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Do Problem-Based Learning approaches provide effective educational interventions for music therapy training courses? Experiences from an action research project at the University of South Wales

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ABSTRACT

A Problem-Based Learning (PBL) approach was piloted across the Master's in Music Therapy programme at the University of South Wales. The main aim of the project was to explore whether the development of music therapy students' practical and clinical reasoning skills could be enhanced by using a PBL approach during training. Case scenarios integrating many aspects of required learning covering key curriculum areas were developed and used in PBL sessions with each year group. The sessions were facilitated by a trained PBL facilitator and observed by the course leader. Students completed a pre- and post-PBL survey, giving information about their confidence in several areas of clinical reasoning. Feedback was also gathered on their views on the PBL approach and effects on their learning experience. Results show that engaging with the PBL process had a positive effect on students' clinical reasoning confidence, and that students valued the experience.

AUTHOR BIOGRAPHIES

Sally Holden, MA, FHEA, BSc. Sally is a registered music therapist and was one of the first graduates from the MA Music Therapy course at the University of South Wales. With a background in medical education, eLearning and PBL, she worked with academic staff at the University of South Wales to deliver this project, which formed the basis of her final year's MA music therapy dissertation. Sally works in several settings, including dementia care and with children living with the effects of trauma. [salholden@gmail.com] **Elizabeth Coombes**, MA, FHEA, BMus. Elizabeth is a registered music therapist (HCPC), university lecturer and musician. She is also the course leader of the MA Music Therapy course at the University of South Wales, Newport. Since qualifying in 2000, Elizabeth has specialised in working with children and young people with emotional and behavioural difficulties. She uses psychodynamic thinking to underpin her work, and also utilises her considerable experience in community music-making. She has worked on skill-sharing therapeutic music projects in the West Bank since 2009, and also in the UK. She has a particular interest in how sharing these skills with non-musicians such as teachers, social workers and carers can enrich their professional practice. She has a practice in palliative care and is an advanced GIM student. [elizabeth.coombes@southwales.ac.uk] **Dr Kathy Evans**, BEd, MA, MEd, PhD. Kathy was a teacher and manager for 15 years in both mainstream and specialist settings. Her doctorate was a cross-national study of the educational inclusion of pupils with social, emotional

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INTRODUCTION

An essential and significant part of all music therapy training programmes in the UK is the clinical placement. Clinical placements as part of master's music therapy trainings in the UK are governed by the regulations of both clinical and university settings. These may vary according to each institution's requirements, but all courses ensure students attain the HCPC (Health and Care Professions Council) Standards of Proficiency (HCPC, 2013) by the end of their training. By the time students become practising music therapists, they will have usually worked in a variety of settings covering diverse areas of clinical practice.

It is widely recognised that clinical reasoning ability is a key skill for effective clinical work as music therapists. A roundtable presentation at the British Association for Music Therapy (BAMT) conference in 2014 (Bunt, Coombes, Hung Hsu, Lindeck, Loth, Procter, Twomey, Vaz and Watson) discussed this in relation to the development of clinical skills, current music therapy pedagogical practices and matters relating to employability. Music therapy students need to acquire a range of clinical skills as they develop their work with their clients and build their own therapeutic personas. Karen Goodman (2015) highlights the importance of these, including personal skills, therapy skills and music skills. The student music therapist then is charged with not only having sufficient musicianship to effectively meet the client in music but must also be able to select the most appropriate way of connecting with the client, using knowledge of the client's issues. There is therefore a complex interplay of skills needed that it is challenging to acquire and put into practice. The panel of the aforementioned roundtable, which was comprised of master's of music therapy programme trainers, researchers, employers and recent music therapy graduates, highlighted how clinical reasoning ability was an important skill required by employers/commissioners of music therapy. Ming Hung Hsu proffered the view that while employers realised that newly qualified music therapists could not have acquired in-depth knowledge about all the client groups they might be working with, it was important that there be an understanding of how such knowledge could be acquired.

Felicity Baker describes clinical reasoning as a practice that involves "integrating theory, evidence-based research (when it exists), and knowledge formed from prior experiences" (Baker, 2007, p. 28). When Music Therapy students begin their clinical practice during training, however, their prior experiences are limited. How then can they acquire and develop clinical reasoning skills during their years of training yet still develop robust practice that will enable them to gain employment and work effectively in clinical environments?

When reviewing the music therapy training programme at the University of Queensland, Baker (2007) observed that no component of the training specifically focused on developing clinical reasoning. This was also noted in a review of the MA Music Therapy course at the University of South Wales (USW) in 2014. There is an ongoing debate around the effectiveness of Practice-Based Learning (PBL) in affecting students' clinical reasoning in many professions, but these words from an occupational therapy student in a study of student perspectives of PBL, and in particular how it affects clinical reasoning, are particularly striking: "I think clinical reasoning is taking what you've learned in

PBL and being able to apply it to each individual person and a person as a whole, not just a diagnosis or a disability" (Hammel et al., 1998, p. 204). In an endeavour to foster and build clinical reasoning skills required not only while training but when in clinical practice, it was decided to pilot a PBL action-research project on the MA Music Therapy course at USW. The reasoning behind selecting this particular pedagogical method is set out below. The project was carried out over the academic year 2014-2015, and was funded by the CELT (Centre of Excellence in Learning and Teaching) at USW. It piloted the use of PBL with students in all years of the three-year part-time MA Music Therapy course and became the dissertation project of a Year 3 student who was also a trained PBL facilitator.

PROBLEM-BASED LEARNING (PBL)

The body of PBL pedagogy is vast and continues to grow. It covers many subject areas, approaches and educational settings. PBL is considered by David Boud to be "the most important development since the move of professional training into educational institutions". Yet he goes on to question why it continues to be "so attractive and yet so controversial" (Boud, 1997, p. 1).

Before covering some aspects of how PBL may be effective in developing music therapy students' clinical reasoning skills, it is useful to look at basic principles of PBL and models considered within that umbrella term. A definition of PBL by Howard Barrows, an early pioneer of this method in medical education, outlines its main characteristics as follows:

- learning is student-centred
- learning occurs in small groups
- teachers act as facilitators, guides or tutors
- problems form the organising focus and stimulus for learning
- problems are the vehicle for the development of clinical problem-solving skills (Barrows, 1996).

Other characteristics common to most forms of PBL and its hybrids include the acknowledgement of the experience and knowledge of learners, and students taking responsibility for their own learning under the guidance of a tutor. Key aims are the integration of theory with practice and the crossing of discipline boundaries. There is a focus on the process of knowledge acquisition rather than the products of the process. During the PBL process there is a change in staff roles from instructor to facilitator, and often a change from staff assessments of outcomes of learning to student self-/peer-assessment. There is also more emphasis on communication and interpersonal skills within the learning process (Savin-Baden, 2000).

PBL can be considered as a form of small-group learning which offers students the experience of working in a group of their peers with a trained facilitator. The stimulus for learning, the 'problem' in PBL, is presented in an appropriate format for the discipline and may use a variety of media. In medicine, for example, it might be "a written case, case vignette, standardised (also called simulated) patient, computer simulation, videotape" (Barrows, 1996, p, 5). Students are presented with the 'problem' in a similar way to how clients or patients present in reality with symptoms, complaints, issues etc., within a case or clinical vignette. Identification of what students in the group already know and what they then need to find out to solve the problem(s) are at the heart of the PBL process. From

this process, learning objectives are generated which are then researched by the group individually in self-directed learning (SDL), and brought back for discussion, debate and integration. Thus "students are expected to learn from the world's knowledge and accumulated expertise by virtue of their own study and research, just as real practitioners do" (Barrows, 1996, p. 6).

To summarise, PBL cases integrate aspects of required learning into a case scenario or clinical vignette, thereby providing a model for clinical reasoning in professional practice. Overall, then, "PBL can be seen as an example of a learning environment that fosters active, constructive, contextual, cooperative, and goal-directed learning" (Moust et al., 2005, p. 667). Once decisions were made on the subject areas, topics and levels of case complexity which were to be covered using a PBL approach, the next steps were to identify, modify and/or develop the required number of appropriate case scenarios or clinical vignettes. According to John Savery and Thomas Duffy, when generating problems for use in PBL "there are two guiding forces". These are: "to raise the concepts and principles relevant to the content domain" and, secondly, that "the problems should be real" (Savery & Duffy, 2001, p. 11). In many professions the problems can be based on real patients or amalgamations of patients/clients which raise the important points of content which faculty/academics decide are important for students to cover. Learners will tend to become more engaged with real problems, and their motivation to research the learning outcomes arising from it will be higher. Careful wording of case scenarios and the information within them will result in more effective learning being stimulated within the group and individuals.

A form of PBL, which is widely used and was first developed for use with medical students in Maastricht University, is the seven-step model (see Table 1). A new UK medical school adapted the same original seven-step model during its first 12 years of operation, adding an extra step of integration and transfer which aims to test the transferability of students' learning. This extra step involves similar cases to the PBL case scenario being introduced, as well as directed questions asked of the students before the final (now eighth) step. In the USW PBL project the basic seven-step model was used, but with modifications in the Year 2 and Year 3 student groups to include directed tasks which may also reinforce students' learning. As mentioned above with the medical students, adding this extra step was an attempt to influence the development of transferability of learning while the clinical placements were being undertaken. In Year 1, the pre-clinical phase, the original seven-step model was used, with emphasis placed on the concept-mapping. Concept-mapping as an activity is a way that students can visualise, organise and, thus, reinforce their learning during the SDL sharing stage of PBL. However, Geoff Norman points out that when students reinforce learning in the context of a single case or problem it may lead to later problems in transferring that learning to other scenarios (Norman, 2009). Thus, it is clear that there is a need to give students a variety of relevant problems and tasks which allow them to develop their transfer skills. Year 2 and Year 3 students were given relevant directed simulated tasks which reinforced their learning and practice in transferring learning to other clinical situations.

DESIGN, RESEARCH METHODOLOGY AND DATA COLLECTION

In summary, the USW PBL project's research aims were to explore whether a PBL approach was feasible in music therapy training at USW, and to find out whether it could help music therapy students

at different levels in their training prepare for clinical placements and future professional work. A key area for research was to find out whether music therapy students' confidence in their practical clinical reasoning skills used in the planning and delivery of music therapy interventions could be enhanced by using a PBL approach during training. The project also aimed to explore what perceptions the USW music therapy students had of PBL, its effects (if any) on their learning experience, and the factors which influenced those effects.

Steps	Activities
1	• Revealing the case scenario, which is read out by a group member • Clarification of terms and definition of what the case is about
2	• Brainstorming all possible aspects of the case • One of the group records (scribes) all discussion points on a whiteboard • Discussion of key issues arising from the case
3	• Identification of prior learning, i.e. what students already know
4	• Identification of areas which students need to find out more about • Formulation of learning objectives to be researched by each member of the group in their self-directed learning
5	Step 5 is carried out by students between PBL sessions one and two. • In between the first and second PBL session students are expected to research all the learning objectives formulated collaboratively by the group during their self-directed learning (SDL) • This allows the group to come to the second PBL session ready to feed back, share and exchange information
6	• Sharing results of SDL: students challenge, construct and fill gaps in their learning • Identify sources • Issues are debated, different opinions discussed/challenged/defended and consensus reached if/when there is confusion
7	This step has slight variations in each year related to an integrated clinical task or absence of it. • Concept map (Year 1) or task-based activity (Years 2 and 3) • Feedback

Table 1: The Maastricht PBL seven-step model with a brief explanation of each step

Action research (AR) was chosen as the research methodology since the project mapped against many of AR's main characteristics. It was practice-based, focused on improving learning, was collaborative, and could potentially contribute to social and cultural transformation. (McNiff, 2010). According to Paul McIntosh, action research "becomes a way of being that is full of potential, surprises and unpredictability, so absolute answers to questions become meaningless, because whatever is found becomes a new question" (McIntosh, 2010, p. 37). Since reflection is a fundamental part of music therapy practice, (Wheeler, 2002), the choice of an approach which makes use of the ability to think reflectively seems appropriate. Designing, running and evaluating this educational intervention and action-research project was a valuable exercise in reflection and reflexivity.

Research activities within the USW PBL project included design of the appropriate data collection methods which resulted in use of pre-/post-PBL student questionnaires and focus groups. Choices were made around an appropriate PBL model and subject area for each year group. The topic of each case scenario followed the subject that had been outlined in each year's timetable content. For example, in Year 1, at that point in the year, the students would have been studying autism and music therapy, so the PBL scenario was designed with this in mind. The same thinking process was used to design the scenarios for Years 2 and 3. A suite of pilot music therapy case scenarios in the agreed PBL format was then developed. Facilitation and delivery of the PBL sessions with students in each year group using the relevant PBL case scenarios was then followed by analysis of the results.

In this project there was a need to obtain answers for USW providing "findings, facts, clear expositions and straightforward policy recommendations" (Delamont, 2012, p. 4), as well as a need to explore freely, with students and staff, this new educational ground. As Tony Greenfield (2002) recommends, the research methods were carefully planned but the researchers remained open to "creative leaps" (Greenfield, 2002, p. 5) throughout, arising from unanticipated directions of travel and thought. A balance between approaches led to the research questions being answered using a combination of qualitative and quantitative methods. The combination of facts, figures and participants' experiences gathered using this mix of research methods led to a clearer picture of the overall effect of the use of a PBL approach in music therapy training in USW. There was also a need to carry out this research within the time constraints of the MA and therefore the study could be considered relatively "short-term" (Bell, 2010, p. 118). To ensure no extra time was being asked of students it was decided that all PBL sessions would be delivered during time slots already in all cohorts' timetables. Ideally a PBL session works well within a two- to three-hour time slot, but due to timetabling constraints this was not possible. All PBL sessions were therefore delivered during the weekly seminar slots of 1.5 hours. They were run over a two-week time period, giving students a week in between sessions one and two in which to carry out their self-directed study activities. Careful timing with the assessment calendar ensured that the sessions did not clash directly with deadlines in other areas of the course, thereby not putting extra pressure on students.

In summary, there were two PBL sessions of 1.5 hours per year group which were delivered in lecture slots over a two-week period. Each group was therefore in PBL sessions for a maximum of three hours. These sessions were delivered at various times over the academic year, with Years 2 and 3 being delivered in December 2014 and Year 1 being the last cohort to experience the PBL sessions during February and March 2015. These time factors, such as reduced session times and timetabling constraints, also produced limitations in terms of opportunities to test the reliability and validity of the various tools used.

The PBL project was designed and carried out by members of the staff/student MA Music Therapy course with input from the CELT department at USW. This included the music therapy course leader, the dissertation supervisor and a third-year student (all of whom are the authors of this paper). This in-house approach introduced a possible and anticipated inbuilt bias both from the researcher's position as well as from the academic staff. Strategies were put in place to counteract this bias where possible, and the researcher's position was clearly stated during the project and during the subsequent analysis, write-up and dissemination. The researcher became aware that her own positions as student/educator/researcher were constantly vying for dominance and influencing her thoughts. It

was also important throughout to recognise the "familiarity problem" as expressed by Sara Delamont (2012) when carrying out any type of educational research.

The participants in this project were music therapy master's students in three separate year cohorts. It was decided that using PBL in all years was something to be aimed for, rather than selecting only one or two of the three years. Using all years as participants would give the project more information in the form of students' experiences and feedback, and would also allow some comparisons across student cohorts at different stages in their learning. Limitations were imposed on this study by the numbers of students in each year. There was no opportunity to design research which compared the effects of PBL contrasted with control groups (with no PBL intervention) of similar sizes and compositions.

The cohorts from Years 1, 2 and 3 were recruited by a combination of initial contact from the course leader and PBL introductory sessions with the course leader and researcher. Students were given opportunities to ask questions and get answers about the project and their potential contribution to it. In terms of subjectivity, bias and ethical issues, some challenges within the Year 3 group were raised which are elaborated below.

Since the decision to replace some lectures with the PBL sessions in each year had already been taken by the course leader, it was important to explain to students the difference between the PBL project as an educational intervention and the research study. Since student participation in the PBL sessions was part of their course (obligatory as part of the expected 100% attendance policy) we wanted to avoid a sense of coercion on the part of any students when they were considering giving consent to their data and experience being used in the research. Information about the project and why it was being carried out was made available through an online site and given to students on paper-based materials within lectures and seminars. An online Music Therapy PBL Moodle site was set up for dissemination of information and to help support students' learning. Each PBL group was given a private online space within which they were able to explore any learning points they identified, and they were able to communicate with each other. The online presentation showed the key points about the PBL approach chosen and what generally happens within the PBL process and sessions.

As a result of the successful recruitment, three different PBL groups of students were set up; one in each year, with all students in each year agreeing to take part. There were eight students in Year 1, eight in Year 2 and five in Year 3. Since the music therapy year groups in each year are no larger than eight it was possible for each year's cohort to work as a single PBL group and there was no need to break them into smaller groups or randomly select participants etc. Depending on a range of factors, PBL groups work well at around six to nine people (Bessant et al., 2013), and so the numbers were almost ideal; although the Year 3 group was reduced to four in one session due to illness. These relatively small groups meant that the amount of data obtained was limited. However, there was a 100% participation rate from all students across all years. This also means that the findings are even more applicable across the programme and more relevant to the USW and its students since all three cohorts invested their interest, time, energy and commitment to this project.

Each PBL case equated to two facilitated PBL sessions and SDL between sessions. Pre- and post-test self-reporting surveys were designed to obtain students' feedback on the following aspects of the project:

- confidence in their clinical reasoning skills (seven questions based on five HCPC SOPs from section 14)
- their anticipation of and the actual experience of the PBL process (three questions)
- whether they would like more of the curriculum delivered using this approach

The self-reporting surveys (see Appendix) containing the seven final simplified questions arising from five HCPC SOPs were circulated for comments during the design stage to the course leader and dissertation supervisor. The questions were designed to be clear, unambiguous and yield reliable data. It was decided that the same questions would be used for all years, which would provide comparative data. A Likert scale was used for the clinical reasoning skills confidence questions, ranging from a score of 1 to 5 (1 = strongly disagree, 2 = disagree, 3 = neither agree or disagree, 4 = agree, 5 = strongly agree). Use of such a scale is recommended when data is needed on participants' opinions or attitudes (Tsiris, Pavlicevic & Farrant, 2014). A neutral choice (3) was included to prevent respondents having to choose options of which they were unsure. For the purposes of analysis, using this scale means that positive responses to the questions produce a higher score and the adjacent points on the scale can also be considered to be equidistant.

The self-reporting surveys were administered before and after the PBL cycles and can be seen in the Appendix. Questions covered two main areas: students' confidence in areas of clinical reasoning and attitudes to PBL. Questions were designed to explore students' confidence in their ability to carry out the following areas of clinical reasoning: assessment and diagnostics, conducting music therapy, formulating treatment plans, undertaking investigations, observing and recording users' responses, using research skills to determine actions, and using problem-solving skills to determine actions. Questions around the students' experience of PBL explored their previous experience, anticipation of the effects on their learning (pre-PBL), effects on their learning experience (post-PBL) and whether or not they would prefer more PBL to deliver the music therapy curriculum. A semi-structured focus group was held at the end of the PBL sessions with all of the Year 1 students, to follow up areas of ambiguity arising from the results of the Year 1 surveys.

All sessions were observed by the course leader and another Year 3 student to add another layer of feedback and enrich the evidence base. In each PBL cycle the seven-step model was followed and the various activities within each step can be seen in Table 1. In brief, during the initial PBL session, students were given the appropriate case scenario which was read aloud. (Year 1 and 2 PBL case scenarios can be seen in Box 2). A scribe was then identified from the group to graphically record the discussion points on a whiteboard (see Photograph 1). These discussion points were grouped and used to formulate learning objectives which all members of the group researched and brought back to the second PBL sessions for detailed discussions.

Since a mix of qualitative and quantitative data was collected within this research project there was a mixed approach to its analysis. The Likert scale quantitative data from the survey results was analysed by calculating the frequency of various responses and then converted to percentages. The data was also subjected to basic statistical tests and was presented in graphical and textual format as appropriate. All formats were chosen to give maximum clarity to the results. The qualitative data produced from the students' feedback within sessions, open-text survey responses, facilitators' and

observers' field notes etc. were analysed using a combination of themed analysis and coding to identify key themes arising from the data.

Photograph 1: Brainstorm image and learning objectives (Year 2 PBL Session 1)

- Understand more about music therapy provision for bereaved families in the UK, with a focus on those affected by cancer.

- Gain a better understanding of bereavement processes, with a focus on the disclosure of illness and/or timescale of diagnosis.

- Explore the links between OCD, anxiety and depression.

- What is "empty-nest syndrome"?

- Has there been an increase in the number of professionals (e.g. solicitors) being referred to music therapy through GPs in the UK?

Box 1: Year 2 learning objectives generated from discussion of the Year 2 case scenario

Year 1 Case Scenario: Ben

Ben is a six year-old child who attends a specialist ASD school. He has one younger brother. Parents report that Ben met all of his developmental milestones until the age of 18 months when he began to withdraw and to lose some communicative skills. At present, he is non-verbal and exhibits many stereotypic behaviours including hand-flapping and spitting. He can become upset very easily when routines are challenged leading to an escalation of difficult behaviours including injuring others and himself through biting and pinching. When Ben is calm he is easy to engage

and appears to enjoy relaxing to music. Ben really enjoyed some recent visits by community musicians when they came to his school. His teacher feels that a Music Therapy assessment may help staff understand Ben better. She also wonders if Music Therapy could support Ben in his development of more interactive skills as well as a better way of regulating his emotions.

"Back story" for tutors and academic use: possible areas expected to be explored by students during their discussions and self-directed study:

- Autism
- Communication
- Safeguarding
- Health and Safety
- What Music Therapy approach to use with Ben?

Year 2 Case Scenario: Julia

Julia is a 50-year-old woman who works as a solicitor in a busy practice in a small town. Her husband died of cancer 6 months ago and she has 2 grown children who live and work in London who she doesn't see very often. Over the past few months she has experienced a high level of anxiety which gets worse when she is out of the house. She is not sleeping well and finds it difficult to get up in the morning. She also finds it difficult to leave the house because she has to keep checking the doors are locked. Her lack of motivation is stopping her from doing anything other than her work and her colleagues have stopped asking her to socialise with them. She has been referred by her GP to your organisation for a Music Therapy assessment.

"Back story" for tutors and academic use: possible areas expected to be explored by students during their discussions and self-directed study:

- Depression
- Bereavement
- OCD
- Menopause and empty nest syndrome
- What Music Therapy approach to use with Julia?

Box 2: Year 1 and 2 PBL case scenarios and back stories

INTEGRATION AND ANALYSIS OF DATA SETS

Overall effects as seen in Figure 1 below can be summarised briefly and will be elaborated in the discussion section. The graph in Figure 1 shows the percentage changes across all years for all the questions around aspects of music therapy clinical reasoning confidence when comparing the pre- and post-PBL survey results. It can be seen that the effects on music therapy students' clinical confidence were generally positive or neutral, with only one negative effect (Year 3, Question 5), which is discussed subsequently. In Years 1 and 2, students' confidence in several aspects of their clinical reasoning skills were positively affected by taking part in the PBL process and the effects were more pronounced in year 2. In year 3 taking part in the PBL process resulted in very little change in students' confidence in their clinical reasoning skills. There were differences and similarities across the years which are also discussed below. All year groups responded positively to the PBL process and there was a very clear message that students would like more PBL within the curriculum.
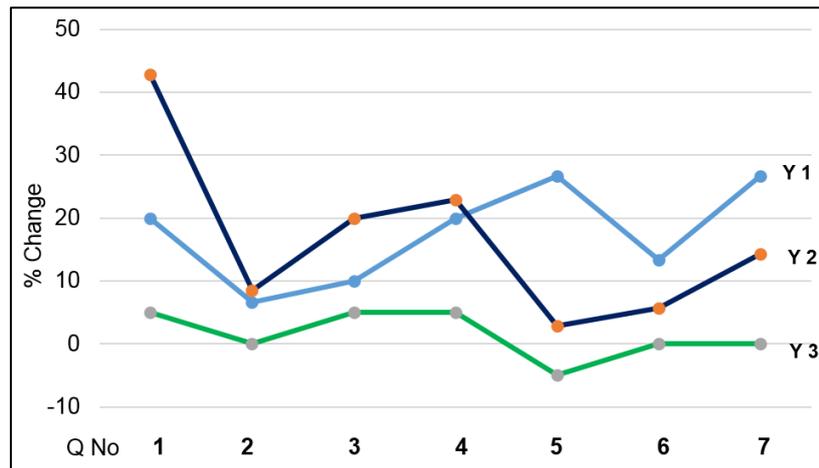
Figure 1: Comparison of the percentage change in confidence in clinical reasoning in music therapy students in Years 1-3

Year 1: Students' confidence in some aspects of clinical reasoning did increase as reported in the data. However, their open text comments expressed some concerns and confusion. Issues raised by students included confusion over the survey questions relating to their discussions, the structure of the case scenario and the design of the tasks within the PBL process. These issues were explored further with the group during a semi-structured focus group soon after the second PBL session had completed and the data from both pre/post PBL surveys was reviewed. Students were given an opportunity to elaborate on several points raised by the results in the Likert scale questions and the open text comments. The discussion was summarised and points agreed and these were circulated soon afterwards for approval and comment. Themes to emerge from the focus group discussions included questionnaire confusion, case scenario construction, issues around directed and non-directed learning and timing.

The Year 1 PBL process was enjoyed by all the group with 100% scoring 4/5 on the Likert Scale in terms of the positive effects on their learning experience. There was an overwhelming agreement (100% scoring 4/5) that they would like more PBL within the curriculum.

Year 2: Students' confidence improved in all aspects of clinical reasoning. Additionally, the PBL process was experienced as positive, with 100% of the group scoring 4 on the Likert scale in terms of the positive effects on their learning experience. 71.4% agreed that they would like more PBL within the curriculum. Very few Year 2 students chose to use the open-text boxes to comment further. Those that did indicated an interest in the project and how it was being run. After taking part in the PBL process they commented that it had been: "helpful…useful…group participation was fruitful".

Year 3: There was little overall effect on the students' confidence in their clinical reasoning skills. There was a very slight effect in three areas, no effect in three areas and a slight lowering of confidence in one area. The group was positive in terms of their learning experience, with 100% scoring 4 or 5 on the Likert scale and an overwhelming agreement (100%) that they would like more PBL within the curriculum.

The key findings were that there was a generally positive or neutral effect on the students' perceptions of their clinical reasoning skills in all years. The positive effects in Years 1 and 2 were more pronounced than in Year 3. Their results showed only slightly positive changes, one slightly

negative change, or the results were neutral. Potential explanations for the results and any similarities and differences across the three years' cohorts are discussed below.

For Year 1, taking part in the PBL process clearly improved their confidence in some aspects of clinical reasoning. The areas of confidence which improved (20/26.67%) were students' perceived abilities to use diagnostic procedures, undertake/arrange investigations and make observations and record the service-users' responses. Slightly lower increases (10/13.3%) of confidence were reported in using research skills, problem-solving skills and formulating specific and appropriate music therapy management plans. A very slight increase of confidence (6.7%) was reported in their ability to conduct music therapy effectively. Perhaps this was not surprising, as the students had not commenced any clinical work at the time they received the PBL teaching input. Despite these positive effects, the Year 1 students expressed some concerns and confusion in the post-PBL survey.

The issues raised by Year 1 students as seen above (i.e. survey-questions confusion, case-scenario structure and PBL task design) were explored further during a semi-structured focus group. It was interesting to note that while the Year 1 students were expressing concerns and confusion and felt they had not covered clinical reasoning in their discussions or SDL, they still reported improvements in all areas of their clinical reasoning confidence, albeit very small in some instances. This could reinforce Maggi Savin-Baden's views that learning is stimulated most effectively at moments of confusion and ambiguity which occur during "disjunction". Savin-Baden argues that: "disjunction is not something to be seen as unhelpful and damaging, but instead as dynamic in the sense that different forms of disjunction, enabling and disabling, can result in transitions in students' lives" (Savin-Baden, 2000, p. 87).

There was a stronger effect of the PBL process overall in Year 2 as compared to Years 1 and 3, with all areas of clinical reasoning confidence improving. An improvement of 42.9% was seen in their confidence in using diagnostic procedures. Slightly lower increases (20/22.9%) were reported in undertaking/arranging investigations and formulating specific and appropriate music therapy management plans. Confidence in problem-solving skills increased by 14.3% and lower increases (5.7/8.6%) were seen in using research skills and conducting music therapy effectively. Finally, the lowest increase (2.9%) was reported in their ability to make observations and record service-users' responses.

Student feedback in PBL session two included the following comment: "it was helpful to have background info about a potential client to help support the initial sessions, but thinking about strategies etc. was harder". A point about strategic thinking was also made by another student: "some useful points to start thinking about a case, but I struggled to come up with approach and strategies for the music therapy plan". This was reinforced by yet another: "thinking through strategies in advance was useful".

The above comments concern areas which Year 2 students have reported as being more challenging, and there were moments when the group resisted these more uncomfortable discussions. As in Year 1, however, this experience of confusion and discomfort could arise when learning is happening and transitions are being made. Taking part in the PBL process improved the confidence of Year 3 students by 5% in using diagnostic procedures, formulating specific and appropriate music therapy management plans and undertaking/arranging investigations. In the three areas of

conducting music therapy, problem-solving skills and research skills there was no change. In the area of observations and recording of service-users there was a slight decrease of 5% in confidence.

However, this year group already had higher confidence levels in areas of clinical reasoning, possibly due to their experience of two years' placement work. The pre-PBL mean total scores were seen to increase for each cohort in all but one aspect of clinical reasoning. Since pre-PBL confidence levels were already quite high in Year 3 this could explain why the PBL sessions had a less positive effect. Year 2 and 3 students are both within what could be considered the clinical phase of their studies, and Year 1 in the pre-clinical. When considering the effects on students' confidence in their clinical reasoning skills, there is no clear or obvious difference between the pre-clinical and clinical phases.

When reviewing the results graphed in Figure 1, other than positive effects in all but one case, the effects on each area of clinical reasoning skills are not consistent within or across years. However, there are some similarities, e.g. the most positive effects in all years were seen in students' confidence in using diagnostic procedures (Y1 - 20%, Y2 - 42.86% and Y3 - 5%).

EFFECTIVENESS OF THE CASE SCENARIOS AND INTEGRATED TASKS

The project also monitored how the design of the case scenarios and integrated learning tasks affected the learning process. It was found that the three case scenarios functioned reasonably well as trigger materials for discussions and generating learning objectives. As covered below in more detail, each year's discussions, learning objectives and self-directed learning activities mapped closely against the topics which were intended to be simulated by the design of the case scenarios. In all three years, generating the learning objectives was experienced as one of the most challenging steps in the PBL process.

The learning objective formulation was an activity which was experienced in a consistently challenging way across all three years. A discussion arose during this activity in Year 3 which highlighted the fact that some students were feeling uncomfortable about what they felt they were supposed to be learning, and that the case scenario wording was "ambiguous". When this was discussed further there was a moment of realisation for one student, who commented: "Is it the point that the scenario is made up and it's meant to stimulate the group getting to the learning objectives?" Again, this slightly confused and ambiguous state may have allowed students to move into new areas of learning (Savin-Baden, 2000). However, it is important to consider that students could have needed more explanation around the function of the case scenarios within the PBL process. For example, a Year 1 student commented that "it's frustrating to identify so many areas of potential questions and only have time to study some". It is also interesting to note that there was a weaker effect on Year 3 students' confidence in their clinical reasoning, and they did agree that they would like more PBL. This could be explained by the comments made which were generally very positive about the PBL process and there was a high level of engagement and enjoyment in the PBL sessions. One student summarised this when they said: "This leads to a greater engagement with study. Important to feel part of the learning process, and to feel involved and considered. The wisdom of the crowd leads to useful and interesting territory."

Despite the groups' occasional discomfort with the PBL process and severe time constraints, with perseverance and guidance, in each year the PBL group process continued to function well and several learning objectives were produced. In Year 1, the case scenario successfully stimulated discussion and SDL in several topics which include the more obvious, namely the autism spectrum and the effects of ASD on communication and other sub-topics. Further discussion and learning covered issues around safeguarding and health and safety, and started to explore how music therapy could help. When compared to the expected areas which the Year 2 case scenario was designed to stimulate, the learning objectives again mapped closely against the main topics. These included depression, anxiety, bereavement, OCD and menopause. Further discussion also covered issues such as empty-nest syndrome and isolation, and the potential value of music therapy for this client. Finally, in Year 3, the explored areas and learning objectives mapped well against the expected areas which the case scenario was designed to stimulate. The more obvious topics were explored, namely inclusivity, location, accessibility, assistive music technologies and equipment choices. Further discussion and SDL also covered issues around the causes and effects of acquired brain injury, and started to explore elements of performance and session preparation which could be used in a group with a mixture of disabilities. There were also discussions related to differing models of music therapy, such as community music therapy. These were interesting for the group to explore, as they had been trained in psychodynamic music therapy.

DISCUSSION

The case scenarios were effective and functioned well in terms of raising students' interest in, and discussions around, the topic areas or "back stories" that they were intended to (see Box 2). As has been reported previously, however, the Year 1 students felt that certain changes to the case scenario would have produced more targeted learning. One suggestion for improvement included splitting the text into two paragraphs, which would draw their attention to the more clinical aspects of the case. Making the PBL case more obvious, directive and easier for students is in direct contrast to the clear advice given when discussing the project, case scenarios in general, and the three music Therapy scenarios specifically with the head of Small Group learning and Professionalism in a UK medical school (H. Neve, personal communication, 24th January 2015). If USW is to continue to develop the use of PBL in future this will be one of the most important decision-making areas to consider. While there needs to be a balance between ensuring the PBL can fit into the course timetable, making the PBL more directive could remove one of the main points of using PBL, which is to move away from directive teaching, and into student-led learning. This was reflected in the Year 1 focus group discussion, and one student thought that there was additional learning to be achieved by identifying their own resources.

Another aspect of the PBL process which worked effectively was the introduction of the extra integrated task in Years 2 and 3. These focused clinical tasks allowed students to take the general principles they were exploring and apply them to a simulated task. The tasks were to create a music therapy plan in Year 2, and performance schedules and session plans in Year 3. Although carrying out both tasks in both years was challenging for the group, and for the group facilitation by a third-year music therapy student, in both cases steady progress was made and students were able to eventually

see the rationale behind being asked to engage with these integrated tasks. In Year 1, where students were deliberately not given a clinical task, all students felt they would have benefited from a similar integrated clinical task. When designing integrated clinical tasks there could also be an opportunity to link them closely to music therapy settings, current placement experiences, and other curriculum areas (e.g. clinical improvisation sessions). As reported by Nochamma Sockalingham et al. (2011), effective problems should lead to formulation of appropriate learning goals, relate to the students' prior knowledge and be interesting. The three case scenarios developed and used in this project met all these criteria.

Feedback from the course leader who observed all PBL sessions was invaluable in articulating the outcomes of the project. She reported that it was illuminating to see the level of engagement promoted by this pedagogical method. Students were able to engage in the way that suited their learning styles. For example, some students undertook the role of the scribe, and indicated they found this method of participation stimulating. Some were more active in SDL that was then presented for discussion the following week. It was useful to see students' thought processes in action as cases were discussed and reflected upon. The role of the PBL facilitator also appeared to align well with pedagogical aspects of music therapy teaching, where the seminar or experiential leader may be more akin to that of facilitator than teacher. Also of value was the fact that a clear maturity of thought and emerging professional personas could be seen, particularly in the Year 3 students. Here there was a shift towards evaluating different music therapy methods and seeing how alternative ways of practising could meet service-users' needs.

Student feedback and quantitative data gathered from this pilot led USW to consider the continued use of PBL across all years of the music therapy MA, building upon the pilot study's experiences and findings. More consideration could be given to continuing the PBL pilot in all years, or with a focus on Years 1 and 2, as well as developing online resources to support the method. The existing cases could be developed, including possible digital enhancement. Integrated clinical tasks could also be woven more securely into the PBL seminars. The project essentially threw the students into the PBL process, and there could be merit in developing an introductory PBL case scenario as an induction to the PBL process. As with any academic input, careful consideration needs to be given to avoid the PBL seminars clashing with other course deadlines.

On implementation of further PBL in the MA Music Therapy training at USW, it would be vital to continue to evaluate its effectiveness on clinical reasoning or other skill sets together with the student experience of the pedagogical method. There would also be the possibility of developing a music therapy PBL evaluation tool, with a view to possible future collaboration with other music therapy courses. The PBL process has already been integrated at USW with other educational activities, such as clinical improvisation and theory and practice seminars. Initial responses and outcomes to these curriculum developments are positive. Further staff training in PBL facilitation and expertise would be desirable to build on the findings of this pilot. Although at present these methods are only used in the MA Music Therapy, it would be worth broadening its usage to the MA Art Psychotherapy programme, as well as potentially using mixed groups of trainee music therapists and art psychotherapists. Laahs and Derrington (2016) have written of the benefits of interprofessional education (IPE) with reference to the MSc Music Therapy programme at Queen Margaret University in Scotland, so there is an emerging evidence base for this kind of work. It could also be beneficial to make contact with other

UK music therapy programme leaders and academics to find out more about their use of PBL with a view to possible future sharing of case scenarios and pedagogical research. In an international context, Clark and Thompson (2016) write of the challenges of delivering e-learning in their MA Music Therapy programme at the University of Melbourne. Perhaps PBL could be considered as a mode of curriculum delivery here, for intensive study weekends or group discussion via online personal interaction. Further research could explore how the confidence level reported in music therapy students mirrors changes in their practical work.

CONCLUSION

In conclusion, and with full acknowledgment of the inherent limitations of a self-reporting evaluation, this project successfully piloted the use of PBL in music therapy training across the three years of the MA Music Therapy programme at USW. The experience gained for the teaching team and students, and the research data obtained, has provided evidence of positive effects on music therapy students' confidence in their clinical reasoning skills and upon their learning experiences. The information is useful in itself to add to the body of knowledge around PBL and its effectiveness in aspects of music therapy training, but it can also be used to inform future decisions on further use of PBL within USW. Given the positive effects coupled with the information on how the implementation of any PBL intervention can be influenced by a variety of controllable factors, there is every reason to conclude that future use of PBL within music therapy training at USW and at other institutions could be highly effective.

APPENDIX: PRE-/POST-PBL SURVEYS

Pre-PBL survey   Year …   SURVEY NO …

PBL and music therapy: A pilot study at USW: 2014/15

Please choose the options which are closest to your opinions in all the questions below.
Please tick the relevant boxes to indicate where on the scale you agree or disagree with the following statements.

Q1: I feel confident in my ability to conduct appropriate diagnostic procedures effectively.

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
☐	☐	☐	☐	☐

Q2: I feel confident in my ability to conduct appropriate music therapy effectively.

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
☐	☐	☐	☐	☐

Q3: I feel confident in my ability to formulate specific and appropriate music therapy management plans, including the setting of timescales.

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
☐	☐	☐	☐	☐

Q4: I feel confident in my ability to undertake or arrange investigations, for example setting up an assessment period in order to ascertain the appropriateness of an intervention.

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
☐	☐	☐	☐	☐

Q5: I feel confident in my ability to observe and record service-users' responses.

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
☐	☐	☐	☐	☐

Q6: I feel confident in my ability to use research skills to determine appropriate actions.

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
☐	☐	☐	☐	☐

Q7: I feel confident in my ability to use problem-solving skills to determine appropriate actions.

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
☐	☐	☐	☐	☐

Q8: I anticipate that taking part in the music therapy PBL sessions will have a positive effect on my learning experience.

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
☐	☐	☐	☐	☐

Q9: I have been involved in problem-based learning in a previous educational setting.

☐ Yes   ☐ No

Q10: Further comments: Please use the area below for any feedback or comments which you feel are important, relevant, or which you think we should know about before you take part in the PBL group.

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Thanks very much for completing this survey and being part of this research.

Post-PBL survey   Year …   SURVEY NO …

PBL and music therapy: A pilot study at USW: 2014/15

Please choose the options which are closest to your opinions in all the questions below.
Please tick the relevant boxes to indicate where on the scale you agree or disagree with the following statements.

Q1: I feel confident in my ability to conduct appropriate diagnostic procedures effectively.

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
☐	☐	☐	☐	☐

Q2: I feel confident in my ability to conduct appropriate music therapy effectively.

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
☐	☐	☐	☐	☐

Q3: I feel confident in my ability to formulate specific and appropriate music therapy management plans including the setting of timescales.

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
☐	☐	☐	☐	☐

Q4: I feel confident in my ability to undertake or arrange investigations, for example setting up an assessment period in order to ascertain the appropriateness of an intervention.

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
☐	☐	☐	☐	☐

Q5: I feel confident in my ability to observe and record service-users' responses.

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
☐	☐	☐	☐	☐

Q6: I feel confident in my ability to use research skills to determine appropriate actions.

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
☐	☐	☐	☐	☐

Q7: I feel confident in my ability to use problem-solving skills to determine appropriate actions.

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
☐	☐	☐	☐	☐

Q8: Taking part in the music therapy PBL sessions has had a positive effect on my learning experience.

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
☐	☐	☐	☐	☐

Q9: I would like more of the music therapy curriculum delivered using a PBL approach.

Strongly disagree	Disagree	Neither disagree or agree	Agree	Strongly agree
☐	☐	☐	☐	☐

Q10: Further comments: Please use the area below for any feedback or comments which you feel are important, relevant, or which you think we should know about now you have taken part in the PBL group sessions.

Thanks very much for completing this survey and being part of this research.

REFERENCES

Baker, F. (2007). Enhancing the clinical reasoning skills of music therapy students through problem based learning. *Nordic Journal of Music Therapy,* 16(1), 27-41.

Barrows, H.S. (1996). Problem-based learning in medicine and beyond: A brief overview. *New Directions for Learning and Teaching,* 68, 3-12.

Bell, J. (2010). *Doing your research project: A guide for first-time researchers in education, health and social science* (5th ed.). New York, NY: McGraw-Hill Open University Press.

Bessant, S., Bailey, P., Robinson, Z., Tomkinson, C., Tomkinson, R., Ormerod, M., & Boast, R. (2013). *Problem-based learning: A case study of sustainability education* Retrieved from: https://www.keele.ac.uk/media/keeleuniversity/group/hybridpbl/PBL_ESD_Case%20Study_Bessant,%20et%20al.%202013.pdf

Boud, D., & Felettl, G. (1997). *The challenge of problem-based learning* (2nd ed.). London: Kogan Page.

Bunt, L., Coombes, E. Hung Hsu, M., Lindeck, J., Loth, H., Procter, S., Twomey, T., Vaz, A., & Watson, T. (2014). How we learn, how we teach: Do music therapy training courses provide the skills required for the 21st century working environment? In G. Tsiris, C. Warner & G. Watts (Eds.), *Counterpoints: Music therapy practice in the 21st century* (p. 27). London: BAMT.

Clark, I. N., & Thompson, G. A. (2016). Reflections on music therapy training within e-learning contexts. *Voices: A World Forum for Music Therapy, 16*(1), 1504-1611. Retrieved from: https://www.voices.no/index.php/voices/article/view/835

Delamont, S. (Ed.). (2012). *Handbook of Qualitative Research in Education*. Edward Elgar Publishing.

Goodman, K. (2015). *International perspectives on music therapy education and training*. Springfield, IL: Charles C Thomas Publisher.

Greenfield, T. (2002). *Research methods for postgraduates* (2nd ed.). London: Arnold.

Hammel, J., Royeen, C.B., Bagatell, N., Chandler, B., Jenen, G., Loveland, J. and Stone, G. (1999). Student perspectives on problem-based learning in an occupational therapy curriculum: A multiyear qualitative evaluation. *American Journal of Occupational Therapy*, *53*(2), 199-206.

HCPC. (2013). *Standards of proficiency: Arts therapists.* Retrieved from: http://www.hcpc-uk-org/publications/standards/index.asp?id=39

Laahs, J., & Derrington, P. (2016). Learning together: An investigation into the potential of interprofessional education within music therapy. *Approaches: An Interdisciplinary Journal of Music Therapy, Special Issue 8*(1), 26-41. Retrieved from: http://approaches.gr/laahs-a20160301/

McIntosh, P. (2010). *Action research and reflective practice: Creative and visual methods to facilitate reflection and learning.* London: Routledge.

McNiff, J. (2010). *You and your action research project.* London: Taylor Francis.

Moust, J. H. C., Van Berkel, H. J. M., & Schmidt, H. G. (2005). Signs of erosion: Reflections on three decades of problem-based learning at Maastricht University. *Higher Education: The International Journal of Higher Education and Educational Planning, 50*(4), 665-683.

Norman, G. (2009). Teaching basic science to optimise transfer. *Medical Teacher, 31*(9), 807-811.

Savery, J.R., & Duffy, T.M. (2001) Problem based learning: An instructional model and its constructivist framework. *CRLT Technical Report.* No 16-01. Indiana University: Center for Research on Learning and Technology.

Savin-Baden, M. (2000). *Problem-Based Learning in Higher Education: Untold Stories.* Buckingham: SRHE & Open University Press.

Sockalingham, N., Rottgams, J., & Schmidt, H. G. (2011). Student and tutor perceptions on attributes of effective problems in problem-based learning. *Higher Education: The International Journal of Higher Education and Educational Planning, 62*(1), 1-16.

Tsiris, G., Pavlicevic, M., & Farrant, C. (2014). *A guide to evaluation for arts therapists and arts and health practitioners.* London: Jessica Kingsley Publishers.

Ελληνική περίληψη | Greek abstract

Προσφέρουν οι προσεγγίσεις Μάθησης με Βάση το Πρόβλημα [Problem-Based Learning] αποτελεσματικές εκπαιδευτικές παρεμβάσεις για τα εκπαιδευτικά προγράμματα μουσικοθεραπείας? Εμπειρίες από μια έρευνα δράσης στο Πανεπιστήμιο της Νότιας Ουαλίας

Sally Holden | Elizabeth Coombes | Kathy Evans

ΠΕΡΙΛΗΨΗ

Μια προσέγγιση Μάθησης με Βάση το Πρόβλημα [Problem-Based Learning, PBL] δοκιμάστηκε πιλοτικά σε όλο το μεταπτυχιακό πρόγραμμα μουσικοθεραπείας στο Πανεπιστήμιο της Νότιας Ουαλίας. Ο κύριος στόχος του προγράμματος ήταν να διερευνήσει κατά πόσον η ανάπτυξη των πρακτικών δεξιοτήτων και της ικανότητας κλινικού συλλογισμού των φοιτητών μουσικοθεραπείας θα μπορούσε να ενισχυθεί με τη χρήση μιας προσέγγισης PBL κατά τη διάρκεια των σπουδών τους. Μελέτες περίπτωσης οι οποίες ενσωματώνουν

πολλές πτυχές της απαιτούμενης μάθησης καλύπτοντας βασικούς τομείς του προγράμματος σπουδών αναπτύχθηκαν και χρησιμοποιήθηκαν σε συνεδρίες PBL με κάθε ομάδα φοιτητών. Οι συνεδρίες συντονίστηκαν από έναν συντονιστή με κατάρτιση στο PBL και εποπτεύθηκαν από τον υπεύθυνο του προγράμματος μουσικοθεραπείας. Οι φοιτητές ολοκλήρωσαν ένα ερωτηματολόγιο πριν και μετά την εφαρμογή του PBL, δίνοντας πληροφορίες σχετικά με την αυτοπεποίθησή τους σε διάφορους τομείς του κλινικού συλλογισμού. Συγκεντρώθηκαν επίσης σχόλια σχετικά με τις απόψεις τους σχετικά με την προσέγγιση PBL και τις επιπτώσεις της στη μαθησιακή τους εμπειρία. Τα αποτελέσματα δείχνουν ότι η εμπλοκή με τη διαδικασία PBL είχε θετική επίδραση στην αυτοπεποίθηση των φοιτητών ως προς τον κλινικό τους συλλογισμό, και στην θετική τους αξιολόγηση αυτής της εμπειρίας.

ΛΕΞΕΙΣ ΚΛΕΙΔΙΑ

Μάθηση με Βάση του Πρόβλημα [Problem-Based Learning], δεξιότητες κλινικής σκέψης, εκπαίδευση μουσικοθεραπείας, έρευνα