The other side of the coin: OT students' perceptions of problem-based learning

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ABSTRACT

Background: *Problem-based learning (PBL) was introduced into the Occupational Therapy (OT) curriculum at the University of Witwatersrand in 1993 as a hybrid course which included PBL as well as traditional teaching methods. There is a collective opinion in the department, that PBL is the best teaching method if OT students are to become independent, critical practitioners. But how do the students really feel about PBL?*

Aim: *The purpose of this study was to determine the perceptions of 1st, 2nd, 3rd and 4th year occupational therapy students of PBL. This study formed the qualitative part of a larger study, which was mainly quantitative, descriptive and longitudinal in design.*

Methodology: *Secondary analysis was performed on the occupational therapy departmental records collected during 2011 and 2012 for 290 students. This study focussed on the qualitative analysis of data from two open-ended questions. Five categories were derived from the quantitative part of the larger study and included Group Work, Facilitator, Learning Objectives, Self-directed Learning and The OT Course. These were used as categories and the data were analysed according to a categorisation matrix.*

Results: *The qualitative analysis of the results identified that students had mixed feelings about PBL as a teaching and learning method. In this study students felt that group work, self-directed learning and fieldwork contributed to their learning while objectives, feedback and workload were aspects of PBL students felt needed to be changed as these impeded their learning.*

Keywords: Group work, Facilitator, Self-directed leaning, Adult learning, Learning styles, Learning objectives

INTRODUCTION

A problem-based learning programme (PBL) was first introduced to the Occupational Therapy Department of the University of Witwatersrand (Wits) in 1993. It is a hybrid course, as only the occupational therapy (OT) subjects are presented in a PBL format, while the basic and applied science subjects, offered by other departments, are taught using the more traditional method of lectures.

The PBL programme has been running for 20 years and the present OT staff members are fully committed to this teaching/learning method. There is a collective opinion that PBL is the best way of teaching OT if the exit outcome related to students becoming independent, critical practitioners, is to be facilitated.

The PBL process comprises seven steps: reading a 'problem' (case scenario); identifying unfamiliar terms; identifying the 'problem' related to the specific case scenario; brainstorming questions and possible solutions; setting learning objectives to address individual gaps in knowledge; attending workshops, skill laboratories, tutorials and lectures as well as reading and studying various resources; and lastly providing feedback to the rest of the group to make sure that all objectives have been addressed[1].

Students are introduced to PBL in their first year of study when they have four 'problems' relating to OT alongside the five traditional subjects of physics, chemistry, biology, human behavioural sciences and psychology. In the second year the students have three OT problems alongside anatomy and physiology. In the third year, the PBL component of the course is substantially larger with 11 problems, in addition to subjects such as psychology, psychiatry, medicine and surgery. There is also a marked increase in the number of hours of fieldwork in the third year of study. The overall impression is that the third year is a very full and stressful year for students.

The fourth year students have four mini problems each of which run over one morning and two full problems of one week each, but the main focus of the fourth year is clinical fieldwork which presents its own challenges. Students complete 29 weeks of fieldwork in their 4th year, including a learning disability block which is spread over a six month period (a total of ±1083 hours). It is therefore, clear that all four years of study have stressors and it is crucial to consider the more traditional part of the course as well as the fieldwork requirements when evaluating students' perceptions of PBL.

LITERATURE REVIEW

Problem-based learning was first introduced at McMaster University by Barrows and his colleagues in the late 1960s[2] and since then multiple studies have been conducted into its potential benefits as a learning/teaching method[1,3,4,5,6,7]. Four meta-analyses of PBL[8,9,10,11] indicated that students demonstrate improved clinical problem-solving skills, retained knowledge long-term and found PBL stimulating and motivating[4,12]. Spalding and Killett[4] further described other general competencies which students should achieve through PBL and which should benefit them for the rest of their professional lives. These competencies include: adapting to and participating in change; dealing with problems, structuring knowledge, making reasonable decisions in unfamiliar situations; developing effective clinical reasoning; adopting a more universal and holistic approach; practising empathy; appreciating the other person's point of view, collaborating productively in groups or teams; identifying own strengths and weaknesses; developing self-directed learning skills and increasing their motivation for learning[4,12].

Adult learning theory (Andragogy) was first introduced by Malcolm Knowles in the 1970s when he described andragogy as the art and science of helping adults learn[13,14,15]. This theory holds a set of assumptions about how adults learn[16], and there seems to be a general consensus that students learn better when adult learning principles are used. Andragogy emphasises the value of the process of learning and suggests the use of learning that is problem-based and collaborative rather than didactic. Andragogy also stresses more equality between the teacher and learner[16]. These adult learning principles fit well with the core of (or are compatible with) PBL, which requires that students take responsibility for their own learning, identify their own learning needs, lead the process in finding the relevant information, and work in groups where this information is discussed[9].

Even though students are viewed and treated as adult learners they have different learning styles which need to be taken into account. Lieb[17] stated that part of being an effective educator involves understanding how adults learn best. Knowledge of students' potential learning styles does not provide teachers with information on students' abilities and intellectual competence, but it may provide information on how students prefer to learn. There are various learning style theories, frameworks and questionnaires available today. One such learning style framework was developed by Fleming and Mills[18] which they called VARK. This framework

identified 4 different sensory modalities that are used for learning information. These include visual, aural/auditory, read/write and kinaesthetic modalities.

Students who use the visual modality to learn prefer the presentation of information in graphics rather than words. This includes the use of maps, spider diagrams, charts, graphs, flow charts etc[18]. Using the aural/auditory mode entails learning information that is 'heard or spoken' which includes lectures, group discussion, radio, mobile phones, speaking, web-chat and talking things through. These students often talk out loud before sorting through ideas and then speaking[18]. Read/write is a modality often preferred by students and includes reading and writing in all its forms especially manuals, reports, essays and assignments. These students prefer, for example, the use of PowerPoint®, the internet, lists, diaries, dictionaries, thesauri and quotations[18]. The last modality is the kinaesthetic modality which refers to perceptual preference related to the use of experience and practice (simulated or real). It includes demonstrations, simulations, videos and movies of 'real' things, as well as case studies, practice and applications[18].

In two studies[19,20] the learning styles of 228 dental students (1st to 4th year) and 92 year nursing students (3rd year), it was confirmed that the read/write learning style was the most preferred but that a high percentage of students preferred multi-modal learning. This entails using two, three or four of the modes of learning simultaneously. Students who prefer multi-modal learning often want to read the information, discuss the information and see examples[20]. This learning style framework therefore fits well with the various aspects of the PBL process, which include the reading of a case scenario (read/write), brainstorming possible solutions (aural/auditory), putting together information (visual) and taking part in practical workshops (kinaesthetic). This learning style also fits the needs of the 'generation Y student' (students born in the 1980s) as described by Hills et al.[21].

Generation Y students would have enrolled at the University from 1998 and would be the students involved in the current study as all were exposed to the problem-based teaching and learning methods. Hills describes generation Y students as confident, optimistic and 'techno-savvy'[21], with Boudreau[22] referring to these students as 'Millennials', as they grew up with technology such as the internet and expect choices in everything they do. Problem-based learning accommodates various technologies as part of the process. Roberts et al.[23] cautioned that students might need help in finding their way through this often-overwhelming learning platform. They stated that "successful teaching requires an understanding and appreciation of the learner's needs, backgrounds, interests and learning styles"[23:274].

However, Schofiled and Honoré[24] are of the opinion that 'generation Y' students have different learning styles and needs compared to previous generations, and this begs the question whether as educators we truly understand our students' learning styles and needs. Does the PBL approach fit this generation of student? Students' perceptions could shed some light on this aspect.

Purpose of the study
The purpose of this study was therefore to determine the perceptions of 1st, 2nd, 3rd and 4th year occupational therapy students of PBL. This qualitative analysis formed part of a larger study which also included a quantitative survey, on the opinions of occupational therapy students about PBL and is described elsewhere in this Journal.

Objective
To determine the perceptions of 1st, 2nd, 3rd and 4th year OT students on what aspects of the PBL programme, as offered by the WITS OT Department, either contributes, or impedes their learning.

METHOD
Morse and Field state that "the purpose of qualitative research is not to determine objectively what actually happened but rather to objectively report the perceptions of each participant in the setting"[25:142]. One of the strengths of qualitative research is the

richness of information and understanding of human experience[26]. Merriam[27] noted that qualitative research offers "the greatest promise of making significant contributions to the knowledge base and practice of education, because it is focused on discovery, insight, and understanding from the perspective of those being studied"[27:1]. It must be noted however that perception is subjective and as such may be seen as unreliable and/or biased[25].

Student perceptions are however as important as empirical quantitative evidence, and if PBL is to be effective it is important to take into account how students think and feel with regard to this method of instruction.

First, second, third and fourth year occupational therapy students routinely complete self-reported questionnaires on their opinions and experiences of PBL for departmental use. These questionnaires consist of 22 closed questions (using a visual analogue scale) and three open-ended questions only two of which were used for this study. The questionnaires completed during 2011 and 2012 were used. The study population consisted of 161 students for 2011 and 172 students for 2012. There was an 83% return rate for 2011 (n = 134) and a 90 % return rate for 2012 (n = 156). The total study sample consisted of 290 student responses.

The open ended questions were: '*What aspects of the course contributed most to your learning?*' and '*What aspects of the course should be changed to make the course better for you?*'. The last question is related to the number of hours students spend on course work outside the classroom and was not included in this study.

Data analysis
Cumulatively 290 responses to each of the open-ended questions were analysed. A deductive content analysis is useful when existing information is used to analyse qualitative data[28] through a priory categories and sub-categories. Existing categories, from the quantitative part of the larger study, ie Group Work, Facilitator, Learning Objectives, Self-directed Learning and The OT Course, were therefore used for the a priory categories and the two open-ended questions were used for the posteriori sub-categories. These categories and sub-categories were used to develop a categorisation matrix[28] and the data were coded according to these by two researchers (*Table 1* on page 64). *Table 1* further demonstrates how student responses were coded under the various categories and sub-categories by using examples of direct quotations. The results from the categorisation matrix was then analysed and interpreted.

Trustworthiness was established through peer coding as two researchers simultaneously but independently analysed the data and differences in the coding of the data were identified, discussed and agreed upon[29].

Ethical concerns
Ethical clearance was obtained from the University of the Witwatersrand Human Research Ethics Committee (Reference number: M130646) for the secondary analysis of data from the occupational therapy departmental questionnaires for 2011 and 2012.

RESULTS
The results are presented according to the two open-ended questions i.e. 'Aspects of the course students feel contribute to their learning' and 'Aspects of the course students feel should change' as both open-ended questions resulted in responses related to more than one of the categories or subcategories. Quotations are used to support the researcher's claims or ideas but also to stand as evidence for what the researcher is saying[30].

The first open-ended question was related to aspects of the course identified by students that contributed to their learning.

Students identified a variety of aspects such as fieldwork and lectures but **'Group Work'** was one of the major aspects identified as being a positive contributor to their learning:

discussions in our PBL groups I feel is most beneficial... (1st year)*;*

having to work with other people and learning from them, being able to share my ideas and thoughts with the rest of the group, (1st year)*;*

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Table 1: Categories, subcategories and codes for the perceptions of students about problem based learning

PBL	Categories	Sub-categories	Example of quotes used for coding
	Group work	Contributed to learning	"working in our groups helps for understanding certain aspects"
		Should be changed	"I don't really like the PBL groups"
	Facilitator	Contributed to learning	"the discussions with the facilitators" (contributed most to my learning)
		Should be changed	"facilitators should be more involved"
	Learning Objectives	Contributed to learning	"Setting clear learning objectives"
	- Feedback	Should be changed	"too many objectives for one session"
	Self-directed Learning	Contributed to learning	"researching information on my own" (contributed most to my learning)
	- Research		
	- Resources	Should be changed	"provide more guidance when we gather material"
	The OT Course	Contributed to learning	"PBL as a learning tool does ensure interactive learning"
	- PBL		
	- Lectures		
	- Workload	Should be changed	"NO PBL and more lectures"
	- Fieldwork		

discussing the problem with my group - this allows us to get different perspectives and different views. In our group we were able to find possible solutions for the problems that we faced (2nd year);

being able to ask other group members for help, and help each other with objectives and problems (3rd year);

comparing what I have done to the information from others (3rd year);

sharing various sources of information, learning from other students (4th year); *practically discussing the process of each problem and gaining information from each other* (4th year).

'Facilitator' and **'Learning Objectives'** did not stand out as contributing factors that assist student learning. Only a few students indicated that they valued the contribution of the facilitator or valued having clear learning objectives.

First, second, third and fourth year students indicated that **'Self-directed Learning'** (research) was an aspect of PBL that helped them learn:

finding my own information might be really challenging but I can learn a little more than what is being taught in lectures (1st year);

doing the research myself - actively learning as opposed to just receiving information (1st year);

I benefited from the PBL self-researching aspect, I learnt a lot (2nd year);

being able to read up on the topics (3rd year);

researching information independently (4th year);

you as a student decide what you learn e.g. if you don't understand something, it is up to you to research and query in order to clarify your understanding (4th year).

The students in the lower years also seemed to value the resource packs which are provided, in addition to their own searching for information. This gave them some guidance when they had to find the relevant information to answer their objectives:

resource pack really helps in knowing what to study and prepare for the test (1st year);

the resource packs with very relevant information and less articles allowed me to read and understand the articles better (2nd year).

In terms of **'The OT Course'**, students had a positive perception of the PBL method of instruction as far as their learning was concerned:

PBL is more interactive and interesting than traditional lectures (1st year);

PBL and lectures helped me know how to analyse case studies and be able to extract the important objectives if I am given a case to deal with… (1st year);

I felt that I retained more information while in PBL than in an actual lecture" (3rd year); *PBL forces you to look at all the information before feedback and you are better prepared for the test* (3rd year);

we are not spoon fed. Just as we encourage our patients to do tasks for themselves, so is the course structured in the same way (4th year).

Another major aspect identified by the students was their ability to transpose the learning from PBL into the fieldwork situation. Being taught to think through and analyse cases meant they were better prepared to apply their theory in practice:

being exposed to different environments and having to adapt to them (4th year);

I feel that I learn most when applying my knowledge during practical fieldwork (4th year).

Aspects of PBL that students perceived impedes their learning and should be changed were extracted from the second open-ended question.

Only a few 1st, 2nd, 3rd and 4th year students commented on the fact that there was too much **'Group Work'**. One 2nd year student indicated that group work 'wastes time' while one 1st year student stated:

…I do not enjoy group work but I need to get used to it.

'Facilitator' did not stand out as a major factor that impedes student learning. Some 3rd year students felt that some of the facilitators did not understand the problem, that they were not all briefed the same way for the problems and that they should be more involved in the facilitation process:

please make sure all lecturers in PBL actually know what is going on in the problem (3rd year);

more facilitation and guidance from lecturers (3rd year).

The main aspect that students felt needed to change, was related to **'Learning Objectives'**. Students in all four years of study voiced concerns regarding the objectives they need to set themselves as part of the PBL process. Students stated that they needed clear guidelines on their objectives or 'set objectives lists', that they had too many objectives, and they seemed to experience extreme anxiety when they did not have the same objectives as other groups. The following statements confirm these concerns:

I would prefer to be given the correct objectives (1st year);

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more clear objectives for the PBL – all receive the same list (2nd year);

check all objectives that groups have the same (3rd year);

get an outline of the actual objectives to gather information for (4th year).

Concerns regarding feedback was linked to the **'Learning Objectives'**. Students felt strongly that there should be a 'memo' after the PBL process with all the relevant information needed for tests and exams. They felt unsure about the information they gathered and whether they had the correct information, sufficient information and the same information as everyone else:

I think that more concrete information should be given, in the sense that after PBL we should get structured answers for all learning objectives (1st year);

instead of us telling each other the information, we should get a memo so that we know exactly what answers we are meant to have (1st year);

more information regarding the accuracy of our information (2nd year);

group feedback where everyone receives the same information (3rd year);

feedback did not help; no information was consolidated so I was unsure whether the information I had collected was correct – I either had too much information or too little (4th year).

The students in the 1st to 3rd year indicated the **'Self-directed Learning'** aspect should be more structured and felt this impeded their ability to learn efficiently. This linked to the detail about what needed to be researched, how much detail was required and the time required doing it:

providing a better idea of what needs to be researched for PBL sessions (1st year);

I found that I was never 100% sure what I was looking for and needed to concentrate on (1st year);

spent a lot of time researching (2nd year);

… we do not know what textbooks are available or internet sites are reliable and provide information that may be relevant (2nd year);

more encouragement and guidance on using a variety of resources (3rd year);

more time to engage and search for information (3rd year).

In terms of **'The OT Course'**, some 1st, 3rd and 4th year students felt that PBL was one aspect of the course which should be changed and more traditional teaching should be introduced. They were concerned about the workload. The first year students felt that a week was not sufficient time in which to fit a problem, that they needed more time to complete tasks and that more consideration should be given to the fact that they have other courses. A second year student stated that that they need more time to reflect on what they have learnt while a 4th year student stated that there should be "less workload and wasting of time".

Some of the students stated the following:

PBL! It takes hours to find the work ourselves, then all the groups get different objectives and no groups have the same objectives or information and we don't know if we have everything we need for tests! (1st year);

the PBL is very time consuming (1st year);

PBL needs to be more structured and have more time available (3rd year);

more lectures, less PBL (4th year).

DISCUSSION

It is clear from analysing the open-ended questions that students perceived that PBL both facilitated and impeded their learning. The main positive aspects contributing to the students' learning included: **'Group Work'**, **'Self-directed Learning'** and **'The OT Course'** which includes PBL. The negative aspects that students felt impeded their learning and that should be changed included: **'Objectives'**, **'Facilitators'** and **'The OT Course'** but more specifically the amount of PBL in the course.

Group Work

Overall students were very positive regarding the benefit of working in groups to their learning. They enjoyed the sharing of ideas and information, learning from their peers, discussing different perspectives and different views, and comparing information obtained. A few students indicated that they did not enjoy the group work, but then also stated that they needed to get used to it. Skills gained from the group work should contribute to the preparation of students for the real world [3].

This supports the work by Barrows[31] who stated that one of the skills obtained from PBL is learning to work with a variety of different people, a skill crucial for a health professional working in the clinical field. As practitioners the students will not only be working with colleagues in the occupational therapy department but also with a variety of other disciplines. By centering the problem in the PBL process, students learn not only how to apply theory but also how to work together under a variety of circumstances, so that the client/patient and his/her family remain the focus of all interventions in team work[12].

Facilitator

The role of the facilitator was not perceived by the students as a major influence on their learning in PBL and their responses were more negative than positive as they felt facilitators were not prepared or involved enough in the problem facilitation and feedback. Some students felt that facilitators should know/understand the problems better, should all be briefed the same way, should be more involved, and should provide more facilitation and guidance.

Only a few students stated that they valued the contribution of the facilitator. It appears that students do not fully understand the role of the facilitator and that facilitators are not there to provide the answers or confirm whether student answers are correct[31]. A facilitator should merely guide students to ask relevant questions, to identify gaps in their knowledge, and to challenge one another[32]. This indicates the problem students have with understanding the inherent purpose of PBL. Research indicates that it is better if facilitators are not experts on the specific topic, as they are then able to focus more on the facilitation process rather than the content of the problem[3,31]. Students should be expected to research and find the content for themselves instead of relying on the facilitator. One of the problems is that students become aware of the different facilitators' areas of expertise and then expect to be taught rather than problem solve when those lecturers are the facilitators. Lecturers thus need to be aware of this problem in order to be successful facilitators and avoid this pitfall. It is therefore recommended that all staff have regular training to improve their facilitation skills.

Learning Objectives

Learning objectives were clearly perceived as a negative aspect of the PBL curriculum and an impediment to learning. Students experienced great anxiety with regard to the objectives in terms of whether they had the correct objectives, whether they had the same objectives as the other students or other groups, and whether they had too many objectives. Students wanted confirmation as to what exactly they needed to research, how much information was required and they did not feel comfortable with compiling their own objectives.

However the whole idea of creating a list of objectives is for students to determine their own learning needs by questioning their existing knowledge[3]. Problem based learning is based on adult learning principles, where students bring past experiences and knowledge to the PBL group[33]. Every student is therefore different and will have different knowledge gaps. It is thus impossible to have set learning objectives. Students need to take responsibility for their own learning and identify what aspects they need to know

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more about to fully understand the problem[1]. Research indicates that providing students with set objectives can impact negatively on the students' ability to determine for themselves what information they need and from which resources, an important skill they need to learn for working in the clinical field[31]. As practitioners students will need to decide for themselves what information is needed to address the specific issues/problems clients present with. The skill of identifying learning needs therefore applies to both a paper-based case study as well as to real life clients.

The feedback aspect of the PBL process was perceived as an impediment to learning and a major stressor for students from all years of study. The feedback aspect is directly linked to the learning objectives as well as self-directed learning aspects of PBL and relates to the anxieties expressed by students of not knowing whether they had the correct information, sufficient information or the same information as the other students.

These uncertainties form part of PBL but the students need support to develop the confidence to trust the information they found, as well as their own judgement.

Self-directed Learning
Students clearly perceived the self-directed learning aspect of PBL as beneficial and felt that this was one of the biggest contributors to their learning. They appreciated researching topics, using a variety of resources, actively learning, working independently and doing self-study. Students are described as 'techno-savvy' and are therefore used to quickly finding information via a variety of technologies[21].

However even though students are comfortable with using technology they might not have the necessary skills to find relevant and reliable information on the internet. This links to another aspect students felt impeded their learning i.e. the amount of time it took to gather the necessary information. Students usually have 10 - 15 objectives per problem and only 1 - 2 hours to find and read all the relevant information. Students clearly stated that the research process takes too long. Therefore they may need to be shown how to search for information, how to find good quality resources, how to judge whether information is reliable and to conduct searches in a time-efficient way. It might also be necessary to review the time allocated for self-directed learning in the PBL process related to the number of objectives identified by students.

One of the ways that the OT Department has tried to assist students with accessing relevant information in a limited time is to provide resource packs for some problems. Students do value the resource packs provided as these guide their research, making the process a little faster and more structured. This probably takes away some of the anxiety related to finding information.

Other aspects perceived as impeding learning associated with self-directed learning included the anxiety around how much information was needed and whether the information they gathered was correct. These fears were confirmed by Berstein et al.[34] as being related to PBL and include the fear of knowledge gaps, having the wrong information and the wasting of time.

In PBL students themselves need to decide how much they need to research and read to understand the various concepts they identified in their objectives. To some extend this should be guided by the wording of the objectives with less information expected in objectives with outcomes of 'list' and 'define' than those with outcomes of 'explain' and 'describe'. This, like learning to research information, is a skill the students need to learn. There is no doubt that these skills are essential for each and every student, as a practitioner, in using their knowledge in the assessment and treatment of patients and identifying areas for further learning to improve overall patient care[3]. Students will also need to decide how much information is required to address the problems clients/patients present with and whether the resources used are reliable and reputable[31].

OT Course
Students had mixed feelings about PBL as a teaching/learning method. There were aspects of PBL they felt contributed to their learning and aspects of the PBL process they felt needed to be changed.

Fieldwork can be seen as an extension of the PBL process through which the PBL process and the skills gained are put into practice, and Barrows[31] states that problems are vehicles for the development of clinical problem-solving skills'. This is supported by Chikotas[3] who feels that that PBL has the ability to form the bridge between theory and practice, and produce a practitioner who is skilled, knowledgeable, reflective and committed to lifelong learning[3]. He states that "the fundamental principle underlying PBL is that learning is based on experiences that mirror real-life situations"[3:360] and this prepares students for the complexities of practice[1].

In clinical practice students need to see every client/patient as a 'problem'/'case study', and students should follow the same seven-step process used in PBL to determine how to deal with the various problems of their client/patient. It is impossible to prepare students for every eventuality as part of the course and students should be able to transfer skills obtained in the OT course (PBL) to fieldwork.

The negative perceptions of PBL impeding learning appear to be related to the students' different learning styles, and further studies will have to be conducted to determine whether PBL can meet the learning needs of the students and whether it fits with the learning styles of the 'generation Y' student.

Lack of time and work overload in terms of finding the relevant information as well as the individual and unstructured nature of PBL were the greatest concerns of the students about the course overall with a number of them wanting to have more prepared lectures and less PBL.

However there is no doubt though that the use of PBL as a teaching/learning method for occupational therapy students holds certain benefits which should contribute to their life-long practice as occupational therapy practitioners. These include learning to work with other people, appreciating other viewpoints, identifying individual strengths and weaknesses, adapting to change, becoming a life-long learner and being motivated to do so[4,12].

CONCLUSION
It was clear from the qualitative analysis of the results that students had mixed feelings about PBL as a teaching and learning method. The results indicated that although students felt positive with regard to individual aspects of PBL they also fostered negative feelings towards PBL as a teaching and learning strategy. In this study students felt that group work, self-directed learning and fieldwork (as part of 'The OT Course') contributed to their learning while objectives, feedback (as part of 'Learning Objectives') and workload (as part of 'The OT Course') were aspects of PBL students felt needed to be changed as these aspects impeded their learning.

Recommendations and future research
One of the biggest questions is whether PBL still fits the generation Y students' learning style or the learning styles of the occupational therapy students. The first step in this process was to determine the perceptions of students in general related to PBL and it was clear that students had mixed feelings towards PBL. It is therefore recommended that further study is undertaken to determine the possible reasons for these results.

In continuing with the PBL curriculum it is further recommended that ongoing and regular training of PBL facilitators should continue and that the role of the facilitator should be clarified for students when they are first introduced to PBL.

Students have a lot of anxiety specifically related to the objectives, the self-directed learning and feedback. The need for student training on how to search for relevant and reliable information should be investigated and the time allocated for this self-directed learning related to the number of objectives identified by students should be reconsidered. The difference between the reality of how much time students spend on the course and students' perceptions of this aspect could also be investigated.

Problem-based contributes to students' life-long practice as occupational therapy practitioners. It is recommended that a study

is conducted on the perceptions of the 4th year students regarding PBL versus the community service occupational therapists to determine if the PBL learning is transpose to the clinical setting where community service occupational therapists are faced on a daily basis with 'problems'.

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