

# Student perceptions and experiences of problem-based learning in first year undergraduate sports therapy

Leddington Wright, S, Duncan, MJ & Savin-Baden, M

Author post-print (accepted) deposited by Coventry University's Repository

**Original citation & hyperlink:**

Leddington Wright, S, Duncan, MJ & Savin-Baden, M 2015, 'Student perceptions and experiences of problem-based learning in first year undergraduate sports therapy' *Journal of Hospitality, Leisure, Sport & Tourism Education*, vol 17, pp. 39-49  
<https://dx.doi.org/10.1016/j.jhlste.2015.07.002>

DOI 10.1016/j.jhlste.2015.07.002

ISSN 1473-8376

Publisher: Elsevier

**NOTICE: this is the author's version of a work that was accepted for publication in *Journal of Hospitality, Leisure, Sport & Tourism Education*. Changes resulting from the publishing process, such as peer review, editing, corrections, structural formatting, and other quality control mechanisms may not be reflected in this document. Changes may have been made to this work since it was submitted for publication. A definitive version was subsequently published in *Journal of Hospitality, Leisure, Sport & Tourism Education*, [17, (2015)] DOI: 10.1016/j.jhlste.2015.07.002**

© 2015, Elsevier. Licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International

<http://creativecommons.org/licenses/by-nc-nd/4.0/>

Copyright © and Moral Rights are retained by the author(s) and/ or other copyright owners. A copy can be downloaded for personal non-commercial research or study, without prior permission or charge. This item cannot be reproduced or quoted extensively from without first obtaining permission in writing from the copyright holder(s). The content must not be changed in any way or sold commercially in any format or medium without the formal permission of the copyright holders.

This document is the author's post-print version, incorporating any revisions agreed during the peer-review process. Some differences between the published version and this version may remain and you are advised to consult the published version if you wish to cite from it.

**Student perceptions and experiences of Problem-Based Learning in first year undergraduate sports therapy.**

**Abstract**

Problem-based learning (PBL) has long been used as a means to foster critical thinking and student autonomy. However, few studies have investigated the effectiveness of PBL in Sports Therapy. The aim of this study was to examine first year Sports Therapy students' perceptions of PBL. Results revealed that students perceived PBL as vocationally relevant, by enabling them to work in and across groups, whilst also engaging with a wider range and depth of information compared to more traditional methods of curriculum delivery. External observations of the lecturers input sessions were made by an impartial researcher. The implications of the study are that PBL appears to be a professionally suitable and appropriate learning modality for Sports Therapy students.

Keywords: Student autonomy; vocationally relevant; curriculum.

## 1. Introduction

The UK National Student Survey (2012) revealed an area in Sports Therapy education which could be improved. This related to coursework not being stimulating, beside some general student comments that there was not enough specific Sports Therapy content in the course. The Sports Therapy programme was up for review in 2013 so an alternative mode to assist student engagement in the course was implemented. Problem-based learning (PBL) is an approach to learning, rather than a teaching method, which is being increasingly promoted and utilised in higher education. Students are facilitated to understand their own situations and frameworks enabling them to perceive how they learn, and how they see themselves as future professionals (Savin-Baden 2006). PBL is ‘designed to help students develop competencies that will serve them throughout their professional lives’ (Krishnan *et al* 2009:117) and have ‘an apprenticeship for real-life problem-solving’ (Dunlap 2005:1). Sports Therapy is an aspect of healthcare concerned with reducing risk of injuries and rehabilitation of clients to an optimal, functional and occupational fitness level. Sports Therapists are autonomous practitioners, but they can work in multi-disciplinary teams, where sharing ideas is an essential part of professional practice. Therefore, as PBL has been successfully employed in medical therapy education and is currently successfully utilised in Coventry University Sports Science department (where Sports Therapy is taught), but not specifically in the Sports Therapy course, it was decided to use PBL in one of the Sports Therapy modules.

By integrating PBL into the first year of a Sports Therapy course professional practice skills such as communication, team working, leadership and problem-solving could potentially be developed. We argue that these skills were not easily learnt in the traditional methods of teaching, for example through a curriculum that relies heavily on lecture-based delivery with a narrow set of defined competencies. Students might benefit considerably more with a PBL approach which supports independent enquiry and promotes real meaning and understanding into the case scenarios. In the context of Sports Therapy, there has been limited investigation on student perceptions and evaluation of PBL (O’Donoghue *et al* 2011). Therefore, the aim of this paper is to evaluate the PBL module in a first year Sports Therapy undergraduate degree course and to report and evaluate students’ perceptions and experience of this module.

## **2. Literature review**

Barrows and Tamblyn (1980) undertook a study into the reasoning of medical students. The findings indicated that they could take a patient history but not apply their knowledge to the patient. The result of this study was the development of PBL, an approach adopted at McMaster University, Canada which marked a clear move away from problem-solving learning in which individual students answered a series of questions from information supplied by a lecturer. In this early version of PBL certain key characteristics were essential. Students in small teams would explore a problem situation and through this exploration were expected to examine the gaps in their own knowledge and skills to resolve or manage the situation with which they were presented. The ‘problems’, also termed ‘scenarios’ are central to student learning in each component of the curriculum (modules/units). The lectures, seminars, workshops or laboratories support the inquiry process rather than transmitting subject-based knowledge. To date there has been little in-depth discussion about the design of problem-based curricula. Instead the discussions have tended to centre on what counts as PBL, ways of implementing it and types of PBL (Savin-Baden, 2000, 2007a, 2007b; Savin-Baden & Major, 2004).

PBL was popularised in the 1980s and in many ways resulted in spaces where dialogic learning took place at a time in global higher education when performative practices were on the increase. Today this largely remains the case, but often there is little realisation that there are not only different types and models of PBL but that ebbs and flows of change occur within the PBL community. To date PBL has been seen as a relatively stable approach to learning, delineated by particular characteristics. Interest in the impact of PBL on students was an area of interest for tutors at Maastricht University, Netherlands, from the outset. Early studies tested the extent to which PBL helped students with problem-solving. In particular Schmidt (1983) found that by examining the role of prior learning, evaluating students’ retrieval of information and exploring the extent to which students were able to elaborate knowledge that it was possible to map the potential qualities of PBL. Later work at Maastricht (Schmidt and Moust, 1995) explored the influence of tutors’ behaviour on student achievement. This important study found that effective tutoring for PBL required that tutors had: a suitable level of knowledge; a willingness to engage with students in an authentic way and an ability to express them in an understandable way for students.

As PBL was flourishing at Maastricht, Linköping University was also developing its own approach. Important studies undertaken at Linköping emerged from interest in exploring the relationship between research and undergraduate education, (Abrandt et al 1995); (more recently termed research-led learning in the UK in 2006). An examination of PBL from the teachers' perspective was one of the early qualitative studies in the field. This study (Abrandt et al, 1998) found that whilst tutors valued PBL they experienced conflict about whether their role should have a teaching or learning focus and a supportive or directive function.

There are several blueprints for PBL but relatively little information exists to guide those who want to consider how to use it in terms of actually designing the curriculum in a practical way. Cultural and institutional constraints affect the design of problem-based curricula, as do issues that tend to differ across disciplines, such as the way an essay is constructed or the way that knowledge is seen. However, in this project Savin-Baden's (2003) eight *modes of curriculum practice* were drawn on (Appendix 1). These modes are not meant to be an exhaustive list but rather are a means of considering what occurs in some programmes as well as the impact of opting for a particular design.

Curricula where PBL is central to the learning are in fact largely constructivist in nature because students make decisions about what counts as knowledge and knowing. What is problematic here is how such a constructivist stance can be married with benchmarking statements and the emerging audit culture in higher education. In recent years, we have seen such a significant shift towards accountability and transparency that the focus in many curricula is more upon outcomes and less upon learning. For example, if the assumption is that the students must cover a given amount of knowledge in a given time, the focus of the curriculum is likely to be on knowledge acquisition rather than learning. In a programme that is centred on skills acquisition, the focus will be on the way in which knowledge is necessarily useful for practice. When adopting PBL, the extent to which the curriculum is designed as a whole entity is an important concern. For example, in the UK, degree courses in health and social care are constructed as integrated modular programmes; they are designed as a whole. Whereas a course in history may just be a collection of modules, with little if any integration, that students just take in order to gain a degree. Curriculum design thus impinges upon tutors' and students' roles and responsibilities and the ways in which learning and knowledge are perceived. However, new and different forms of PBL continue to emerge and with them an increasing interest in the kinds of discipline-based pedagogies that affect curriculum design.

Although there is a considerable body of literature on facilitation and PBL (Wilkie, 2004, Silen 2006) there is relatively little that examines the issue of student engagement. Trowler and Trowler's (2010) literature review recognised that student engagement has received extensive attention internationally and individual student learning dominates the evidence reported. In their review, definitions of student engagement are presented, which include the extent to which students are engaging in activities that contribute towards desired (high-quality) learning outcomes. Zepke and Leach (2010) similarly focus on 'high quality learning' but broaden their accepted definition to include a focus on the student's cognitive investment, active participation and emotional commitment to their learning. However, it would seem that many current definitions promote an institutional focus centred predominantly on outcomes such as retention and success rates (Kuh et al, 2007).

There is a paucity of literature concerning the pedagogy of Sports Therapy (Wilson 2012), perhaps partially because of the relative newness of the profession. The Sports Therapy degree is housed within the health science faculty and therefore has contributions from sports science, bio-mechanics, physiology and physiotherapy, each profession bringing their own pedagogical stance/histories. Sports Therapy has become a blend of sport and exercise science and healthcare therapists. The Society of Sports Therapists (SST) is one of the leading bodies governing Sports Therapy and provides a list of competencies to which the therapist must pass in order to register with the society. This provides a basis for education of the therapist and validation of the degree for the profession. Despite still educationally evolving, the working Sports Therapist is required to be an autonomous professional with decision making skills being an essential component. Learning for the Sports Therapist at degree level will therefore traditionally follow the university or college process with modules and examinations as with other courses. The only reported research on an article search has been into PBL in the third year (Wilson 2012). The influence of healthcare therapists is in the shape of the medical model with influences from physiotherapy with joint assessments and soft tissue work. The influence of sports science bringing the emphasis on scientific research, the prevention of injuries and exercise prescription.

### **3.Rationale and context for the study**

The impact of PBL on students' learning experience was examined in the context of a single module approach (Savin-Baden, 2003b) in a first year module titled 'Health and Fitness for Sport and Exercise' within the institution's BSc Sports Therapy Course. The module was designed using the McMaster model where the students engage with one

problem at a time and meet two or three times with the tutor over the course of each topic. Congruent with guidelines suggested by Savin-Baden (2003a), the module was implemented to enhance understanding of the principles of the clinical practice of Sports Therapy. Tutorials were designed to support the groups at appropriate times. Practical skill sessions, subject-based knowledge, related to the problems presented had previously been taught in another module in the style of most traditional undergraduate modes of delivery. A wide variety of problems have been previously used within PBL delivery, although these have not tended to be based within the sports domain, and limited attention has been given to design of problems (Savin-Baden and Major, 2004). This potentially made the development of problem scenarios for this module problematic. However, Schmidt and Moust (2002) outlined taxonomy of problems used within PBL which involve four types of knowledge: explanatory knowledge, descriptive knowledge, procedural knowledge and personal knowledge. The problem scenarios encouraged students to acquire these different categories of knowledge in order to answer the problems, which were centred around themes relevant to Sports Therapy: knowledge of the co-morbid condition, approaches to treatment of a presenting client, understanding the rationale behind the written requests from general practitioners for exercise therapy and direct client requests for massage/treatment. They were all based on real patients and clinical scenarios as experienced by Sports Therapy colleagues (Wood 2003).

In the first session, the students were introduced to the theory of learning styles (Kolb and Fry, 1975) and PBL, including the concept of collaborative learning groups. Concurrently, they were given the Visual, Auditory, Reading, Kinesthetic learning (VARK) questionnaires (Hawk, and. Shah, 2007; Leite et al. 2010) to evaluate their learning preference and an information sheet on PBL. Following this introduction, 45 students were randomly assigned into nine groups of five (Krishnan *et al* 2009). The groups were given a different case study each, written in the format expected of a Sports Therapist. The remainder of this first session enabled the formulation of their group and planning their investigation into the problem. During this period, the tutor was available as a resource in accordance with suggestions made by Savin-Baden and Major (2004). This initial period typically involved developing a number of skills including literature searching, computer/internet use, discussion among group members, and formulation of investigative strategies. Seminars and tutorial sessions followed depending on the lecturers' perceived requirement of the students, with the aim of encouraging students' development of a critical independent stance. In the final session each student group presented their solutions to the

problem scenarios to the other groups, supported with an overview of relevant theory associated with the topic provided by the tutor.

The examination component of the module was designed with reference to examination procedures previously used successfully within PBL (Macdonald and Savin-Baden (2003). However, this module was constrained by the module exam guide so as a result the assessment tasks developed for this module were unable to fully integrate these guidelines. A marked written exam was utilised to comply with module guidelines, plus an unmarked group presentation by each group who were subsequently provided with feedback. The written exam questions involved the series of problem-based scenarios that were anchored to the main themes of the module. It required students to reapply concepts, arguments and theory that had been previously used to solve the problems given to the groups. The answers required small word count reports as these promote succinct, critical pieces of work. Therefore, the assessment was based in a practice context i.e. what they would do to solve the problem, and assessed the process-based activity i.e. how they used particular protocols, treatments and the procedures they employed. However it did not consider the actual 'hands-on' working with clients or peers as this was assessed in another module. The exam did not simply assess the students' ability to provide knowledge, but rather assessed the students' understanding and application of practical skills previously learnt and their ability to evaluate their solution. It sought to examine the students' integration of their knowledge into practice by the application to authentic situations. Therefore, they needed to demonstrate competence in clinical reasoning behind their solution to each problem scenario question.

This study adopted Action Research as the research methodology as it mirrors the PBL cycle. While there is no one universally agreed upon definition of Action Research, leaders of this research approach have made several attempts to provide insight into the essence of the approach. Our stance was to adopt the focus suggested by Reason and Bradbury who argue that action research is a framework for inquiry that "seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people" (Reason and Bradbury 2006: 1).

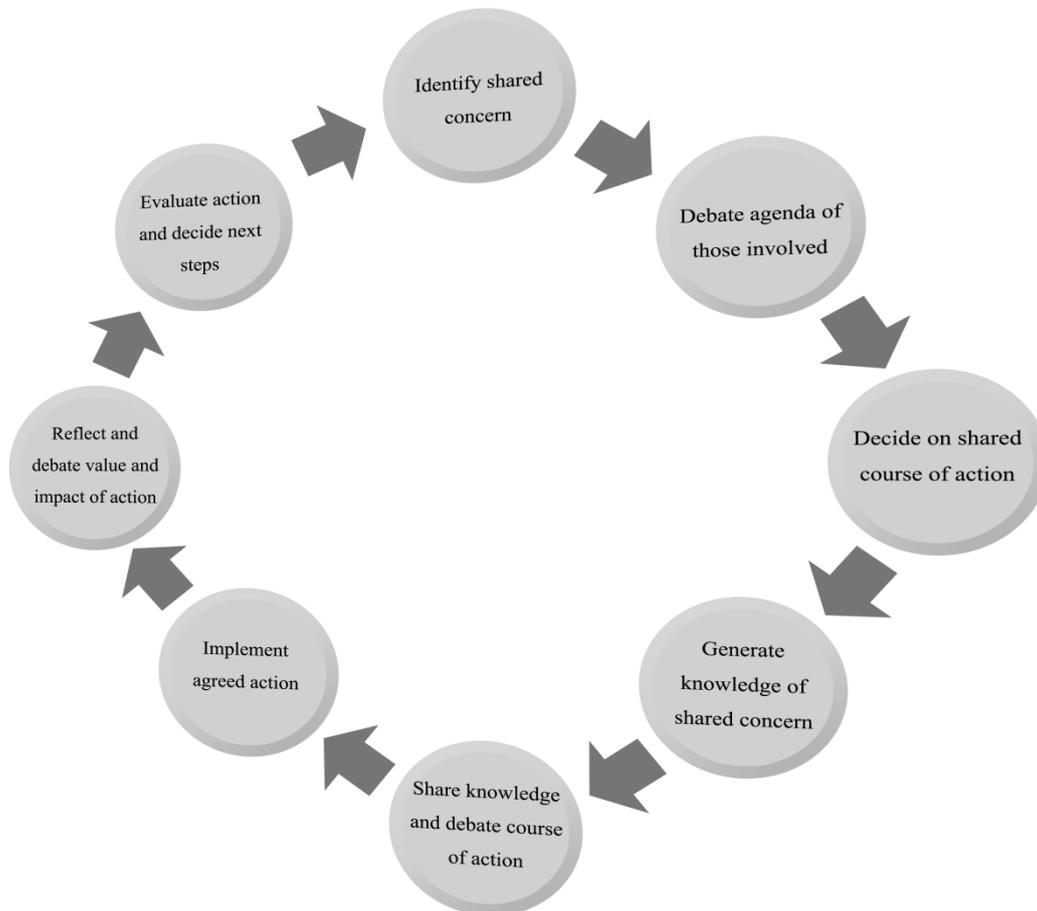
PBL is an innovative approach to learning, and non-customary for the Sports Therapy course at Coventry University. So a pragmatic approach of Action Research was undertaken into students perception and experiences of PBL, in order to understand and improve educational practice for Sports Therapists. Action Research was chosen because PBL utilises this mode of approach, acknowledging that people learn in different ways which allows for students to make choices about the direction for their learning (McConnell 2002). This

research was therefore a ‘work in progress’ (Brydon-Miller *et al* 2003:4) as knowledge of the students’ attitude to PBL is developed through action and reflection. Therefore the research team adopted the pragmatic stance suggested made by Savin-Baden and Major, (2013) who have argued that researchers should consider the following questions when undertaking action research:

1. What is the concern?
2. Why those are involved concerned?
3. How might the situation be mapped and understood?
4. What can be done?
5. What should be done?
6. How will data be collected?
7. How may conclusions be checked to ensure that they are reasonably fair?
8. How will the significance of the action be presented and explained?
9. How has change taken place?
10. What practices still need to be examined and possibly changed?

The team therefore drew on the following cycle:

Figure 1: Savin-Baden and Major's action research cycle ( 2013)



#### 4. Methods

The methods used for this project were: a focus group, observation and questionnaire.

##### 4.1 Sampling

First year Sports Therapy students were involved in questionnaire and observation of one surgery session. Volunteers were recruited for the focus group at the end of the PBL section of the module. In practice forty-five first year Sports Therapy students were randomly assigned into groups of five and PBL scenarios were presented where there was no specific right answer. The groups arranged their own meetings working towards a presentation demonstrating their solution to the scenario. Group tutorials were held during the module, one set of which was observed by a researcher who subsequently distributed

questionnaires to each student. During the module, six students participated in a focus group interview which was analysed using thematic analysis.

#### **4.2 Data Collection**

The data collection involved observations of the nine group tutorials. The evaluator was an independent researcher who notated the tutorials, appearing on the edge of the event, listening but not involved. The anonymous questionnaires required three short answers to open questions asking the students what they felt they would be able to achieve after the PBL, what more did they require, and what they would like to do or change. These were handed out to each student at the end of their tutorials. On completion were returned on a pile at the end of the room to maintain anonymity. The focus group was held midway through the module using six volunteers from different groups. The group comprised of three males and three females, age range 18-21 with no previous experience of PBL. The focus group interview was held at a mutually convenient, time being led by an independent lecturer on the Sports Science course. A focus group interview was chosen as it provides a more naturalistic data collection method compared to interviews (Wilkinson, 2004). Focus groups also allow respondents to build upon the responses of other group members and the relatively free flow of talk which can provide an excellent opportunity for hearing the language and experiences of the respondents (Wilkinson, 2004). The focus group was recorded on tape and the transcript was subsequently typed.

#### **4.3 Data analysis**

Due to the iterative nature of the process, data were gathered throughout the action research cycle. The research team and the students discussed them and thus data analysis and interpretation happen throughout the process. Thematic analysis at a fundamental level is “the process of recovering the theme or themes that are embodied and dramatised in the evolving meanings and imagery of the work” (Van Manen 1990: 78). This method provides a general sense of the information through repeated handling of the data. The idea is to get a feel for the whole text by living with it prior to any cutting or coding. The research team adopted the process suggested by Braun and Clarke (2006) when conducting thematic analysis:

- Familiarise yourself with your data
- Generate initial codes

- Search for themes
- Review themes
- Define and name themes
- Produce the report

The researchers also analysed data through constant comparison and shared information with the students.

## **5. Findings**

The results from the focus group interview were evaluated using thematic content analysis (Wilkinson, 2004). This revealed a number of themes within the student experience of PBL. These included the delivery of the module sessions, module content, skill development and module timing. It was quite clear that the students who had taken this module had not experienced the type of delivery involved with PBL previously but although many found this a challenge to begin with, the delivery of the module was perceived to be more enjoyable and effective.

### ***5.1 Focus Group Interview***

#### ***5.1.1 Module delivery***

Students felt PBL was not delivered like other modules but related more to what they were ultimately wishing to become professionally and that they were encouraged more to engage in the learning process. For example, female students three and two reported:

*“instead of just being told things, we were busy finding out different things, so we learnt a lot more I think, than say if we had just had lectures”*

*“..... I put more effort into this than I did for other modules, it made me feel more involved ... This was different, you really had to do it, not just know it”*

*“..... say if someone comes to see you and you don't know, they tell you, you only have your own research knowledge of how to look that condition up and you need to be able to work with that person”*

#### ***5.1.2 Module Content***

Problem based scenarios: students reported they felt the scenarios were realistic and allowed them more autonomy to explore problems in the way they wanted to. It was clear from a number of student comments that simply presenting a problem and asking them to work through it can provide a stimulus for greater independent thought. For example, male student two noted:

*“...everyone finds different ways of doing it, you know if someone comes and listens to a lecture they will just listen, but with the scenarios if someone comes in with a condition or co-morbidity people will do different things. So what I would do someone else would do something different so it makes everyone come at it from their own start point.”*

Male student one agreed with this stating:

*“I think it’s good ‘cos it causes you to set things out how we will in real life, you get a scenario that you don’t know, like a new patient, you don’t know all their contraindications so you have to look them up and then figure out what you would do about that person”*

Likewise female student one added:

*“yeah this gives us the skills we will need when we are out in clinic working with real people”*

### **5.1.3. Skills and development**

Similarly, male student one appeared to be relating his experiences to his future employability stating that:

*“it’s[employment] going to be more like this than what we have got in the other modules”*

The experience of group work was discussed as facilitating communication skills and building confidence, although dependent on the contributions of the individual. Some students perceived this to be unfair.

Male student 1 and subsequently male student two:

*“.....so pretty much it’s resulted in all of us working together*

*”yeah so I know everyone enough to say hello and like know who they are but that wouldn’t have happened if we hadn’t have had to work with everyone on the different scenarios”*

However, male student one said that:

*“one bad part is though if you are in a group and you are quite happy to sit there and do nothing you won’t get anything out of it for yourself but you can still pass”*

With another problem highlighted from male student three:

*“it’s very dependent on the group though, like last week one girl turned up from her group and the other people didn’t turn up so she was the only one there and obviously you can’t do group work without a group”*

### **5.1.4 Module Timing**

Presenting work, even though it can be difficult and challenging, was accepted as being important.

Female student one:

*“it’s good too because as part of it we have to talk to each other and also present so if you don’t like speaking you just have to learn to like it because you have to do it so it makes you more confident than lectures”*

Male student one:

*“ It’s a good way to build self-confidence in yourself” and continued : “.....so pretty much it’s resulted in all of us working together”*

Organisation of the group work appeared to follow the process outlined in Williams (2004).

Female student one stated:

*“ well first we look at the information and then allocate jobs so someone would find out what the problem is and what the issues around it are”*

Male student one added:

*“and you know we would split it up and look at different bits, you wouldn’t get it all done in time if we did the same thing so you have to coordinate and work with each other then you go away do your bit then come back to feed into the group and look at what they’ve done so you then build on each other’s work”*

#### **5.1.5. Difficulty and Overall Comments**

However, there were some perceived difficulties. Although students were starting to make links with the learning outcomes of other modules enabling an understanding of how the degree could develop them into Sports Therapist’s, they acknowledged that they would not like every module taught as PBL as female student two stated:

*“I wouldn’t want to do it every week though, or in every module”*

Overall, the student experience of this PBL module was positive although female student two *“...wanted a final answer”*

This was in agreement with the commonly held belief expressed by female student one:

*“so you know what’s right though”.*

However this was quickly challenged by male student two:

*“but you know there probably isn’t one so it’s hard to know what to do”.*

Male student two continued to perhaps express what a commonly held belief that in reality the students still want to know

*“ how to make sure you get a good mark”.*

Acknowledgement followed from female student one that:

*“you need the feedback from the teacher though”*

This perhaps validated the input from the lecturer!

## 5.2. Questionnaire feedback

The questionnaires consisted of three simple statements requiring a response; after this I will be able to....., I need more..... and If I could I would.....

The themes that evolved following the statement: “After this session I will be able to:” related to the value of group work and a positive understanding of research with comments related to the presentation which was the marked component.

*‘Improve on my research’*

*‘Research more open minded over various resources’*

*‘Research into different topics discussed’*

*‘Research for the clients clinical problems’*

*‘Make a fantastic presentation and speak in front of a group’*

Some comments clearly reflect a strategist thinking to achieve the task however others showed a more enquiring mind.

Students reported a variety of things they would need more of which included resources and information however several noted they would like *‘more sessions like today’*.

Several comments concerned confidence and more time which is themes expected with students.

*‘Sessions like today’*

*‘Sessions like this, as I’m more confident to voice my opinion in smaller groups’*

*‘Confidence with ideas and presenting in a group’*

*‘Confidence’*

*‘Time together to gather info’*

*‘Time to talk about the client’*

*‘Time to go through my research and see what facts are relevant’*

The concept of group work feature in the final question “if I could I would” with the natural wish for time. However there were some real honest statements.

*‘Change the persons problems’*

*‘Have more group time’*

*‘Communicate in person with my fellow team mates’*

*‘Assign everyone roles for completion’*

*‘Not do the presentation as I don’t like talking in front of people’*

*‘Be more confident so that I can ask when I don’t understand’*

### **5.3. Independent Observer feedback**

The reflection from the independent observer demonstrated positive points and areas to improve:

*“My prevailing memory from this session was the enthusiasm that the lecturer/tutor, ....., had for her teaching, her students, and the content of her teaching. However, the tutor was also faced with a great challenge: her time-management in this session.”*

What appeared to be impressive from the observer was the way the tutor engaged with the students. She felt she was appreciative and accepting of the students individually and as a group. Every student got the opportunity to say something during the ‘surgery’ and it was important to the tutor to listen to the students. Her whole body language appeared to be saying ‘I’m listening to you; I am interested in you and your work.’ Only after listening did she start to give advice and hints how to develop the work further, how to improve the possible presentations or mentioning alternatives for the presentations, and how to solve difficulties within the groups; for instance communication issues. With this surgery the students received feedback on the content of the work carried out so far, but also on the way they had achieved outcomes, with every group having its praise and some critical remarks.

What was the biggest issue in the observed session was the time-management. Feeling time pressures, the tutor started to hurry. She was still listening to the students; however, the situation appeared to become fragmented. With a bit more preparation the observer thought some of the issues could have been prevented. Ideally, with this number of students, the tutor would like to have two surgery sessions or two tutors involved in the future. As the later groups had less time the tutor immediately offered them further time during ‘drop-in’ hours. The observer reported that:

*“with further experiences in carrying group work and further knowledge of the students the tutor will be able to draw on former exercises and be able to predict some challenges to be faced with at the surgery, for instance communication problems in the group, readiness of some students to let other students do the work. However, some interruptions will always be new and ask the tutor for some flexibility of dealing with them – as well as the honesty of not always having an answer ready to every problem”*

## **6. Discussion**

Based on student responses from feedback of the focus group and questionnaires it would appear that the student expectations and responses were generally positive. The focus group of six volunteers may not be a true representative of the group; however it did support students in developing their thinking by building on each other’s responses. The

questionnaires were anonymous, enabled everyone to respond and provided further understanding of student perceptions and experience of PBL. The negative comments possibly reflected students' lack of confidence in their ability or their personal stance towards group work or possibly indicating their preference to be a passive recipient in learning.

Assessment drives most students learning and influences our learning, our identity and assists us in construction of our society. To develop life-long learners Boud (2000) argues that we must integrate "sustainable assessment" into our lives focusing on learning rather than performance. This may be reflected in the exam results which demonstrated a bimodal curve with the majority of students appearing to engage in the process and have a deep understanding resulting in very good/excellent marks and the minority who possibly did not connect with the process so easily, and failed. Those who failed were also the poor attendees for the group work, which contrasts with the belief of the student in the focus group that believed those who did not attend or engage in the group work could still pass. The issue of feedback has been a concern for many years and early work by Hounsell (1987) appeared to be the beginning of many debates about the role and purpose of feedback in higher education. Subsequently Sadler (1989) argued that feedback needed to address the gaps between students' current level of knowledge and the desired level. Although there have been studies that have undertaken meta analysis of the feedback literature that have indicated that feedback is a highly influential factor in improving student learning and achievement (Hattie and Jaeger, 1998), there remain considerable difficulties with it both pedagogically and practically. For example, from a pedagogical perspective feedback is rarely defined in studies undertaken into it and with a few exceptions (Hounsell *et al*, 2007) it is largely discussed as a general and generalizable concept across (or in spite of ) discipline-based pedagogies.

Reflecting on the Action Research experience it would be helpful to identify those students who are less likely to engage in this form of leaning and therefore may initially require extra support. Some students commented on the difficulty of engaging in group activities, the time allotted for the process, and the desire to want to know 'what to do'. In PBL the responsibility for learning is on the student which might not be their preferred learning style, although it could be argued that the profession of Sports Therapy demands the qualities developed by PBL to be an effective practitioner. Only one module utilised PBL and although appeared to be valued by the majority as a positive experience, was not desired by students to be integrated across all modules. Students reported to the tutor that whilst PBL was enjoyable 'more effort' was required. On further discussion they were possibly being

challenged into deeper engagement in their cognitive process being active learners. What much of the literature on engagement seems to point to is the need for academics to understand that student engagement is strongly related to learner identity and students' pedagogical stances. Whilst this is still an area that needs further development in higher education, in general this link is increasingly being made in the PBL literature (Sadlo & Richardson, 2003; Fredholm, Savin-Baden, Henningsohn, & Silén, 2015). Early studies into PBL facilitation tended to examine how facilitation was undertaken and ways in which it could be improved to support students' learning. Yet more recent work has indicated that student engagement in PBL remains a complex and contested concept (Yew & Yong, 2014) that requires further consideration in problem-based learning, and higher education in general.

Other problems were the complexity of the problems, as the students were asking for more information, knowledge and time. However, this could be lack of experience in group work or student confidence in their ability to explore the problem. The number in each group was chosen so that the group would not be too large for everyone to feel comfortable participating yet not too small to make it viable. Problems did occur with attendance which made some groups difficult to sustain. Personal communication with a student faced with this problem revealed a frustration and envy at those groups she perceived to be working. Perhaps more time to develop the group into a team before engaging in problem scenarios could be effective. Different modes of feedback could be considered, not just the presentations or exams, to more effectively illustrate how each student is relating and learning in the group.

Feedback from the tutorial observations are in agreement with Schmidt and Moust, (1995) that a willingness of tutors to engage with students in an authentic way with an ability to express themselves in way understood by students is essential to the success of PBL. Time management could be a potential problem as this study demonstrates, with the tutor and students both learning through PBL. However as PBL ebbs and flows with change and is fluid with learning so the tutors need to be prepared for similar changes and be adaptable. Based on this study, the advantages of PBL for these first year Sports Therapists could be summarised by the following: fostering interactive learning, improved understanding and development of lifelong learning skills, allowing students to develop generic skills and attitudes relevant to their future practice. The style of PBL learning appears to have placed some students in a state of disjunction, as they were challenged to shift from a passive recipient role, with the didactic customary lectures into more active participatory learners.

However, the negatives could be summarised: students may be unsure how much self directed study to do and what information to collect or use and that students may feel the process is unfair because of the grouping they are assigned to and the individuality of the students contributions.

### **7. Concluding thoughts**

The spirit of PBL was well summed up by Savin-Baden (2000) who reported that: it is an approach to learning that is characterised by flexibility and diversity in the sense that it can be implemented in a variety of ways in and across different subjects and disciplines in diverse contexts. As such it can therefore look very different to different people at different times depending on the staff and students involved in the programmes utilising it. However, what will be similar will be the locus of learning around problem scenarios rather than discrete subjects.

In this specific instance, the use of a PBL approach appears to offer advantages in terms of student enjoyment, engagement and development of criticality compared to traditional lecture-led delivery in Sports Therapy. However, care is needed in terms of initial delivery, particularly with groups who have no experience of PBL and who are new to university education. Future work examining the lived experience of PBL within Sports Therapy and its integration into the whole year and course is needed to really identify key elements that could be used to structure future curricula including an appropriate assessment.

### **References**

- Abrandt, M., Castensson, R. and Dahlgren, L.O. (1995), Problem-based Learning in an undergraduate environmental education – an evaluation. Linköping University: Department of Geography and Department of Educational Psychology Higher Education
- Abrandt, M., Castensson, R. and Dahlgren, L.O. (1998), PBL from the teacher's perspective. Conceptions of the tutor's role within problem based learning. *Higher Education*, 36: 437-447.
- Barrows H.S. & Tamblyn R.M. (1980), *Problem-Based Learning: An Approach to Medical Education*. New York: Springer Publishing Company
- Bell, A. (2008), The trials and tribulations of teaching sports therapy. *SportEX dynamics* (18) 24-26
- Boud, D., (2000), Sustainable Assessment: rethinking assessment for the learning society *Studies in Continuing Education*, 22, 2, 151-167.
- Braun, V. & Clarke, V. (2006), Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3 (2), 77-101
- Brydon-Miller. M., Greenwood, D., and Maguire, P., (2003), Why action research? *Action Research*, 1,1, 9-28

- Camp, G., (1996), Problem-based learning: A paradigm shift or a passing fad? *Medical Education*, 1, 2-6.
- Dunlap, J. D., (2005), Problem-based learning and self-efficacy: how a Capstone course prepares students for a profession *Educational Technology Research and Development* 53, 1 65-83
- Fredholm, A., Savin-Baden, M., Henningsohn, L., & Silén. C. (2015), Autonomy as both Challenge and Development in Clinical Education. *Learning, Culture and Social Interaction*, 5 20-27.
- Hattie, J. and R. Jaeger; (1998), Assessment and classroom learning: A deductive approach. *Assessment in Education* 5(1) 111-122.
- Hawk, T. F. and . Shah, A. J (2007), "Using Learning Style Instruments to Enhance Student Learning" *Decision Sciences Journal of Innovative Education* [doi:10.1111/j.1540-4609.2007.00125.x](https://doi.org/10.1111/j.1540-4609.2007.00125.x)
- Heinrichs, K., (2002), Problem-based learning in entry-level athletic training professional-educational programs: A model for developing critical thinking and decision-making skills. *Journal of athletic training*, 37, (4 Supplement), 189-198
- Hounsell, D. (2007), Towards more sustainable feedback to students in D. Boud and N. Falchikov (eds) *Rethinking Assessment in Higher Education*. London: Routledge 101-113
- Krishnan. S., Gabb, R., and Vale, C. (2009), Learning beyond the discipline: encouraging students to cross disciplinary boundaries in PBL. *20th Australasian Association for Engineering Education Conference University of Adelaide, 6-9 December* 117-122 <http://aaee.com.au/conferences/AAEE2009/PDF/AUTHOR/AE090082.PDF>
- Kolb, D. A., and Fry, R. (1975), Towards an applied theory of experiential learning. In C. L. Cooper (Ed.), *Theories of group processes*. Chichester: John Wiley and Sons Ltd.
- Kuh, G .D., Kinzie, J., Buckley, J.A., Bridges, B.K., and Hayek, J.C.( 2007), *Piecing together the student success puzzle: Research, propositions, and recommendations*. ASHE Higher Education Report 32, no. 5. San Francisco: Jossey-Bass.
- Leite, W. L., Svinicki, M. & Shi, Y. (2010), Attempted Validation of the Scores of the VARK: Learning Styles Inventory With Multitrait-Multimethod Confirmatory Factor Analysis Models. *Educational and Psychological Measurement*. 70, 323-339.
- Macdonald, R. and Savin-Baden, M., (2003), *A briefing on assessment in problem-based learning*. LTSN Generic Centre Assessment Series No 7. York: LTSN Generic Centre.
- McConnell, D., (2002), Action research and distributed problem-based learning in continuing professional education *Distance Learning*, 23,1, 59-83
- O'Donoghue, G., McMahon, S., Doody, D., Smith, K. And Cusack, T. (2011), Problem-based learning in professional entry-level therapy education: A review of controlled evaluation studies *The interdisciplinary journal of problem-based learning* 5 1 54-73
- Prochaska, J.O., and DiClemente, C.C., (1983), Stages and processes of self-change of smoking: Toward an integrative model of change., *Journal of Consulting and Clinical Psychology*, 51, 390-395.
- Sadler, D. R. (1989), Formative assessment and the design of instructional systems, *Instructional Science*, 18, 119–144.
- Sadlo, G. & Richardson, J.T.E. (2003), Approaches to studying and perceptions of the academic environment in students following problem-based and subject-based curricula. *Higher Education Research and Development*, 22 (3), 253-274. ISSN 0729-4360
- Savin-Baden, M., (2003a), *Facilitating problem-based learning*. (Buckingham: SRHE/Open University Press).

- Savin-Baden, M. (2003b), Disciplinary Differences or Modes of Curriculum Practice? Who promised to deliver what in Problem-based Learning?. *Biochemistry and Molecular Biology Education* 31 (5), 338-343
- Savin-Baden, M. and Major, C., (2004), *Foundations of problem-based learning*. (Buckingham: SRHE/Open University Press).
- Schmidt, H. G. (1983), Problem-based learning: rationale and description. *Medical Education* 17(1)11-6;
- Schmidt, H. G. and J. H. Moust (1995), "What makes a tutor effective? A structural-equations modeling approach to learning in problem-based curricula." *Academic Medicine* 70(8): 708-14.
- Schmidt, H.G., and Moust, J.H.C. (2002), Towards a taxonomy of problems used in problem-based curricula *Journal for Excellence in College Teaching*, 11 (2), 22-57
- Silén, C. (2006), The tutor's approach in base groups. *Higher Education* 51: 373–385.
- Trowler, V. and Trowler, P. (2010), Student engagement literature review. *The Higher Education Academy*.  
[www.heacademy.ac.uk/resources/detail/evidencenet/Student\\_engagement\\_literature\\_review](http://www.heacademy.ac.uk/resources/detail/evidencenet/Student_engagement_literature_review)
- Van Manen, M. (1990), *Researching lived experience: Human science for an action sensitive pedagogy*, Albany, NY: State University of New York Press
- Wilkie, K. (2004), Becoming facilitative: Shifts in lecturers' approaches to facilitating problem-based learning. In *Challenging research in problem-based learning*, ed. M. Savin-Baden. and K. Wilkie, 81-92 Maidenhead: SRHE and Open University Press.
- Wilkinson, S. , (2004), Focus Group Research. In D. Silverman (Ed), *Qualitative Research, Theory, Method and Practice*. London: Sage. 178-199
- Williams, B., (2004), The implementation of Case-based learning – shaping the pedagogy in ambulance education., *Journal of Emergency Primary Health Care.*, 2, 3-4.
- Wood, D. F., (2003), ABC of learning and teaching in medicine: Problem based learning. *British Medical Journal*, 326, 328-330.
- Yew. E. H.J. & Yong, J.J.Y (2014), Student perceptions of facilitators' social congruence, use of expertise and cognitive congruence in problem-based learning *Instructional Science*, 42 (5), 795-815.
- Zepke, N., and Leach, L. (2010), Improving student engagement: ten proposals for action. *Active Learning in Higher Education* 11, 3: 167–177.

Maggie Savin-Baden is now Professor of Education Research, University of Worcester Henwick Grove, WR2 6AJ Michael Duncan is Professor in Exercise Science, Department of Applied Sciences and Health, Coventry University. Sheila Ledington Wright is in the Department of Applied Sciences and Health, Coventry University.

National Student Survey (2012) Higher Education Funding Council for England

<http://www.hefce.ac.uk/lt/nss/results/2012/>

Savin-Baden, M. (2006) 'Challenging Models and Perspectives of Problem-based Learning', in *Management of Change: Implementation of Problem Based and Project Based Learning in Engineering*. ed. by de Graaff, E., & Kolmos, A. Utrecht: Lemma Publishers, 9-30

Confirm that Sports Therapy is the beginning of the sentence  
I accept the edits made in the sentence "This study adopted ..."

Reason, P., & Bradbury, H. 2006. **Handbook of Action Research**: Concise paperback edition: 362. London: Sage Publications

Baden, M., and Major, C. (2013) *Qualitative Research: The Essential Guide to Theory and Practice*. London: Routledge  
Reference now deleted