The implementation of problem based learning styles to teach the Coach-Athlete relationship to undergraduate Sport and Exercise Science students

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Abstract

This study explored problem based learning (PBL) styles and it's suitability to improve the learning experience of level 6 (third year) Sport and Exercise Science undergraduate university students compared to a traditional style of lecturing when teaching the Coach-Athlete relationship. Sixty-four ($M^{age\ years}$=23.47, SD=3.44) students attended a lecture on the topic of the Coach-Athlete relationship.A PBL task was implemented using images of a coach showing a hostile approach and another image of a coach using a friendly approach. These images were used to initiate discussions about the potential problems the scenarios could elicit. At the end of the session student'scompleteda questionnaire regarding their thoughts about the session's ability to aid learning and whether they felt it was preferred over a traditional style of lecturing as well as their enjoyment of the session. Eighty one percent (n=52) of participants found the task helpful to aid learning, 66% (n=42) of participants indicated that using this style of lecture could aid learning more than a traditional approach and 73% (n=47) of participants enjoyed the task. It may be useful to use PBL styles in lecture sessions to engage students within the topic area of the Coach-Athlete relationship.PBL could also be used to help develop transferable skills for those students who want to pursue a career in coaching.

Keywords: Coach- Athlete relationship; Sport; problem based learning

Introduction

A central component of PBL is defined as'linking theoretical knowledge to practical application through the use of collaborative groups in which students are responsible for deciding what is to be learned' (Cockrell, Caplow and Donaldson, 2000, p.348). PBL has six basic phases; these includean encounter with the problem, free inquiry, identification of learning issues, peer teaching, knowledge integration and problem solution. Cockrell et al (2000) state that during the first phase students should encounter a problem, usually presented in case study form. The students then have to identify the nature of the potential problem and during the free inquiry stage should question their understanding of the terminology and concepts, and recall and apply existing knowledge. This should leave the student with a list of what they believe needs to be known to understand and address the problem fully. Then students should allocate themselves tasks within the group for independent investigation. Traditionally, students will have a second meeting in which they engage in peer teaching by presenting the results of their investigations to other members within the group. The group can then discuss how to relate the information presented to the problem and develop a possible solution. PBL involves students exploring challenging, open-ended problems in small collaborative seminar groups where the lecturers take on the role as 'facilitators' of learning (Moore, 2009).

This type of teaching is suitable when trying to aid students learning in a scenario which is applicable to the real world, for example PBL is extensively used within business and medical qualifications. Vygotsky (1978) states that activities requiring cooperation among individuals reflect how tasks are usually accomplished in practice. There has been some research centred on PBL as a

curricular and instructional innovation, with some equivocal findings. Albanese and Mitchell (1993) found that there was no difference in the diagnostic reasoning skills between students who were taught using PBL and those who were taught using a more traditional lecturing style. Patel, Groen and Norman (1991) found more errors and a lack of decisiveness among students who were taught by PBL. However, Claesson and Boshuizen (1985) found that PBL students had greater recall of basic science information than those in a conventional curriculum, but found that PBL students were more likely to include more irrelevant information within their subsequent analyses. In a five week study, Bernstein, Tipping, Bercovitz and Skinner (1995) integrated PBL tasks within a medical context and students indicated that it helped them develop skills in communication, increased knowledge retention due to discussion opportunity, and increased interest within the topic rather than just memorising material. Gabbert, Johnson and Johnson (1986) suggest that PBL promotes a critical reasoning skill, which is a key competence to develop when enrolling on a University degree programme. Lewis, Menezes, McDermott, Hibbert, Brennan, Ross and Jones (2009) explored differences inmedical students' perceived course-related stress between PBL and non-PBL lecture delivery. The results demonstrated significantly higher levels of stress in the PBL group, which was because students felt unsure of their knowledge due to lack of feedback from lecturers/tutors.

Schmidt and Moust (2000) explain that the challenges of using PBL teaching styles would be to think that the easy option is to create problems around chunks of knowledge we think students need to know, but the starting point should be skills and/or competencies that students will need to work upon within the area of Sport and Exercise Science. They go onto explain that there are four different types of problem; 1) explanatory knowledge, which explains why a particular view point stands, 2) descriptive knowledge, which involves fact finding problems, 3) procedural knowledge, which surrounds what you would do given a specific scenario, and 4)personal knowledge, which involves more of a personal dilemma problem.However, a number of different problems could be presented in one scenario.

Savin-Baden (2003) list a number of useful tips for problem construction, which include to start with a problem that students will have some knowledge of, use problems that will motivate them and that are relevant to practice, use media if possible (e.g. video clips, images and/or sound bites) and where possible use authentic scenarios. This is useful, especially when using this type of learning within a Sport and Exercise Science setting because students need to think about applying knowledge to real examples, especially when they could be in a situation where they need to solve a problem that a future athlete presents them with. There is no use in learning all the theory and surrounding literature if the student is then unable to apply this information to their clients (e.g. athletes and/or coaches). Martin, West and Bill (2008) investigated a 12 week PBL intervention with Sport Science Undergraduates and found that students perceived the benefits of PBL to be the opportunity to work in teams and to consider a wider knowledge base. A short course of PBL was successful in developing learner autonomy and other key employability skills alongside the application of content knowledge. Jones and Turner (2006) explain that PBL possesses the potential to help sports coaches towards higher transferable knowledge, flexibility, critical reflection and lifelong learning qualities. Skills such as problem solving and working within a team in a Coach-Athlete environment are invaluable as communication plays an important part in the Coach-Athlete relationship (Philippe and Seiler, 2006).Therefore, the aim of the current study is to ascertain the benefits of PBL within a Coach-Athlete relationship lecture to Sport and Exercise Science undergraduate students.

Materials and Methods

Sixty four (39% female, $M^{age\ years}$=22.64, SD=2.02 and 61% male, $M^{age\ years}$=24.30. SD=4.86) third year (level 6) undergraduate students enrolled on a Psychology of Sport Coaching module within a Sport and Exercise Science undergraduate degree programme attended a lecture involving a PBL task based around the Coach-Athlete relationship. Students that attended the lecture were invited to complete a questionnaire examining their thoughts regarding thePBL session. Students were divided into two groups, group one (n=32) were provided with a visual of a 'friendly' coaching approach and group two (n=32) provided with a 'hostile' coaching approach visual. These groups were then asked to divide themselves into smaller groups (4-5 students) for discussion purposes. Both groups were then asked to try and identify what possible coaching traits were being displayed in the picture and the potential problems with these coaching traits. This was then followed by a feedback session, where individuals presented their ideas, potential positives and negatives about the visuals and how they might go about solving these problems. Students were then asked to complete the questionnaire

about their experiences within the session asking them to rate on a likert scale (1-5) how much they enjoyed the session, if they felt it aided their learning and if they preferred it to the traditional lecturing style approach. There was also room on the questionnaire to add supporting statements to why they had given theses answers.

Results and Discussion

The questionnaire asked students to rate on a scale of one to five'how helpful' they felt the task was. The results (figure 1) show that the majority of students (81%, n=52) found the task helpful to learning the subject area. Importantly, few students reported PBL to beUnhelpful (3%, n=2) or Very Unhelpful (2%,n=1).
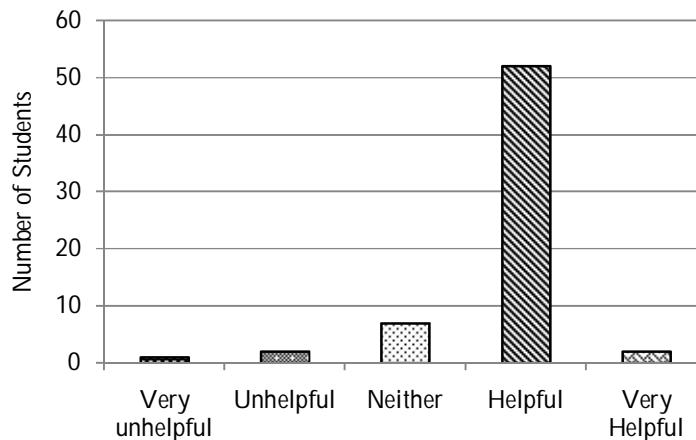

Figure 1: Questionnaire responses to 'Did you find the task helpful?'

This finding was further supported by qualitative data where individuals were able to provide a reason why they were selecting their answers. The positive comments included responses such as 'Because I am a visual learner it makes it easier to understand', 'I think it is a more engaging manner of teaching as opposed to the conventional lecture format (i.e. constant ranting)', 'It made me reflect as a coach', 'It gave me an actual situation in which I thought about other aspects of coaching styles', 'Easier to relate to a scenario if you can actually see it and relate to it'. The negative aspects were'Although it allowed some reflection, conversation diverted away from the topic', 'It was too repetitive and I think there should have been more pictures'.

These supporting statements would suggest that a visual learner maybe more suited to PBL tasks and it is important to highlight that PBL may be implemented into other styles of teaching. From the comments it may also be suggested that using applied examples are more helpful to aid an individual's learning by giving them the ability to relate to the situation presented. In addition, PBL may empower students to discuss and think about the situation presented rather than just listening to lecturers talk about the topic area. From the population sample in this studyit is evident that students find this type of teaching style helpful in aiding them to learn important applied coaching skills.

Students were then asked if they felt they were able to learn more from PBL tasks, rather than traditional lecturing styles. The optional responses were 'Yes', 'No' or 'Undecided', with an option to support the answer with reasoning.Figure 2 shows that 66% (n=42) of the sample thought that they could learn more using the PBLtasks, rather than traditional style lectures, 9 (14%) students preferred traditional lecture delivery and 13 (20%) studentswere unsure.
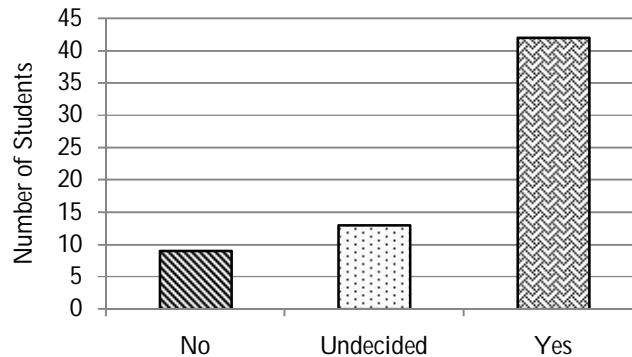
Figure 2: Questionnaire Responses to 'Do you think you can learn more using PBL compared to traditional lecture styles?'

The answers were supported by statements such as 'Most people are intrigued by pictures and so enjoy the tasks more', 'Pictures explain better and allow people to understand what lecturers are saying', 'I think it's more helpful to pick up other ideas from my fellow peers', 'The task led myself to actually visualise myself in those situations which brought about answers I never really considered', 'I get bored listening all the time and it's nice to get involved and share thoughts and opinions', 'It gives an added dimension to the subject', 'It made me get involved', 'It allows room for discussion to listen to different ideas'.

Participants who did not think that the PBL task was helpful provided the following comments, 'Do not get enough proper information from the task, it was thought provoking but wouldn't want to use this too often', 'It doesn't particularly teach me more academically but does widen my knowledge of sport and get me thinking outside the box', 'I am here to learn from the lecturers not other students!', 'I think lecture styles have more guidance and structure to make sure we achieve our task'.

It would appear that students who think they can learn more from the PBLstyles liked interacting and learning from ideas/opinions given by other students/peers.The ability to interact, listen, and communicate efficiently are important skills in Sport and Exercise Science, as a students could soon be in a position where they are working with clients such as athletes or coaches, thatrequire these skills.From a Sport Psychologist's perspective, it may simply be listening to the individual's problem.Indeed, Tod, Thatcher and Rahman (2010) describe in the literature that often the role of a sport psychologist maybe to listen to the athlete rather than prescribe solutions to specific problems. Another key area of working in the Sport and Exercise Science industry is the ability to work within a team. For example, when working with athletes it is probable that there will be other key members of a team, such as acoach, psychologist,physiologist, and/orbiomechanist. Communication within a group is vital. PBL promotes listening, working in groups, and taking on board otherindividual's opinions and therefore could be considered a valuable tool within a Sport and Exercise Science setting.

The students were then asked whether or not they enjoyed the session, given the choices of 'Yes', 'No' or 'Undecided' as with the last set of responses. Figure 3 illustrates the responses and the majority of students (74%, n=47) indicated that they enjoyed it. Importantly, only 4 (6%) students did not enjoy the tasks, with13 (20%) student's undecided.
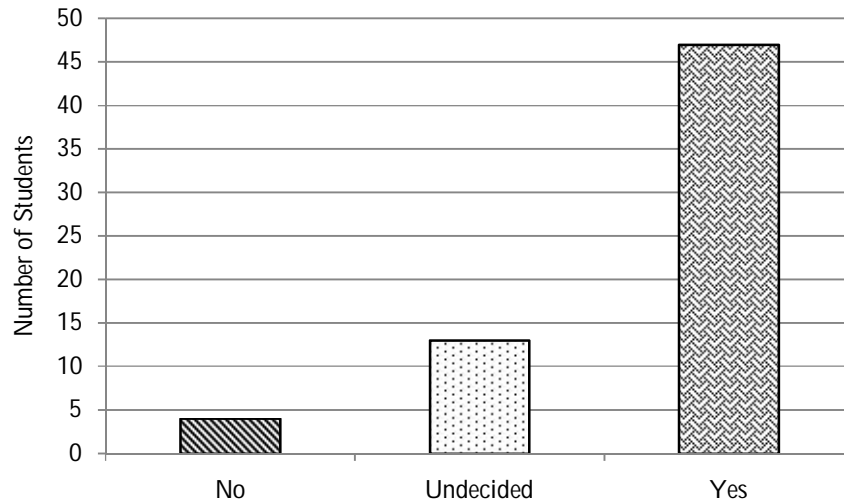
Figure 3: Questionnaire responses to 'Did you enjoy the PBL tasks?'

The majority of students enjoyed the group tasks and these were supported by statements such as 'Group talks are good', 'Gave me something to refer to when doing my tasks, was helpful and gave me a better understanding and I was able to answer for myself', 'It breaks up a lecture and gave me more motivation and concentration to stay', 'It was very informative and gave different coaches views and interpretations', ' It was simple and to the point', 'It allowed me to keep focus through the sessions', 'Fun not sat copying lecture slides'.

Students who did not enjoy the task said it was 'Difficult to talk about in a large group as lots of people don't like to talk even though they might have good ideas', and 'Would rather have been given the information, there was a lack of participation from other students'. This highlights the fact that some students do not like talking in front of others and potentially shy away from discussing ideas about what they think and the solution to a problem.In addition, passive learners would also prefer just being given the information rather than discussing it.

Sample responses included in this research would suggest that students learn key skills and information from PBL tasks as well as beingan enjoyablelearning experience. Students may be able to learn more by incorporating PBL style session into conventional lectures where appropriate, within a Sport and Exercise Science context.

It is important to note that this is only a small sample from a single institution and may not be a reflection of the wider community. Furthermore, it may be inappropriate to use PBL style with students who are in the first year (level 4) of their undergraduate degree as they are unlikely to have the sound knowledge of theory that may be required to complete PBL tasks.However,PBLwould be a valuable tool in the second (level 5) and third year (level 6) of undergraduate teaching; especially in the area of Sport Psychology as there are a lot of potential PBL scenarios. It would also be valuable to investigate the use of PBLwithin research methods and statistical analysis, since these provide important study skills and are relatively complex areas for students to understand. Incorporating PBL may affect how a module is taught and the assessments that are used within the module. The impact PBL has on undergraduate Sport and Exercise Science student achievement requires further research.However, using PBL may encourage student engagement, assist in the understanding of lecture material and develop key independent learning skills.

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