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# Motivation, Challenges, Support (MCS) Cycle Model for the Development of PBL Tutors

Costas S. Constantinou[1] & Stella A. Nicolaou[2]

1) Medical School, University of Nicosia, Cyprus.
2) Department of Life and Health Sciences, University of Nicosia, Cyprus.

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# Motivation, Challenges, Support (MCS) Cycle Model for the Development of PBL Tutors

Costas S. Constantinou
*University of Nicosia*

Stella A. Nicolaou
*University of Nicosia*

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**Abstract**

Problem-Based Learning (PBL) is well known for enhancing students' problem-solving skills and teamwork, while the role of PBL tutors is to facilitate discussion rather than teach. This study used four focus groups to explore PBL tutors' motivation, challenges and support mechanisms, and the relationship between these. The study found that there was a narrative alignment, whereby tutors identified a challenge if it disrupted their motivation to tutor, and support as effective if it addressed the challenge so as to re-establish their motivation. Based on this, we propose the "Motivation, Challenges, Support (MCS) Cycle Model" for the development of PBL tutors.

**Keywords:** PBL tutors, motivation, challenges, support, focus groups, qualitative research

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# Motivación, Desafíos, Apoyo (MDA) Modelo de Ciclo para el Desarrollo de Tutores ABP

Costas S. Constantinou
*University of Nicosia*

Stella A. Nicolaou
*University of Nicosia*

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**Resumen**

El aprendizaje basado en problemas (ABP) es conocido por mejorar las habilidades de resolución de problemas y el trabajo en equipo de los estudiantes, mientras el papel de los tutores de ABP es facilitar el debate en lugar de enseñar. Este estudio utilizó cuatro grupos focales para explorar la motivación, los desafíos y los mecanismos de apoyo de los tutores de ABP, y la relación entre estos. El estudio encontró que había una alineación narrativa, por la cual los tutores identificaban un desafío si alteraba su motivación de tutor, y el apoyo era efectivo si abordaba el desafío como para restablecer su motivación. En base a esto, proponemos el "Modelo de Ciclo de Motivación, Desafíos, Apoyo (MDA)" para el desarrollo de tutores de ABP.

**Palabras clave:** Tutores ABP, motivación, desafíos, apoyo, grupos focales, investigación cualitativa.

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Problem-Based Learning (PBL) was first introduced at McMaster University in Canada in 1969 and, ever since, many universities have used this method to train their medical students (Newble & Cannon, 2001). PBL involves a process through which students are presented with a case or a problem, hypothesise through group discussion, share prior knowledge, and solve the problem on the basis of newly acquired knowledge. One of the key aspects of the PBL process is that the tutor is mainly expected to facilitate learning rather than to teach. The literature is quite rich in information that relates to the effectiveness of PBL tutors (McCrorie. 2010; Groves 2005; Dolmans, 2001; Schmidt, 1995). In order to be effective, PBL tutors need to be trained and to develop specific skills, which attend to the objectives of learning. More specifically, McCrorie (2010) explained that PBL tutors should outline what the group needs to achieve, keep the flow and students on track, handle group dynamics and problems smoothly, facilitate the learning process and maintain a positive group climate (see also Young & Papinczak, 2013; Azer McLean, Onishi, Tagawa, & Scherpbier, 2013; Mclean, Cilliers, & Van Wyk, 2008; Steinerd et al., 2006). In addition to the training and support that tutors have, there are many studies that have identified and discussed the challenges or difficulties PBL tutors are faced with (see review of the literature below). However, what has not yet been adequately addressed is what motivates tutors to tutor and how this relates to challenges and support. It is this gap that this study aims to address. Before we present our aims and rationale in more detail, let us first review the relevant literature on PBL tutors' motivation, challenges and support.

Tremblay, Tryssenaar and Jung (2001) conducted a survey of 75 PBL tutors at Mohawk College and McMaster University to explore what motivates health professionals to tutor. The authors identified two main themes from the results. That is, tutors as educators and tutors as learners. Tutors were motivated because they were given the opportunity to educate others in various ways. That is, they could work with students and, as a result, contribute to the students' learning. The tutors used words such as "enjoy" and "love" to emphasise how motivated they were because of this (p. 563). They were also motivated because their role as educator was facilitated by the small size of the group, and because relationships and a positive atmosphere developed. The opportunity also stimulated health professionals to help students learn in a clinical setting. Finally, tutors

understood that they were motivated by contributing to their profession and the school. Interestingly, tutors were motivated not only because they could teach but also because they learned from facilitating a PBL group. They stressed that, through PBL, they could develop their professional skills on an on-going basis.

Two qualitative studies touched on PBL tutors' motivation but did not explore this area explicitly. First, Lyberg-Åhlander, Lundskog and Hansson (2014) conducted five in-depth interviews and found that tutors needed constant support and a framework for developing their skills in order to keep themselves motivated to continue as tutors. Second, Navarro and Zamora (2014) drew information from six interviews and one focus group to conclude that PBL tutors were satisfied when they were trained, had support and when the available infrastructure aided them with tutoring. To the best of our knowledge, Tremblay et al.'s study is the only one that investigated PBL tutors' motivation explicitly. Indeed, in a recently published paper on developing and validating "the motivation to tutoring questionnaire in Problem-Based Learning Programs", Kassab et al. (2017) explained that there were no published instruments on this area and, in their introduction, they did not present any qualitative or quantitative studies on the reasons why PBL tutors choose to tutor.

What has been explored more thoroughly by several researchers is the challenges PBL tutors face. An early challenge for tutors is the transition from a lecturer to a facilitator. Hitchcock and Mylona (2000) explained that there were three reasons why this happened. First, the relationship between teachers and students had to be redefined. Second, teachers had to get used to a new role. Third, PBL tutors had to acquire new skills in order to facilitate their group effectively and support the learners' needs. However, some skills were more important than others and a challenge tutors encountered was having to learn which skills they needed to activate for a better outcome. On a similar note, Brown (1982) talked about the "super skill", which is the skill to know when and how to use each skill.

Spronken-Smith and Harland (2009) conducted a qualitative study and found that PBL tutors experienced various challenges. More specifically, tutors became stressed due to the lack of guidelines and rules and because they had to learn a new teaching approach. They also had to be mindful enough not to treat their group any favourably by giving out more information than they should. Maintaining a facilitator role was a

challenging endeavour in the sense that other tutors acted more like teachers. Therefore, the participants in the Spronken-Smith et al. study thought that there should be more consistency in PBL tutoring style across tutors. In addition, tutors expressed two more challenges. First, they were concerned about how much control they had over students' learning activities. Second, they were uncertain about how and when to intervene to facilitate the group. Other researchers found similar challenges. For example, Azer (2005) identified similar challenges faced by PBL tutors, such as group dynamics, tutor's contribution and dominance, insufficient understanding by students, lack of critical thinking, and the need to intervene when students covered the material superficially. Group dynamics and difficult group members were also discussed by McCrorie (2010) as common challenges during PBL sessions. Moreover, Ahmed (2014) studied 17 PBL tutors and found that quiet students and lack of commitment by the students were major challenges. Jin (2014) also highlighted the importance of silence by some students.

A number of studies revealed similar challenges to those mentioned above but also highlighted some additional ones. More specifically, Houlden, Collier, Frid, John and Pross (2001) 27 interviewees explained that the main challenges they faced during PBL facilitation were problematic group dynamics, students finishing a case too quickly, superficial coverage, students being frustrated with tutors who do not have content knowledge, and lack of support. Bollela, Gabarra, da Costa and Lima (2009) explained that tutors thought that they were not adequately trained, groups dynamics were a challenge and students were not mature enough to give feedback, while Hsu and Ong (2001) stressed students' knowledge gaps and student time constraints as PBL issues. Jung, Tryssenaar and Wilkins (2005) studied novice tutors at McMaster University and found that the most common challenges were: the time needed to understand a new teaching approach, giving feedback to students, insufficient understanding of the tutor's role by the employer, insufficient training, and prompting students. Along similar lines, Azer (2001) had reviewed the literature to identify the challenges that PBL tutors have and came up with the following: time constraints, giving feedback to students, disagreements between students, and students not knowing the rules well enough. Interestingly, Tremblay et al.'s (2001) participants placed greater emphasis on time and lack of appreciation. More specifically, tutors with a

clinical background and, thus, other professional responsibilities did not have enough time to spend on PBL tutoring and felt burdened by the responsibility of having to assess students as well. In addition, they thought that students did not fully appreciate the time and commitment required for effective PBL tutoring.

Having identified the main challenges PBL tutors experience, it is interesting to know what support they think they need so as to deal with the challenges. Spronken-Smith and Harland (2009) participants emphasised the need for sharing their experiences with other tutors and discussing ways to overcome any difficulties. Sharing experiences with other tutors was also brought to the fore by Jung et al.'s (2005) participants, who stressed the need for better tips and guidelines. Tremblay et al. (2005) found that tutors made detailed suggestions that included ongoing training, such as workshops, feedback and evaluation, peer reviews, support, observing others, mentoring, tutor networks and discussions with other tutors. Furthermore, tutors recommended the need to revise the tutor evaluation form, and to have more flexibility in implementing PBL in order to deal with the high demands of time. For example, shared tutoring or co-tutoring was thought to be effective. Other researchers who explored the literature made relevant recommendations. More specifically, Hitchcock and Mylona (2000) placed particular emphasis on thorough training, while Azer (2005) recommended having ground rules, clarifying roles, building trust, encouraging bonding, giving feedback, supporting discussion, encouraging the use of the whiteboard and posing prompting questions. Moreover, Ross et al. (2007) explained that clarifying course objectives, introducing peer reviews for assessment, and improving tools for group assessment were helpful strategies.

What derives from the discussion above is that there is a good body of knowledge about the challenges or difficulties PBL tutors have and the support they need; however, studies focused on the reasons why PBL tutors choose to tutor are scarce. Also, though Tremblay et al. (2001) explored PBL tutors' motivation, challenges and the support required, we do not know about the relationship between motivation, challenges and support as understood by PBL tutors. Therefore, this paper aims to answer the following research questions: (a) "What motivates PBL tutors to tutor, what challenges do they face and what support do they need?" and (b) "What is the relationship between PBL tutors' motivation, challenges and support?"

Let us now describe the research methodology and method we used to answer these research questions.

## Methodology and Methods

### Method and Recruitment of Participants

To answer our research questions, we relied on a qualitative methodology and conducted four focus groups, which consisted of 21 PBL tutors (out of a total 35 trained tutors) who work for St. George's, University of London Medical Programme delivered in Cyprus by the University of Nicosia Medical School. Before collecting data, we obtained approval from the Cyprus National Bioethics Committee. The PBL tutors were invited via email and were divided into focus groups in such a way as to have a mixture of male and female tutors, social scientists, basic scientists and clinicians, as well as experienced and novice tutors. The tutors who accepted to participate signed an informed consent form. To facilitate the focus group discussion, we constructed a semi-structured focus group guide and organised questions around three areas, namely motivation, challenges and support. There was a moderator and two note-takers at each focus group. All focus groups lasted about one and a half hours, were recorded and transcribed verbatim. As per Table 1 below, the tutors ranged from 28 to 63 years old, there were five men and 16 women, 10 had a background in the social sciences, nine in basic sciences and two were clinicians, 19 were experienced and two were novice tutors, 13 were part-time tutors and 8 were full-timers.

Table 1
*Profile of PBL tutors*

| **Profile of PBL tutors** | | | | |
|---|---|---|---|---|
| **Age range** | **Gender** | **Background** | **Experience** | **Employment Status** |
| 28-63 | Male 5 | Social Sciences 10 | Experienced 19 | Part-time 13 |
| | Female 16 | Basic Sciences 9 | Novice 2 | Fulltime 8 |
| | | Clinicians 2 | | |

**Process of Coding and Analysis**

The study relied on the Framework Method as presented by Ritchie and Spencer (1994). That is, we familiarised ourselves with the data (multi reads of data and notes), constructed themes, identified which data fit each theme, constructed charts, and mapped and interpreted the data. For the actual coding, we relied on both a deductive and an inductive approach. The deductive part related to having three pre-determined areas of inquiry (motivation, challenges and support). Within these three areas, we used a "general inductive approach" (Thomas, 2006) and generated codes directly from the data. Thomas (2006, p. 242) described the process of inductive coding as follows: "label the segments of texts to create categories → reduce overlap and redundancy among categories → create a model incorporating most important categories".

Based on the Framework Method and the general inductive approach, we constructed a pyramid of coding and analysis by initially generating raw codes and then themes (Figure 1). Raw codes were keywords that came out from the participants' words, while themes represented raw codes which fell under similar categories. To ensure the quality of coding, we adopted a double-blind procedure for coding by having two researchers (authors) generating raw codes and themes independently (Guest, Bunce, & Johnson, 2006). The two coders then met and went through the material and the codes in order to refine and finalise the codes. Based on group codes, we proceeded with the description and interpretation of the data. The pyramid approach shows that the mass of codes derived from the raw data forms the base of the pyramid, which narrows via the construction of themes and interpretations.

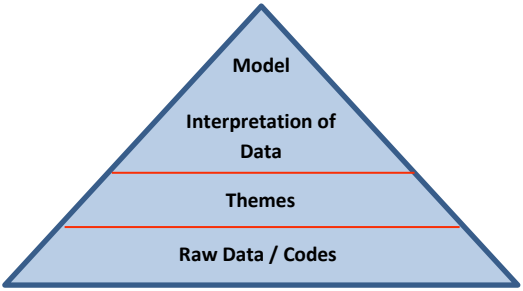


*Figure 1*. Pyramid of coding and analysis

We created a codebook based on the pyramid above through Atlas Ti software. In the first layer of the pyramid, we identified all the raw codes which related directly to our research questions. We then identified codes that fell under similar areas and ended up with 15 themes (second layer). In the third layer, we identified six generic categories which represented families of themes. We used these six categories as sections for the interpretation of data. We had to know if we had enough data for analysis and so we checked for data saturation. We used the CoMeTS method (Constantinou, Georgiou, & Perdikogianni, 2017) to check for saturation, whereby all themes were measured and compared across the four focus groups. More specifically, we measured all the codes under motivation, challenges and support for the first group. We then measured and compared the codes from the second focus group to the codes from the first group, and the codes from the third group to the codes from the first two focus groups. There were only two new codes in the second focus group, while there were no new codes in the third focus group. To ensure that we had reached data saturation, we conducted another focus group. We did not identify any new codes in the third and fourth focus groups and so we reached the safe conclusion that we had achieved data saturation. Our conclusion was in accordance with Guest, Namey and McKenna (2016) study on conducting 40 focus groups to understand health-seeking behaviour. The authors found that two to three focus groups generated 80% of all themes, while three to six focus groups included 90% of all themes. Moreover, three focus groups were enough to include the most common themes derived from the data.

To determine the relationship between motivation, challenges and support, we organised all the codes in these three dimensions per tutor. When codes across the dimensions fell under the same theme then the tutors' words were examined in detail to identify the exact relationship between the dimensions. For example, for tutor 1 (see table 2) we identified codes that were relevant to "content". Because content was common ground across the three dimensions we went back to the tutor's words to explore the exact relationship between motivation, challenges and support in more depth.

## Results

The results are presented in two sections, which are in accordance with the research questions we explored. That is, what are PBL tutors' motivation, challenges and support and what is the relationship between these three aspects of PBL tutoring. The analysis in this section has been organised in such a way as to address the components of the first research question and as such is focused around the three main areas. First, "motivation" explores what motivates PBL tutors to tutor. Second, the analysis focuses on the "challenges" PBL tutors face. Third, "support" sheds light on the support mechanisms tutors had or would like to have to overcome the challenges they experienced.

### Motivation

PBL tutors were initially motivated to tutor for a variety of reasons, such as doing it as part of their practicum, for remuneration, out of curiosity and as part of their general workload. Interestingly, over time, the tutors' motivation to continue aligned with a more pedagogical basis, which enhanced learning at two different levels. That is, PBL tutoring was pedagogical for the tutors themselves, and pedagogical for the students.

#### PBL tutoring as pedagogical for tutors

Some tutors explained that PBL helped them better understand the curriculum and the use of cases and enhanced their medical knowledge. More specifically, one tutor explained

> I always learn. Even after three years, I still learn from them. I love the material. I guess if I had the opportunity to study now, I would do it this way for sure.

Furthermore, the pedagogical aspect of PBL tutoring was also identified by tutors who utilised the PBL philosophy and structure in order to improve teaching within their own disciplines. For instance, a tutor said,

> Over time, my motivation changed from "I have to do it" and became more inspiring for me because I realised that I could apply what I was observing or doing in my field.

The applicability of PBL to other disciplines related to the tutor's motivation to continue on the basis of the fact that PBL was very different from the traditional form of teaching. That is, it was less didactic, more interactive and practical, while the teacher was actually a facilitator of learning. In this respect, tutors thought that they were gaining new experiences from such a new teaching context. Some tutors asserted that their learning was enhanced by their interaction with students. That is, they learned how useful PBL was and how to handle group dynamics within multicultural PBL groups.

**PBL tutoring as pedagogical for students**

The tutors' motivation was not confined to what they gained directly from PBL tutoring but instead it reached out to encompass what they offered to students. Thereafter, PBL tutoring was pedagogical for students for two reasons. First, tutors explained that PBL tutoring helped students to think deeper and relate their knowledge to the cases they were trying to understand. Therefore, tutors were motivated to continue when they knew that students learned from the facilitation of PBL discussions. For example, a tutor said

> I like the interaction and I like to stimulate them by asking questions. […] At the same time, I get satisfaction by actually managing to get the correct answers out of them.

Second, some tutors thought students did not only learn from the tutor's facilitation itself but from the PBL cases in the sense that students had the opportunity to see the relevance of medicine in daily practice and to develop their clinical understanding and reasoning. The fact that PBL can, as a tutor explained, "extract the relevant scientific theory and put it in front of you" could potentially make tutors feel satisfied for contributing to such a type of applied learning.

The analysis of the focus groups, as described above, indicated that PBL tutors were motivated because they thought they were gaining qualitative values on two levels. First, they learned from the PBL experience by enhancing their medical knowledge and applying PBL to their own disciplines. Second, they thought they contributed to the students' knowledge and development. Interestingly, at times, tutors were also motivated because tutoring a PBL group was understood to be a challenging endeavour. The challenging aspects of PBL tutoring, as tutors themselves understood and experienced them, are discussed below.

## Challenges

The challenges PBL tutors experienced were numerous and changed from time to time. We have organised the challenges into two main categories. First, there were the "interactive challenges", which referred to the frame of interaction between tutors and students. Second, we identified "content challenges", which had to do with difficulties tutors had with understanding and engaging with the content during PBL.

### Interactive challenges

Interaction with students during PBL is an integral part of the process and it seems to be an important challenge for tutors. Based on what most participants acknowledged, PBL tutors had to be, what we call, "interactive jugglers" because they had to change face every time they changed a group. In other words, tutors had to adjust their tutoring skills and approach based on their new group's needs and expectations. For example, a tutor said,

> What I also find difficult is that every group is so different so what you thought might work perfectly as an approach with one group may not work with another group.

Within the context of changing face, most tutors highlighted the importance of achieving equilibrium within groups by dealing with quiet and dominant students effectively and by sorting out any problematic group dynamics. Some tutors explained that personal issues outside of the medical course could potentially influence group dynamics. Thereafter, PBL tutors

were faced with the demanding task of being alert to pick up on relevant cues and to address any side issues with students. A tutor said,

> I found that there were some personal issues with somebody else in the group, outside of PBL, and they were transferring them to the group. So that was quite challenging […] I noticed the change in her and I had to ask her directly, 'Is there anything wrong?'

In relation to group dynamics and quiet/dominant students, most PBL tutors faced difficulty in motivating students to participate. Based on what tutors said, lack of student motivation might have resulted from various reasons. First, there were students who had never experienced PBL in the past and were reluctant to participate as much as other students did. Second, students sometimes thought that they knew the material and were not keen to revise or discuss the information on the whiteboard. Third, some students were indifferent or unwilling to cover material that would be covered in lectures.

Another interactive challenge that a few tutors experienced related to the students' tendency to compare their new tutor with other tutors from previous terms, especially clinicians. For example, a tutor explained:

> [S]ome of them previously had a doctor [as a tutor], especially in the first month or so. They were always comparing the way I did PBL, managed my group, with the way a doctor did. And they would say 'Yeah, but the doctor told us more about this', 'Yeah, but the doctor directed us more on this' and from what I hear, in general, doctors used to – not all of them – but a majority of them would give the students more information that they should have and that sort of affected the PBL and the students' behaviour towards me in the beginning. It's like, during the first session/weeks, they would be like 'Ok, you are not giving us this information'; 'Why don't you give us enough information?'; 'Why don't you tell us this stuff?'; 'Do you expect us to go and find it [the information] by ourselves?'; 'You should have told us'. No, I shouldn't have told you. It's your job to go and find that information and maybe it was straight after a doctor and that's why the comparison.

Such a comparison, some tutors found, might have jeopardised their interaction and professional relationship with students and the proper functioning of the group. On this note, tutors did not only have to focus on interactions and dynamics, which derived from the group itself, but also on handling external factors, such as being compared to another tutor, which potentially challenged the fundamentals of a group's facilitation.

All interactive challenges identified above are subject to the tutors' ability to act as jugglers in order to achieve a balanced group, which would follow the designated PBL process to generate hypotheses and learning objectives (LOBs) and cover all the LOBs in a constructivist learning context. The interactive challenges are intertwined with and may be influenced by how tutors understand and handle the PBL case content.

**Content challenges**

PBL tutors were faced with challenges which related to the content. Content can take two main forms here. First, it pertains to the tutors' background (i.e. social, basic or clinical sciences) and how it can influence the way they understand and handle PBL cases. More specifically, a tutor said,

> Oh my God, what am I doing? How am I dealing with this? I don't know what they are talking to me about.

This has been a major challenge for most tutors with a social sciences background. Social sciences tutors were concerned with how much of the content they understood and some of them spent a lot of time reading additional medical information in order to familiarise themselves with the content as much as possible. Furthermore, familiarity with the content would also help tutors to better understand the depth that students should be exploring or covering in their LOBs. Based on content knowledge, some social sciences tutors thought that the students tended to prefer clinicians or basic scientists as tutors. For instance, a tutor explained:

> Due to being a psychologist, I thought that some people had difficulty with my background or thought that I was not well prepared because I didn't have a medical background. […] We don't have medical knowledge and I had a comment in one of the

> [student] evaluations that I don't have a science background and that was really disturbing to be honest.

The comparison here was different from the comparison in the previous section in the sense that tutors were not only compared based on their style (i.e. guidance and prompting) but also on their content knowledge. Having experienced such comparison, tutors might have felt extra pressure to familiarise themselves with medical information they did not really understand in detail. Interestingly, content background was not only a challenge for the social sciences tutors but also for the tutors who had a relevant background. A tutor, for example, explained that when students knew that their tutor had a basic or clinical sciences background, they tended to look to the tutor for answers or more guidance. Tutors, as a result, were likely to feel uncomfortable or even tempted to guide students towards an answer.

Second, content challenges related to the actual information included in the tutor notes and cases. Tutors sometimes had difficulties with handling the information and the tutor notes. A common challenge that came out of the tutors' experiences was the actual information in the tutor notes and the prompting questions, which were tools to help tutors better facilitate their groups. Most tutors thought that the tutor notes were generally helpful but noticed that they also included some factual mistakes. In addition, the tutor notes had insufficient prompting questions or did not have any prompting questions to help tutors trigger students to generate difficult LOBs. More specifically, a tutor explained that

> some of the learning objectives are a paragraph long and specific, so I am just thinking that [if] students don't come up with such a specific learning objective or a very long learning objective, what do I do? How do I prompt it?

Having analysed the challenges PBL tutors faced, it is interesting to delve into the support mechanisms tutors have or would like to have.

## Support

PBL tutors were asked to reflect on existing support mechanisms and other types of support which could be useful for them. Tutors generally expressed mixed views about the existing mechanisms and they proposed a few more, which could potentially help deal with the challenges they experienced.

### Effectiveness of existing support mechanisms

The existing support mechanisms include PBL briefings, peer-reviews, student feedback, as well as the tutors' feedback on the cases. PBL tutors were asked to express their views on whether these existing mechanisms were helpful and whether they needed any improvement. There were mixed comments about the effectiveness of the briefings before each PBL session. Some tutors thought that the briefings were useful, while others experienced briefings as a time when they simply made sure that they had identified the correct LOBs on the correct pages. For example, a tutor said

> This is tiring. It gets to 9 o'clock and I haven't done anything besides tick that I have the right pages for my LOBs – especially when I don't have any difficulties with the case. I had a big issue with this and I found myself leaving bad comments for a colleague because I felt that I was not getting anything out of this.

In regard to peer-reviews, a tutor said

> They [peer-reviews] are helpful but sometimes… well it's not a big problem, but the only concern I had to deal with is that the peer review is conducted once per group so you just get a quick glimpse

While another tutor explained that

> The peer reviews are very, very, very helpful. They helped me identify issues that I didn't realise had gone on and on.

These two quotes represented a variety of comments on the usefulness of peer-reviews. That is, some tutors thought that peer-reviewers were helpful when reviewers came up with constructive feedback. However,

other tutors explained that peer-reviews were one-off observations and that students tended to change their behaviour when they knew they were being observed.

Mixed comments were also identified about the students' and tutors' feedback. Tutors understood student feedback to be helpful at times, while at other times it lacked constructiveness. A tutor pointed out how stressful student feedback could be:

> I found it stressful; it's always like 'Ok'. The scale is fine. I never worry about the scale. It's the comments.

In terms of the tutors' feedback on the cases, giving feedback to improve the cases could potentially be a rewarding mechanism for PBL tutors as they could see how their input could improve the process. However, tutors tended to believe that their comments went largely unheard.

### Future support mechanisms

Tutors suggested several future mechanisms as useful for dealing with challenges. More specifically, tutors thought that having a case expert during the briefings before each PBL session would be very helpful for them to better understand the case content and to know how to prompt more effectively. In addition, tutors maintained that observing more experienced tutors would help in dealing with difficult situations, while peer-reviewing each other would be beneficial for both novice and experienced tutors. Another tool that tutors found helpful for understanding and handling content were the improved tutor notes. Finally, tutors thought that going through an annual appraisal would help them in the sense that they would have constructive feedback to utilise in the future.

## The Relationship Between Motivation, Challenges and Support

Interestingly, the tutors' comments above revealed that there was a "narrative alignment" in the sense that the tutors' views on motivation aligned with those on challenges and with their reflection on support. That is, most tutors explained that interacting with students and group facilitation were among their primary motivation to continue tutoring. This motivation

was aligned with the challenge of having to change face every time they changed a group. To support them with such a challenge, tutors understood peer-review as helping them to be better "interactive jugglers". For example, a tutor said:

> Because I had peer reviews nearly every term, because they are different groups, we face different challenges within each group. There are issues that didn't come up in the first group, but having a peer review in the second term for the second group, that means that you have different challenges. Therefore, you can modify your style more easily. Peer review has helped me a lot.

Motivations "interaction with students" and "group facilitation" were also aligned with the challenge of group dynamics and dealing with quiet/dominant students. The suggested support tutors required to deal with such a challenge were interactive workshops to deal with difficult cases or observing other experienced tutors. Furthermore, the motivation to learn medical information and tutor their group properly was aligned with the challenge to understand and better handle (e.g. prompt) the scientific content. The support for such a content-related challenge was to include a case expert during the briefings and to improve the tutor notes. The alignment between challenges and support is reasonable because tutors are looking for tools and mechanisms that can help them deal with the difficulties they experience. However, the alignment between motivation and challenges is a striking finding, which shows that understanding what is challenging is contingent upon what is thought to be threatening to the tutors' motivation. More specifically, a tutor who is motivated because he or she wants to help students generate relevant LOBs is likely to find poor tutor notes or insufficient prompting questions a challenge because these can potentially threaten his or her initial motivation. Along similar lines, a tutor who is motivated because he or she likes interacting with students or group facilitation is likely to view a dominant student who disrupts interaction and facilitation as a challenge to deal with.

To make sure that the alignment was a real pattern and identifiable within each tutor's argumentation, we isolated each tutor's input and checked for any relationship between their words under motivation, challenges and support. The two authors did this check blindly and then met

to discuss their findings and refine their conclusion. The authors counted the number of cases where three or two dimensions were aligned. A three dimensions alignment occurred when motivation, challenges and support aligned, whereas the alignment between two dimensions happened when any of the two matched. In some cases there were both three and two dimensions alignments. The findings between the two authors were the same and showed that the alignment between motivation, challenges and support was a major pattern. More specifically, the three dimensions alignment was identified in 17 participants and the two dimensions in 15 participants. Table 2 below shows three, two and zero dimensions alignment. To read the table correctly it is important to notice that wherever there is no text means that participants did not express any comments and wherever there is text for no alignment means that the participants expressed comments that did not clearly align. For example, participant one in group one expressed three comments (understand more about medicine; tutor notes; better tutor notes) which aligned, two comments (quiet students, group dynamics; train students) which aligned, and two comments (help me in my job; student feedback, work with other tutors) which did not align.

Table 2
*Alignment between motivation, challenges, and support*

| **Motivation, challenges, support alignment mapping** | | | | |
|---|---|---|---|---|
| **Group 1** | | | | |
| **Participant** | **Alignment** | **Motivation** | **Challenges** | **Support** |
| 1 | Three dimensions | Understand more about medicine | Tutor notes | Better tutor notes |
| | Two dimensions | | Quiet students, group dynamics | Train students |
| | No alignment | Help me in my job | | Student feedback, work with other tutors |

(continues)

Table 2
*Alignment between motivation, challenges, and support (continuation)*

| Group 1 | | | | |
|---|---|---|---|---|
| **Participant** | **Alignment** | **Motivation** | **Challenges** | **Support** |
| | Three dimensions | Group facilitation, how people learn in a group | Group dynamics, to motivate students | Train students |
| 2 | Two dimensions | | Generate LOBs | Briefing for depth |
| | No alignment | | | Observing other tutors |
| | Three dimensions | Group facilitation | Students do not always know the rules, difficult students | Interactive workshops (for the difficult cases) |
| 3 | Two dimensions | | | |
| | No alignment | | Comparison with clinicians | Mentoring system |
| | Three dimensions | PBL style | Prompting, content knowledge | Tutor notes, group discussion about prompting |
| 4 | Two dimensions | Group facilitation | Group dynamics, to motivate students, quiet/ dominant students | |
| | No alignment | | | Enhanced training, peer reviews observing other tutors |

(continues)

Table 2

*Alignment between motivation, challenges, and support (continuation)*

| Participant | Alignment | Motivation | Challenges | Support |
|---|---|---|---|---|
| **Group 1** | | | | |
| 5 | Three dimensions | Different teaching approach | Content knowledge | Guidance in the content (LOBs and depth) |
| | Two dimensions | | | |
| | No alignment | | To motivate students, quiet/ dominant students, group dynamics and culture | Peer reviews, record oneself and reflect, discuss with PBL lead |
| 6 | Three dimensions | | | |
| | Two dimensions | | Not to give information to students as a clinician | Feedback from an expert PBL facilitation |
| | No alignment | | Content knowledge | |
| **Group 2** | | | | |
| 1 | Three dimensions | Different level of students (background and behaviour) | Group dynamics, to motivate students | Peer reviews can help facilitation |
| | | PBL style | Tutor notes, content knowledge and depth | Case expert to help with content |
| | Two dimensions | | | |
| | No alignment | | Comparison with a clinician | Group discussion |

(continues)

Table 2

*Alignment between motivation, challenges, and support (continuation)*

| Group 2 | | | | |
|---|---|---|---|---|
| **Participant** | **Alignment** | **Motivation** | **Challenges** | **Support** |
| 2 | Three dimensions | New teaching approach, how to be a proper PBL tutor | Tutor notes, prompting | Better tutor notes to help with content and prompting |
| | Two dimensions | Interacting with students | To motivate students, group dynamics | |
| | No alignment | Educational for myself | | Observing others, mentoring system |
| 3 | Three dimensions | Learning from the material | Tutor notes | Case expert to help with content and prompting |
| | Two dimensions | Interacting with students | Group dynamics, students attitudes | |
| | No alignment | | Comparison with a clinician | Peer reviews |
| 4 | Three dimensions | Multicultural and dynamic groups, learning medicine | To motivate students, group dynamics | Peer reviews to help adjust to each group |
| | Two dimensions | | | |
| | No alignment | | | |

(continues)

Table 2
*Alignment between motivation, challenges, and support (continuation)*

| Group 2 | | | | |
|---|---|---|---|---|
| **Participant** | **Alignment** | **Motivation** | **Challenges** | **Support** |
| 5 | Three dimensions | Learning the content | Prompting | Peer reviews, tutor notes |
| | Two dimensions | Facilitation | Group dynamics | |
| | No alignment | Helping students learn | | |
| **Group 3** | | | | |
| **Participant** | **Alignment** | **Motivation** | **Challenges** | **Support** |
| 1 | Three dimensions | PBL style | Content | Case expert to help with content |
| | Two dimensions | Interacting with students | Group dynamics | |
| | No alignment | Stimulating students, contributing to students' learning | | |
| 2 | Three dimensions | PBL style, inspiring | Tutor notes, prompting | Better tutor notes, prompting |
| | Two dimensions | | | |
| | No alignment | | | |

(continues)

Table 2
*Alignment between motivation, challenges, and support (continuation)*

| Group 3 | | | | |
|---|---|---|---|---|
| **Participant** | **Alignment** | **Motivation** | **Challenges** | **Support** |
| 3 | Three dimensions | Different teaching approach | Tutor notes, content | Case expert to help with prompting and LOBs |
| | Two dimensions | Interaction with students | Group dynamics | |
| | No alignment | Help students learn | | |
| 4 | Three dimensions | How well the cases are written | Misplaced LOBs, cases are UK specific | Workshop on writing cases, case expert or case writer to enhance preparation |
| | Two dimensions | | | |
| | No alignment | Educational for students | | Feedback from an expert |
| 5 | Three dimensions | PBL style, interacting with students | Content, group dynamics, tutor notes | |
| | Two dimensions | | | |
| | No alignment | | | Feedback from students, annual appraisal |

(continues)

Table 2

*Alignment between motivation, challenges, and support (continuation)*

| Group 4 | | | | |
|---|---|---|---|---|
| **Participant** | **Alignment** | **Motivation** | **Challenges** | **Support** |
| 1 | Three dimensions | Different way of teaching<br>Students share knowledge | Tutor notes, depth<br>Quiet students, dominant students | Better tutor notes<br>GSA (Group and Self Assessment) form for group dynamics |
| | Two dimensions | The way students learn | Students do not stick to the process | Personal feedback to students |
| | No alignment | | | |
| 2 | Three dimensions | Different way of teaching | | Better tutor notes |
| | Two dimensions | Active learning, nice way to get to know students, keeps me up to date with medicine | Assessing students, group dynamics, dominant students | Group discussion, student feedback |
| | No alignment | | | |
| 3 | Three dimensions | Type of teaching | Tutor notes, content | Better notes for the content |
| | Two dimensions | Interacting with students | Group dynamics and different personalities | |
| | No alignment | | | Peer reviews |

(continues)

Table 2
*Alignment between motivation, challenges, and support (continuation)*

| Group 4 | | | | |
|---|---|---|---|---|
| **Participant** | **Alignment** | **Motivation** | **Challenges** | **Support** |
| 4 | Three dimensions | Interacting with students | Some groups do not stick to the rules, Group dynamics, we give students too much power | Better tutor notes to give us the answer for each LOB to know they are prepared and covered the LOBs in depth (for better facilitation), workshops for group dynamics |
| | Two dimensions | | | |
| | No alignment | Personal development – first time as a facilitator | Some groups prefer clinicians as tutors | Group discussion |
| 5 | Three dimensions | | | |
| | Two dimensions | To understand the learning process and what is expected form the students to know | The process itself | |
| | No alignment | How to improve the lectures | To work comfortably through the LOBs | |

The alignment found in Table 2 did not possibly come about because the tutors remembered what they said earlier about motivation and challenges and, therefore, wanted to express reasonable arguments about support. Instead, the tutors understood the challenges as experiences, which disrupted their motivation, and support as tools for re-establishing their motivation. In other words, it seems that motivation was the driving force behind understanding what the challenges were and, consequently, what

support tutors required to deal with these challenges. This is not to imply that tutors paid attention exclusively to what disrupted their motivation. For example, participant one from group one (see table above) identified group dynamics as a challenge; however, group dynamics did not seem to have a direct impact on the participant's motivation, which had to do with understanding more about medicine. Participant six from group one did not articulate a clear motivation to tutor. Despite these observations, the alignment between motivation, challenges and support is a dominant trend in the participants' narratives. Given the finding that tutors understood motivation, challenges and support in a circular mode (i.e. support can be used to enhance motivation), we propose the model "Motivation, Challenges, Support (MCS) Cycle" for the development of PBL tutors, which is outlined below.

As per Figure 2, the "Motivation, Challenges, Support (MCS)" model can take a circular course. That is, PBL tutors are motivated before they start tutoring. Their motivation must relate to the structure and philosophy of PBL tutoring and tutors can be motivated through intensive training and observation of peers. After their training and peer observation, PBL tutors' motivation can be gauged before they are finally selected. During their PBL, motivated tutors should be encouraged to self-reflect and identify any challenges they face. Educational institutions that utilise PBL as a teaching method could offer a variety of PBL support mechanisms which tutors can choose from. Therefore, based on what tutors find challenging, they can then carry on with self-reflection and discussion with the PBL Lead or Coordinator in order to select the most appropriate support mechanism, which would help them deal with their challenges and re-establish or enhance their motivation to continue as PBL tutors. Through this course of action (the MCS Cycle), PBL tutors not only deal with challenges but they also improve their skills and maintain their level of motivation.

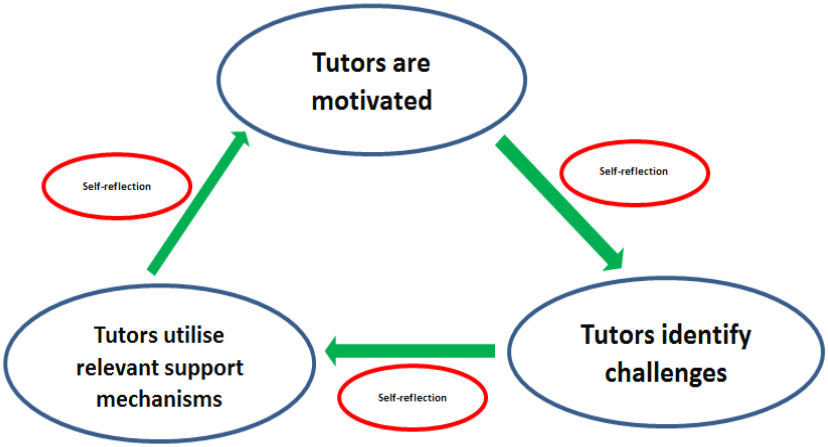


*Figure 2*. The MCS Cycle

## Discussion

The results above highlight what motivates PBL tutors to tutor, what challenges they are faced with and what support they need. In addition, the data showed the relationship between these three tutor experiences. The study's findings that tutors are motivated because they are learning but at the same time contributing to others' learning accords with Tremblay et al.'s (2001) survey of 75 PBL tutors, which showed that tutors enjoyed tutoring because they had the opportunity to teach students, learn from facilitating a PBL group and contribute to the profession. Though Tremblay is the only study that clearly explored the PBL tutor's motivation, studies by Lyberg-Åhlander et al. (2014) and Navarro and Zamora (2014) stressed the importance of support, training and infrastructure. Our participants did not mention anything about infrastructure but they placed particular emphasis on support, training and self-development as means to deal with

challenges and maintain their motivation, as the narrative alignment analysis revealed.

The main challenges our participants faced were group facilitation, group dynamics (including quiet/dominant students), handling the content, and the tutor notes. These challenges were also found in other studies, such as Spronken-Smith and Harland (2009), Azer (2005), Bollela et al. (2009), and Jung et al. (2005). Our study revealed that one common challenge, which was not highlighted by other studies, was that students compared clinicians and non-clinicians and favoured the former. This happened because, in our sample, the majority of PBL tutors were social scientists and students perhaps felt safer having clinicians or content experts as tutors. The social sciences tutors subsequently regarded such a comparison as unfair and a threat to their work integrity. In addition, the challenge of understanding and handling the content was also more prominent in our study than elsewhere. This is because most tutors were social scientists and they sometimes struggled to understand the content, what students needed to cover and to what depth. As a result, they highlighted the importance of case experts and improved tutor notes as tools for managing this challenge.

Interestingly, the existing literature brought to the fore a few challenges that were not experienced by the participants of our study. More specifically, Tremblay et al.'s participants placed more emphasis on time restrictions and the responsibility of having to assess students, and that students did not appreciate the tutors' efforts. These challenges were observed in Tremblay et al.'s study because the research participants were health professionals and their understanding of challenges was possibly informed by their busy schedule as clinicians. In our case, many tutors were part-time employees and, consequently, time was not an issue. Furthermore, other studies (Houldern et al., 2001; Jung et al., 2005) indicated other challenges, such as lack of support, time needed to understand a new teaching approach, and insufficient understanding of the PBL tutor's role by the employer. In our study, PBL tutors worked for a newly established medical programme and tutors had a good deal of support. Moreover, they were enthusiastic about this new teaching method (in many cases it was a motive, not a challenge), and the employer placed particular emphasis on the importance of PBL and on the tutors. It seems here that challenges are contingent upon the tutors' background and experiences but also upon the culture that is created at a structural and organisational level.

The results of this study showed that PBL tutors considered peer reviews, case experts, workshops, group discussions and improved tutor notes as important ways for dealing with challenges. Tremblay et al. (2001), Spronken-Smith and Harland (2009) and Jung et al. (2005) indicated similar support mechanisms required by PBL tutors. We did not identify any important differences between what our participants indicated as effective support and what other researchers found.

What is strikingly different in this study is the tutors' narrative alignment, which unpacked the relationship between motivation, challenges and support. That is, PBL tutors understand that something is challenging if it disrupts or can potentially disrupt their motivation to tutor. To illustrate, a tutor may find problematic group dynamics to be a challenge as this is likely to disrupt their motivation of "I like group facilitation". As a result, tutors are likely to consider a workshop in how to handle group dynamics as a tool to deal with this challenge and to maintain their motivation to tutor. This alignment led us to propose the "Motivation, Challenge, Support Cycle Model" through which motivated tutors may identify the challenges, self-reflect, and choose the most suitable support mechanism in order to manage the challenges and keep themselves motivated to tutor. This model can be used as a guide for training PBL tutors and for life-long PBL tutors' development, which can help reduce PBL tutor attrition rates and enhance tutor satisfaction (Tremblay et al., 2001). In addition, this model can act as a predictor of future needs of PBL tutors. That is, if their motivation is gauged early on then the appropriate support may be planned in advance. Finally, the model can be used as a guide to large scale quantitative research that could measure PBL tutors' motivation, challenges and support and explore the relationship between these three experiences. The recently published "Motivation to Tutoring Questionnaire in Problem-Based Learning Programs" by Kassab et al. (2017) can further enhance this proposal.

Despite the strengths of this study, it has some limitations. First, most research participants were social scientists. This might have had an impact on the perception and experience of motivation and challenges in the sense that perhaps they were enthusiastic to explore something new and the challenges they faced mostly had to do with their lack of medical background. Second, we had only two clinicians in the sample. Interviewing more clinicians could possibly have given us additional and

different challenges or new ideas for support mechanisms. Third, the majority of tutors were experienced tutors. Therefore, we do not know what really motivates novice tutors, what they find challenging or what support they need. In spite of these limitations, the study relied on a qualitative research method in order to gain deeper insights into the reasons why tutors choose to tutor, the challenges they face and the support they need. The study relied on a rigorous approach of coding and analysis and constructed the motivation, challenges and support model, which could serve as the basis for training PBL tutors and for future research.

## Conclusions

This study aimed to explore the motivation of PBL tutors, the challenges they faced, the support they had or would like to have, and the existing relationship between these three experiences. The findings showed that what motivated PBL tutors was the educational structure and philosophy of PBL for both students and tutors. For tutors, group dynamics, understanding and handling the content, prompting and the tutors notes were identified as challenges. They thought that peer-reviews, case experts, observation of experienced tutors, mentoring and annual appraisals would be useful mechanisms for dealing with theses challenges. Interestingly, the study showed an alignment between motivation, challenges and support and revealed that motivation was the driving force for understanding which aspects of PBL tutoring were challenging and which aspects were not. On this note, PBL tutors understood support not only as a way to deal with difficulties but also as a mechanism to re-establish and enhance their motivation to tutor. Based on the findings, we propose the "Motivation, Challenges, Support (MCS) Cycle" model, which educational institutions can use for the training and development of PBL tutors.

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**Costas S. Constantinou** is an Associate Professor in Medical Sociology at the University of Nicosia Medical School, Cyprus.

**Stella A. Nicolaou** is an Assistant Professor of Immunology at the Department of Life and Health Sciences at the University of Nicosia, Cyprus.

**Contact Address:** Costas S. Constantinou, Office 110, 1st floor, University of Nicosia Medical School, 21 Ilia Papakyriakou, 2414 Engomi POBox 24005, CY-1700, Nicosia, Cyprus. Email: constantinou.c@unic.ac.cy