for approximately 10 min allowing time for uninterrupted thought and recording of their ideas without input from others.
Stage 2: Students work in small groups
Upon completion of stage 1, the students formed small groups (University A = 3 groups, University B = 4 groups, University C = 3 groups). Each group was instructed to discuss their
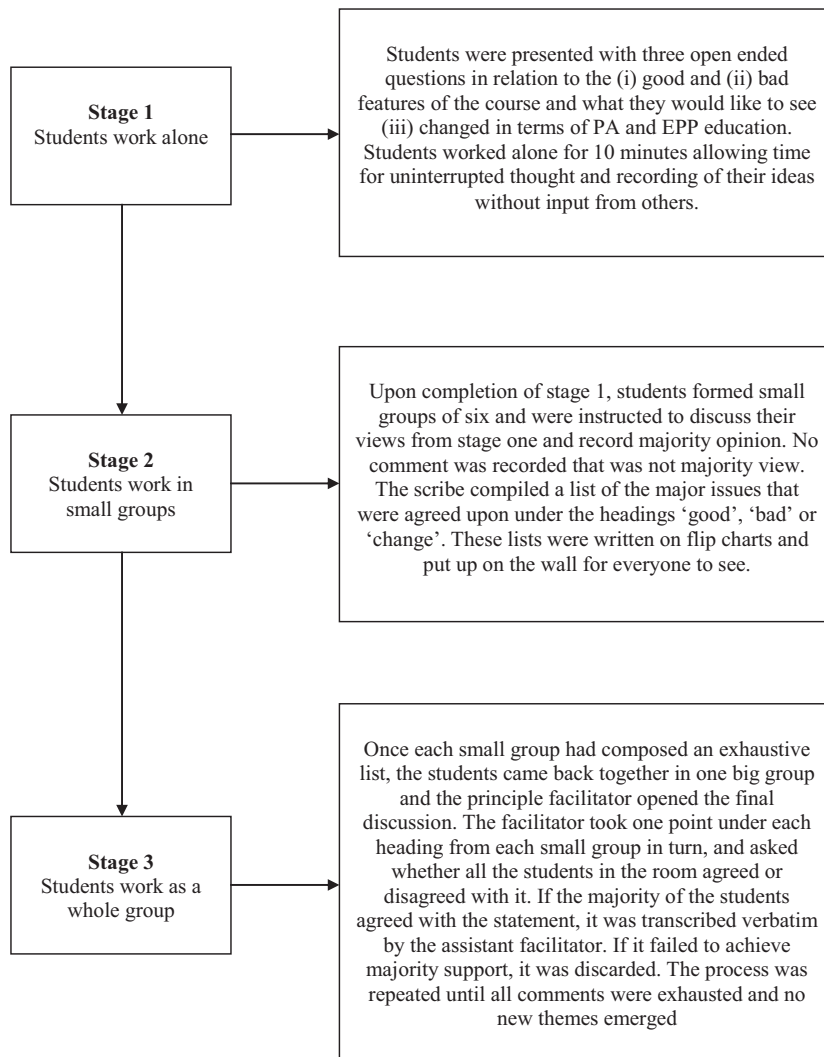
Stage 1
Students work alone

Students were presented with three open ended questions in relation to the (i) good and (ii) bad features of the course and what they would like to see (iii) changed in terms of PA and EPP education. Students worked alone for 10 minutes allowing time for uninterrupted thought and recording of their ideas without input from others.

Stage 2
Students work in small groups

Upon completion of stage 1, students formed small groups of six and were instructed to discuss their views from stage one and record majority opinion. No comment was recorded that was not majority view. The scribe compiled a list of the major issues that were agreed upon under the headings 'good', 'bad' or 'change'. These lists were written on flip charts and put up on the wall for everyone to see.

Stage 3
Students work as a whole group

Once each small group had composed an exhaustive list, the students came back together in one big group and the principle facilitator opened the final discussion. The facilitator took one point under each heading from each small group in turn, and asked whether all the students in the room agreed or disagreed with it. If the majority of the students agreed with the statement, it was transcribed verbatim by the assistant facilitator. If it failed to achieve majority support, it was discarded. The process was repeated until all comments were exhausted and no new themes emerged

Fig. 1. Structured Group Feedback Session format.

individual notes and views from stage one and record the opinions of the majority of students in the group. No comment was recorded which was not a majority view. Each group nominated a Chairperson and a Discussion Scribe. The role of the Chairperson was to ensure that all participants in the group had equal opportunity to contribute. The Discussion Scribe was responsible for recording comments agreed by the majority of group members based on discussion and compiled a list of the major issues that were agreed by the group under the headings 'good', 'bad' and 'change'. These lists were written on flip charts and put up on the wall for everyone to see.
Stage 3: Students work as a whole group
Once each small group had composed what they deemed to be an exhaustive list, the facilitator opened a final discussion. The facilitator took one point under each heading from each small group in turn, and asked whether all the students in the room agreed with it. If a majority of students agreed with the statement, it was written up on the white board. If it failed to receive majority support, it was discarded. The process was repeated until all comments from all groups had been exhausted and no new points emerged. The students were then invited to make adjustments to the overall picture which had been built up on the board. During this final discussion, notes were taken by the assistant facilitator which incorporated any additional issues that arose.

Closing section

The facilitator closed the session by thanking the participants, informing them that the data would be returned to them for review once transcribed, telling them how the data will be used and explaining when the study will be completed.

Data analysis

The definitive notes from stage 3 of the SGFB were analysed. Illustrative student quotations were used to authenticate findings. Transcriptions were analysed using the 'Framework Analysis' method (Ritchie & Spenser, 1994). Framework Analysis aims to meet specific information needs and provide outcomes or recommendations, often within a short timescale. This form of analysis provides systematic and visible stages to the analysis process and although the general approach is inductive, it allows for the inclusion of a priori as well as emergent concepts when coding (Ritchie & Spenser, 1994). Fig. 2 provides a more detailed description of the Framework Analysis Process.

The principal researcher read the field notes a number of times to ensure a thorough 'meaning' of the data (Creswell, 1998). Notes were made along the transcript margins regarding emerging themes. An initial coding framework was developed using the original questions posed to the students in relation to the physical

5 KEY STAGES OF FRAMEWORK ANALYSIS	
STAGE 1 *Familiarisation*	Prior to eliciting themes and categories, the field notes are read a number of *times by the interviewer to ensure a thorough 'feel for* the meaning' of the data.
STAGE 2 *Identifying a Thematic Framework*	Notes are made along the transcript margins regarding emerging themes. Then in order to facilitate data reduction, the initial framework is developed under key codes.
STAGE 3 *Indexing (Coding)*	Emerging themes are incorporated into the framework by means of a second level coding to identify more specific themes under the key codes.
STAGE 4 *Charting*	Using the headings from the thematic framework and the emerging themes, charts are created.
STAGE 5 *Mapping and Interpretations*	Subsequent analyses of the data employ both quantitative and qualitative methods. The quantitative method requires the categories and their sub- themes to be scored where aggregated counts or frequencies are presented as a measure of category intensity within the text. Additional qualitative analyses explore the nature and omissions within the content.

Fig. 2. Framework Analysis Process.

activity and exercise promotion and prescription content of the BSc Physiotherapy curriculum; i.e., (i) good, (ii) bad and (iii) change. Emerging themes were incorporated into the framework by means of a second level coding to identify more specific themes under the three pre-existing codes. The main themes that emerged from the data were in relation to (i) theoretical and (ii) clinical course content and (iii) teaching and learning methods. Several smaller categories were classified under each theme. All transcripts were coded using these second level codes.

Inter-coder and intra-coder reliability was checked on a random selection of transcripts. Intra-coder reliability showed 93% agreement. Inter-coder reliability was checked by the primary researcher and two experienced qualitative researchers (CD & TC) and showed 90% agreement, suggesting excellent agreement (Miles & Hubermann, 1994).

Results

The results are presented according to the three predominant emergent themes identified from the analysis; theoretical course content, clinical course content and methods of teaching and learning (TLM). Positive components, negative components and components identified by the students as requiring change are presented under each of the main themes. All findings are supported by verbatim student quotes to illustrate the theme concept. All citations are followed with a number from 1 to 3, corresponding to each university.

Theoretical content

Cardiac and pulmonary rehabilitation were the most beneficial components of the academic curriculum identified by the students, followed by learning about exercise classes for different clinical conditions, such as low back pain and multiple sclerosis:

> Cardio-respiratory was really good in that it gave us specific parameters for cardiac and pulmonary rehabilitation (3).

Physical activity and exercise prescription for clinical conditions was cited as an area that needed far more emphasis in the curricula. Students felt that several common lifestyle related conditions, e.g. obesity, diabetes type II, were not included:

> We were never taught exercise for different populations like obesity and diabetes. The odd slide at the end of a lecture, mostly on prevalence; the slides say strengthen, stretch etc. but never includes any specific details (2).

Exercise Prescription and Promotion for public health was identified as a gap in the curricula. All students agreed that it is an area that needs to be included:

> We did nothing in the course on exercise for healthy people as a preventative measure. If we are to work in gyms and the community because there are no jobs in the hospitals, we will need to know about health promotion strategies (1).

Progression of exercise was cited as the topic least successfully covered in the academic setting. All students requested that significantly more time be spent on exercise progression in the core areas (neurology, cardio-respiratory and musculoskeletal) and that it be taught throughout the four years, not just as a once off:

> More needs to be done on the progression of exercise programmes. We need to know what to do when a patient comes back for follow up appointments. We are okay at the early stuff but when it comes to moving things on, we haven't got a clue (1).

Principles of exercise prescription were recognised as being an essential but students felt that they were not emphasised enough. It was suggested that a recognised exercise qualification should be incorporated into the degree:

> Principles of exercise prescription lecture were good, but too brief (2). We think the physiotherapy degree should incorporate some type of formal exercise qualification (3).

Clinical content

Having the opportunity to participate in or instruct exercise classes was 'really good' and students identified this as an area which should be given more emphasis in the programme:

Placement was good for classes like pulmonary and cardiac rehabilitation, ante-natal, back, MS and stroke (3). After been allowed to take the classes, it made it much clearer than just watching it or talking about it. If we are going to work in the community, we will need to know how to set up and run an exercise class (1).

Students from all universities agreed that clinical placements should be offered in the community and sports settings, as they felt these were the settings for future employment opportunities. By varying placements, they felt they would gain invaluable experience prescribing exercise to a broader range of clients and get more opportunity to progress programmes:

Placements are all hospital based limiting the type of patients we see (3). Some placements should be with sports teams so we get some experience in progressing programmes (2). It would be good if we could do private practice and community placements as well (1).

Aerobic exercise was the area where least emphasis was placed. More exposure to aerobic exercise prescription was requested:

Never see any aerobic exercise prescription on placement except for cardiac rehabilitation. Absolutely never see it for neurology or musculoskeletal. How are we supposed to prescribe it if we never learn how to prescribe it? (3).

Exercise progression was highlighted as requiring far more emphasis. Students expressed concerns regarding their ability to prescribe advanced rehabilitation. Collective opinion was that clinical placements are too short to allow for end stage exercise progression:

Placements are too short. They are over before you get to do any late stage rehab. You get to see the patient only a couple of times, so mostly they are still swollen and injured and nowhere near going back to sport or work (1).

Some novel suggestions to improve clinical content were gym visits to learn to use the equipment, day trips to speciality departments and a student led clinic in the university setting, where they could treat under the guidance of qualified staff. Students thought this would help reinforce what they had learnt on placement:

We should do a tour of a gym so we can learn how to use equipment. So many patients ask, when can we go back to the gym and we can't tell them because all we know about gym equipment is what we learnt ourselves from personal experience (2).

Teaching and learning methods (TLM)

Active participation, e.g. role play, case studies, small practical classes (with 12:1 lecturer:student ratio), giving presentations and receiving feedback were the teaching and learning methods most favoured by students:

Exercise should be taught in case scenarios and practical sessions where you learn to prescribe programmes from start to finish. There is no point sitting in a lecture theatre to learn about exercise (1).

Students felt active participation in their psychology module gave them an insight into how difficult it is for patients to change behaviour:

In the psychology module, we had to do "personal lifestyle" changes for a week. It made you really realise how hard it is for patients to change their habits for good (3).

One of the most frequently voiced concerns was that PA and EPP was not continuous throughout the curriculum. Students felt it was included on a once off basis and was not linked to different conditions and clinical populations. They suggested the basics be introduced earlier in the course and re-visited over the four years:

No exercise prescription is taught in 1st year. Exercise should be taught from the beginning of the degree and be carried on throughout the whole course (3).
We should be taught the principles of exercise in 1st and 2nd year. In 3rd and 4th, taught lots of exercise prescription and progression for different conditions (2).

Discussion

The purpose of this study was to evaluate BSc Physiotherapy undergraduate curricula in relation to PA and EPP education from the students' perspective. Findings related to three main areas; theoretical content, clinical content and teaching and learning methods.

Areas traditionally associated with physiotherapy in terms of exercise prescription such as cardiac and pulmonary rehabilitation were identified as being well covered both theoretically and clinically, in particular, in terms of specific parameters for exercise prescription and progression and the positive learning experiences provided by students' attendance at cardiac rehabilitation classes. In contrast, PA and EPP for lifestyle related diseases, such as diabetes type II and obesity were identified as areas neither covered in the university nor clinical setting. With approximately 25% of the world's population living with one or more chronic lifestyle disease (HSE, 2008), it is inevitable that physiotherapists will encounter patients with these conditions. As prevention and resolution of lifestyle diseases are most effectively addressed with non-invasive interventions, such as physical activity (Dean, 2009b), physiotherapists are well positioned to provide this critical intervention. However, it is essential that they possess the expertise to take on the challenges associated with reducing the risk factors at individual and population level.

Physical activity as a public health issue was cited as requiring significantly more consideration in the curriculum. Furthermore, students felt there were no emphasis on PA guidelines and strategies. Students from one university stated that they knew 'nothing' about PA and public health. One possible explanation for this may be, traditionally, physiotherapy education has focused on impairment, injury and disability. With a global shift in healthcare from a sickness service, treating disease, to a service which focuses on promoting health and preventing ill health (HSE, 2007, 2008), it is increasingly important to include determinants of health and the requisite knowledge, skills and attitudes into entry level curricula that are needed to effect optimal health. Physiotherapists will then have the skills necessary to play a central role in advancing public health, focusing attention to health in the well population and managing an individual's presenting problem in the context of the individual's overall health risks and chronic condition (Dean, 2009b).

Another reason for the students' perceived lack of knowledge regarding PA and public health may be that the limited knowledge they acquired in the classroom is not clinically consolidated because of the type of practice settings where clinical placements

occur. Students from all universities involved in this study agreed that clinical placements should be offered in practice settings other than hospitals, such as with private practitioners and in community health centres, where there are more opportunities in prescribing PA for public health. Interestingly, the SGFS results showed that students foresaw these areas as possible settings for future employment.

In relation to teaching and learning methods, students reported sitting passively in lectures to be the least effective form of teaching. Active participation was identified as positive and didactic teaching as negative experiences in relation to TLM. In recent years, there has been widespread recognition that a move away from tradition teaching methods commonly adopted in third level education, such as pure didactic delivery is required. Didactic methods, such as the traditional 'lecture' are seen to be teacher driven and do little to engage the student in the learning process. It has been argued the individual that has learned the most during a lecture is the lecturer that has prepared, reviewed and reflected in advance of presenting the material (Higgs & McCarthy, 2005). In a study by Butler (1992) where students were given five different formats for teaching sessions, they concluded that the didactic lecture was the least effective. The students reported the lecture format did little to engage or indeed, motivate them to investigate the lecture topic further.

However, in spite of its limitations, the lecture format is highly favoured by institutions. One lecturer teaches many students and this is seen as cost effective. Bligh (1999) and Butler (1992) conclude that the lecture format is appropriate for information dissemination and accepts that the perceived efficiency of the lecture will result in the continuation of this mode of study, but argues that educationalists must use the lecture in conjunction with other methods and techniques in order to improve student learning and achieve learning objectives.

Concern was expressed by the students in this study in relation to the structure of the BSc Physiotherapy programme in terms to PA and EPP education. Students believed exercise should be the underlying focus of the curricula and should be introduced early and embedded in a progressive sequential way throughout the programme. They reported that a one off series of lectures/practical sessions is insufficient. Revisiting exercise throughout the curriculum would allow students the opportunity to compare, prioritise and critique what they have learnt while constructing their new learning of more advanced material (Clark & Linn, 2003). Previous research has shown that students succeed best in developing higher order knowledge and skills when multiple opportunities to ally and practice what is learned throughout their educational programme are provided (Diamond, 2009; Gardiner, 1996). To facilitate this process, undergraduate educators need to review their curricula from both a content and pedagogical viewpoint and devise what they consider the most effective mechanism for successfully integrating PA and EPP throughout their course.

In terms of employing Structured Group Feedback Sessions as a course evaluation approach, it was met with mixed success. As anticipated, it allowed for initial individual views to be developed, substantiated and expanded upon. Furthermore, it provided a structured forum giving students the opportunity to question and challenge what someone else had to say. This requires members to substantiate and expand their views. If they had completed or participated in a traditional group instead of the SGFS, it is likely that their responses would have been more immediate, less reflective and subsequently of less value.

However, some limitations of the technique were also noted. The SGFS process was, on occasions, long winded. Some students were better able to generate their ideas in stage 1 of the process than others and it took considerable time to list all the students'

opinions. In addition, although one of the primary objectives of the SGFS process was to afford the students the opportunity to reach a group consensus on the issues they considered to be most important, it was difficult to obtain group consensus on several of the issues raised. On a couple of occasions, while a high percentage of students agreed on a specific issue, it did not reach majority consensus and therefore, the issue was excluded from the analysis. Therefore, although the SGFS may provide an indication of the issues that are important to some members of the group, it is dangerous to assume that because the SGFS produces a group response, a consensus necessarily exists.

Overall, however, the Structured Group Feedback Session format offered enough encouragement for refined repetition, particularly as a means of gathering information prior to more in-depth evaluation methods. It is a process that could be employed across numerous disciplines to gather students' perspectives and opinions.

Conclusion

Although these findings make interesting reading, examining the curriculum from the students' perspective is only one step of the evaluation process. To complete the evaluation and increase credibility of this study, complementary studies are ongoing. Detailed content analysis of the various curricula (O'Donoghue, Doody, & Cusack, 2011; O'Donoghue, McMahon, Doody, Smith, & Cusack, 2011), academic and clinician interviews, expert opinion as to what should be included and teaching and learning strategies of how it should be included (O'Donoghue et al., 2011a,b) in physiotherapy undergraduate curriculum in terms of PA and EPP will provide a more complete overall picture.

Physical activity and exercise promotion and prescription need to be seen as a clinical competency and a priority in undergraduate physiotherapy education. The expansion and incorporation of PA and EPP throughout the curriculum is a complex task which requires collaboration between course coordinators and lecturers but is necessary to prepare tomorrow's physiotherapists for practice in the 21st century.

Acknowledgement

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