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Situations that prompt teachers in problem-based curricula to reflect on their beliefs, identity and mission

Lukas Daniel Leatemia^a (b), Boukje Compen^b (b), Diana H. J. M. Dolmans^b (b), Jeroen J. G. van Merrienboer^b (b) and Astrid Pratidina Susilo^c (b)

^aDepartment of Medical Education, Faculty of Medicine, Mulawarman University, Samarinda, East Kalimantan, Indonesia; ^bDepartment of Educational Development and Research and School of Health Professions Education (SHE), Faculty of Health, Medicine and Life Sciences (FHML), Maastricht University, Maastricht, The Netherlands; ^cDepartment of Medical Education and Bioethics, Faculty of Medicine, Universitas Surabaya, Surabaya, East Java, Indonesia

ABSTRACT

Teachers have different perceptions of how to enhance student learning. Whereas some take a teacher-centred perspective, others lean more towards a student-centred approach. Many studies in higher education have invoked Korthagen's onion model (2014) to explain how teachers' perspectives can impact their teaching practices. Spanning six interrelated layers, this model contains both outer (environment, behaviour, competencies) and inner (beliefs, identity, and mission) aspects. Focusing essentially on teachers' outer aspects, previous studies have paid scant attention to how particular situations affect teachers' inner aspects and, consequently, how teachers perceive student-centred learning. In this descriptive qualitative study, we explored situations that encouraged or discouraged teachers to embrace student-centred beliefs, identities and missions. We held three focus-group discussions with 18 teachers from two Indonesian medical schools, performing a thematic analysis of the data thus obtained. We found that certain situations made teachers reflect on their inner aspects, which either favourably or adversely affected their acceptance of a studentcentred learning approach. Teachers' outer aspects (i.e. their prior problem-based teaching and learning experiences, learning situations from their own training as well as clinical duties) strongly interacted with their inner aspects, thereby shaping their teaching perspectives. Understanding how specific situations can influence teachers' inner aspects might help institutions to design faculty development programmes that address teachers' specific educational needs.

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Introduction

Despite a global trend towards student-centred medical education, many teachers experience difficulties whilst transitioning from teacher-centred towards student-centred teaching practices. In problem-based learning (PBL) curricula, for instance, they struggle to facilitate student learning, even after participating in faculty development initiatives (Leatemia et al. 2016; Kwan, 2019). A plausible explanation could be that they hold conflicting views about what constitutes effective teaching that enhances student learning. These teaching perspectives take shape when teachers' interconnected beliefs and intentions intertwine to provide direction and justification for their performance (Pratt et al. 2001). Consequently, their intrinsic views on teaching and learning significantly influence their teaching behaviours; whilst those with a teacher-centred perspective often prioritise knowledge transmission indifferent to the student experience, teachers adopting a student-centred perspective do tend to emphasise students' conceptual understanding and development (Barnhoorn et al. 2019; Hiemstra 2013; Jacobs et al. 2016). In this study, we sought to shed more light on how situations from teachers' daily practice shape their teaching perspective, utilising Korthagen's onion model (2014) as a framework.

Practice points

- Teachers with knowledge and experience of PBL do not automatically adopt inner aspects that yield a student-centred perspective.
- Teachers shape their beliefs, identities and missions by reflecting on specific situations they encounter in their daily work.
- Teachers' outer aspects influence their inner aspects and vice versa.
- Understanding how specific situations in teachers' working contexts can influence their inner aspects might help institutions to design faculty development programmes that address teachers' specific educational needs.

In a previous study, we already used the said model to explain six aspects of a teacher's perspective that influence PBL teaching practices (Leatemia et al. 2022, 2023). Akin to an onion slice, the model spans six layers: three outer layers, comprising teachers' environment, behaviour and competencies, and three inner layers that include their beliefs, identities and missions. Since the essential focus of this study was on the inner layers, they deserve more

CONTACT Lukas Daniel Leatemia 🖾 luke_dl@yahoo.com 🗈 Department of Medical Education, Faculty of Medicine, Mulawarman University, Samarinda, East Kalimantan, Indonesia



Figure 1. The onion model with its inner (i.e. beliefs, identity and mission) and outer (i.e. environment, behaviour and competencies) layers that pertain to the concept of teacher perspective (Korthagen 2004).

explanation in the following. First, 'beliefs' refer to what teachers believe regarding teaching and learning; for instance, they may appreciate active learning and a professional practice orientation (Jacobs et al. 2012; Korthagen 2014; Ottenhoff- de Jonge et al. 2022). 'Identity', on the other hand, captures their professional self-perception; for instance, they may see themselves as didactical and pedagogical experts (Beijaard et al. 2000; Korthagen 2014). Finally, the innermost layer of 'mission' reflects teachers' purpose in teaching, their ideals and inspirations; they may, for instance, admit their shortcomings and be open to feedback, simply because they know it helps them to improve their teaching and attain their ideals (Korthagen 2004; Cecero and Prout 2014).

As illustrated in Figure 1, all layers of the onion model are inevitably interrelated, with inner layers affecting outer ones and vice versa (Korthagen 2014). This means that when individual teachers possess all the necessary PBL tutor competencies, their inner aspects do not necessarily warrant a student-centred teaching perspective (Sahin 2006). It is through learning from and reflection on specific situations they encounter in their daily teaching practice (Park and Ertmer 2007) that teachers shape their inner aspects, in turn inducing them to adopt either a studentteacher-centred perspective (Korthagen 2017). or Consequently, in order for teachers to perform effectively, all the inner and outer aspects should be completely aligned (Korthagen 2004, 2017). In the case of PBL teachers, this implies that each element of their perspective should ideally be centred on the student. If any one of them is not, this may forestall teaching practices that are truly student-centred.

A growing body of research in higher education has explored how teachers' inner aspects interact with and influence their teaching practices (van Lankveld et al. 2016). In a similar vein, Ottenhoff- de Jonge et al. (2019) studied the relationship between teachers' inner aspects, their context (e.g. medical school, discipline, educational roles and tasks) and their personal characteristics (e.g. teaching experience and gender). Other studies, moreover, have examined teachers' situations to identify all potential inner aspects of teachers and their profiles (Ekizer and Cephe 2017; Ottenhoff- de Jonge et al. 2022; Leatemia et al. 2023). Yet, another study explored how teachers' situations and their personal characteristics impacted on their conceptions of learning and teaching in the context of student-centred medical curricula (Jacobs et al. 2016; Ottenhoff- de Jonge et al. 2021). What these studies neglected to investigate, however, was how specific situations might influence teachers' inner aspects: which situations discourage teachers from adopting a student-centred perspective and which encourage them to embrace more student-centred beliefs, identities and missions? In recent years, the focus of faculty development initiatives in higher education has increasingly been on encouraging teachers to be student-centred. In doing so, they were primarily concerned with developing teachers' competencies (Samarasekera et al. 2020), rather than with their inner aspects (Korthagen 2017; Steinert et al. 2016, 2019). We argue that a better understanding of the situations that influence teachers' inner aspects might help us to design faculty development programmes that nurture inner aspects that are more student-centred (Korthagen 2017). The main research question permeating the present study was therefore: What situations encourage and discourage teachers to adopt more student-centred beliefs, identities and missions?

Methods

Design and setting

In the period spanning April to November 2022, we conducted a descriptive, qualitative study (Kiger and Varpio, 2020), which was set in two medical schools in Indonesia: the Faculty of Medicine at Mulawarman University (FMMU) in East Kalimantan and the Faculty of Medicine at Gunung Jati University (FMGJU), West Java. A hybrid PBL curriculum was introduced in both faculties in 2007 and 2008, respectively. This means that education is organised around PBL tutorial group sessions in which students, guided by a teacher, learn on the basis of problem cases, define their own learning objectives and refine acquired knowledge. Taking place twice a week, these sessions usually last two hours each. In between these tutorials, students engage in self-study and attend four to five 2-h lectures, including one skills training of 3 h. Before starting their work as tutors, all teachers had to undergo formal PBL training to enhance their knowledge and skills as PBL facilitators. Offered in the traditional format, the training consisted of seminars and workshops and typically lasted for one or two days (6–7 h per day).

Participants

We invited 18 teachers from the aforementioned medical schools to participate in three focus-group discussions (FGDs). Participants were selected using a purposive sampling technique based on the inclusion criterion that they

Table 1. Demographic characteristics of participants.

Demographic characteristics	School 1 (<i>n</i> = 12)	School 2 $(n=6)$
Age (in years)	From 37 to 54 (mean $=$ 46.3)	From 31 to 48 (mean $=$ 35.8)
Gender	1 male (8.3%) and 11 female (91.7%)	3 male (50%) and 3 female (50%)
Tutor experience (in years)	From 11 to 15 (mean $=$ 13.5)	From 8 to 14 (mean $=$ 9.8)
PBL training experience	From 3 to 5 times (mean $=$ 4.2)	From 2 to 6 times (mean $=$ 4.0)
Educational background	8 master's (66.7%) and 4 doctoral degrees (33.3%)	6 master's degrees (100%)
Discipline	4 clinicians (33.3%), 7 basic scientists (58.3%), and 1 medical educationalist (8.3%)	5 basic scientists (83.3%), and 1 pharmacist (16.7%)

had been actively involved in PBL tutoring for over a year. This would provide us with rich insights regarding our research question (Stalmeijer et al. 2014; Moser and Korstjens 2018). Table 1 gives an overview of the remaining participant characteristics. A moderator attended each FGD, as did a note-taker who checked the video recording equipment, took notes and transcribed the video-recorded discussions (Stalmeijer et al. 2014).

Data collection

We conducted three FGDs of approximately 2 hours each to obtain rich information based on participants' diverse perspectives (Stalmeijer et al. 2014). Due to the restrictions imposed by the COVID-19 pandemic, the FGDs were held online using Zoom. Facilitated by a moderator and a notetaker, each FGD accommodated six participants. To facilitate the discussions, the moderator used a guide that briefly listed the topics and aims of the study, the meeting rules, a concise explanation about recording and confidentiality, and the core and additional probing questions (Ping, 2008). This FGD guide is presented in the appendix. The core question raised for discussion read: 'What situations make you want to commit to student-centred approaches in a PBL setting?' The moderator furthermore reassured participants that all views were considered valuable and that there were no right or wrong answers. The discussions were video-recorded and transcribed (Ping 2008; Stalmeijer et al. 2014).

Data analysis

We performed a thematic analysis to describe and interpret the data (Kiger and Varpio, 2020), employing ATLAS.ti, version 22, for data management. First, we read and reread the transcripts to familiarise ourselves with the data and to generate initial codes. We then explored the situations that influenced participants' teaching perspectives by means of inductive coding, using the inner aspects of Korthagen's onion model as sensitising concepts. By combining relevant codes with similar patterns, we generated themes and subthemes. Finally, we reviewed the relationship among codes and themes at different levels to identify a coherent pattern of themes (Braun and Clarke 2006; Kiger and Varpio 2020).

The research team and reflexivity

Counting five members, our research team comprised two medical teachers from Indonesia, one of whom was also a PhD candidate (LD), the other one both an anaesthesiologist and researcher in health professions education (APS). Complementing the team were three educational scientists with expertise in faculty development, PBL and instructional design (BC, DD and JvM) from the School of Health Professions Education (SHE) at the Faculty of Health, Medicine and Life Sciences (FHML) of Maastricht University in Maastricht, the Netherlands.

Whilst LD, APS and JvM developed the FGD guide, LD and APS observed participants' verbal and non-verbal expressions during the FGDs. LD and APS also performed the first part of the data analysis, by independently developing the initial codes and themes and discussing them to reach consensus. Once the codes, themes and relevant quotes had been translated from Bahasa Indonesia into English, the entire research team sat together to establish the final themes.

All team members have experience of PBL. Although our work experience potentially shaped our perspectives, our diverse backgrounds (in terms of nationality, education and expertise) also helped us to reflect broadly on the data.

Ethical considerations

All participants gave informed consent. Ethical approval was obtained from the Ethics Committee of Abdul Wahab Sjahranie Hospital, East Kalimantan, Indonesia, logged under approval number 045/KEPK-AWS/III/2022.

Results

We held three FGDs with a total of 18 teachers. This group comprised both clinical (n = 4) and basic science (n = 14)teachers, all of whom had worked as a PBL tutor for over eight years and had received PBL training at least twice. Whilst their prior medical education had been traditionally lecture-based in most cases, some participants had experienced a transition to a PBL curriculum during their work as a teacher.

A thorough scrutiny of the FGD transcripts revealed that the situations could be broadly categorised into two groups: those that either *encouraged* or *discouraged* the adoption of a more teacher-centred perspective. Table 2 gives a concise overview of six situations that prompted teachers to reflect on their inner aspects. In the next paragraphs, we will describe each of these situations in more detail including teachers' associated beliefs, identity and mission, as well as representative quotes drawn from the FGDs.

Situations that prompted teachers to reflect on their beliefs

The situations that prompted teachers to reflect on their *beliefs* about student-centred learning were two: they stemmed from their experiences of student learning in

Table 2. Situations that prompted teachers to reflect on their beliefs, identity and mission.

	Experiences that discouraged a change towards student-centredness	Experiences that encouraged a change towards student-centredness
Beliefs (What do teachers believe about the situation?)	Situation: In PBL, students learn inappropriately by being passive in the discussion, being poorly prepared and performing poorly on particular exams.	Situation: Not only in PBL, but also in clinical rotations students demonstrate more active engagement in their learning/clinical work.
	Teachers' beliefs: The culture is not suitable for a full implementation of student-centred teaching.	Teachers' beliefs: PBL better prepares students for continuous professional development and future clinical practice.
Identity (What is their professional self-perception?)	Situation: Teachers felt uncomfortable discussing topics outside their expertise in PBL discussions and observed that students grappled with understanding the subject.	Situation: Teachers remembered situations in which they were rewarded as a medical student in the clinic for giving correct answers and reported situations in PBL in which they felt effective as facilitators of students' learning, by having fun and helping students who faced challenges studying.
	Teachers' identity: Teachers identify themselves as subject matter experts (i.e. as knowledge transmitters).	Teachers' identity: Teachers identify themselves as facilitators of students' learning, which includes supporting students who face difficulties in PBL learning.
Mission (What are their ideals, inspirations and purpose in teaching?)	Situation: Clinical teachers report that their busy clinical work limits their ability to facilitate student learning in PBL.	Situation: Teachers who initially struggled with teaching (during lecturing, skills training and facilitating small-group learning in PBL) discovered that students could give them feedback on their teaching performance which inspired them to professionally grow as a teacher.
	Teachers' mission: Teachers who work as both tutors and clinicians feel that they cannot optimally facilitate student learning because it clashes with other responsibilities.	Teachers' mission: Teachers feel they can use student feedback to improve their student-centred teaching performance.

their daily work as PBL facilitators as well as from learning situations from their own medical training when they themselves were students. We will examine these situations more closely below.

Situations that discouraged student-centred beliefs

Teachers were disinclined to adopt positive beliefs about student-centred teaching when they perceived that students did not perform well in student-centred learning, as they displayed passive behaviour in discussions, retained little knowledge and performed poorly on particular exams. As they phrased it:

There are students who are silent, passive and apathetic in the discussion. It is not different from the students in the conventional curriculum. What matters to them is being present in class and getting grades' (Teacher 11, School 1).

'It seemed that some students had mastered the materials during the tutorial discussion, but when the materials were tested, it turned out that their exam results were not good. This is not what I expected' (Teacher 8, School 1).

The situations in which student-centred learning did not seem to result in good performance might have caused teachers to believe that their culture was not suitable for the full implementation of student-centred teaching curricula and that students must still obtain their knowledge from teachers. Consider for instance the following participant quotes:

'I think there is nothing wrong with being student-centred, but maybe we cannot be 100% pure student-centred for

Indonesian culture. Our culture from childhood is not used to developing our own learning' (Teacher 1, School 1).

They still want to be fed with the materials. When they entered PBL, they hoped to discuss the materials their teachers provided or the materials they brought, but not that deeply' (Teacher 5, School 2).

Situations that encouraged student-centred beliefs

Teachers described situations of their time as a specialty trainee that encouraged them to adopt more positive beliefs about student-centred teaching. They believed that PBL prepared students better for work in future clinical practice compared to the lecture-based curriculum. In their words:

When studying at the clinic, I was less confident and more afraid of being wrong. However, my friends with PBL experience seemed more comfortable with their clinical practice. They were also more enthusiastic about finding out information about patients' illnesses. They were more self-confident and curious, had better critical and clinical reasoning skills, and were better at problem adaptation' (Teacher 1, School 2).

When I was a student in a clinical rotation, the learning process was not student-centred. I often performed things that were not useful for the future, such as doing ECG procedures for 20 patients in one night and checking the haematocrits over and over again on patients with dengue haemorrhagic fever' (Teacher 2, School 1).

In addition, when teachers observed the positive impact of PBL on their students' learning, such as a better understanding and more independence, they came to appreciate the benefits of the student-centred approach in PBL. The following quotes illustrate this:

'When I was in college, the lectures still used a teacher-centred method. When I became a teacher in the PBL curriculum, I saw an improvement in students' understanding, and students were more independent, proactive, and collaborative' (Teacher 3, School 2).

'After becoming a doctor, science will continue to be developed. If students only prioritise results, not processes, they will fail to analyse the problems that occur in society' (Teacher 11. School 1).

Situations that prompted teachers to reflect on their identity

Similar to the foregoing, teachers' past experiences from their own training and work as a tutor prompted participants to reflect on their identity or on how they perceived their professional role, as will be explained below.

Situations that discouraged the adoption of a studentcentred identity

Sometimes, when teachers found the discussion topics to be outside their expertise, they felt uncomfortable and had difficulty in facilitating students' learning. In such teaching situations, they tended to identify themselves as subject matter experts. When students kept silent or did not discuss the intended learning objectives, for instance, one teacher resorted to conducting a mini-lecture, as one of the following examples demonstrates:

'The tutorial topic makes me dizzy, which is not a topic in my field. This frightens me. It's really very hard to go through this module' (Teacher 3, School 1).

'If students have held several meetings but they have not reached their learning objectives, what should I do? Finally, I did a mini-lecture anyway' (Teacher 2, School 1).

Situations that encouraged the adoption of a studentcentred identity

In other instances, however, teachers had such positive experiences of PBL that they were inspired to implement a student-centred teaching approach in their daily work. This was the case when they perceived that their lecture-based teaching in class did not yield the desired retention of knowledge among their students. They also realised that PBL could be enjoyable in their new role as a facilitator of student learning. Similarly, positive memories of feeling rewarded for answering questions correctly when their own teacher in clinical training had adopted a student-centred approach inspired them to do the same. The following quotes illustrate the aforesaid:

'During my biochemistry class, I kept my focus on presenting all materials. I had to share everything as completely as possible, as clearly as possible and [everything] must be detailed. Although I felt the class was quite interactive, the [knowledge] retention of students was still lacking. So I started to shift my teaching focus. I felt that the most important for students was not the teaching materials but the topics' (Teacher 1, School 2).

'I prefer to meet students in PBL because I can interact with them more in a fun way. I stick to the principle that learning should be fun' (Teacher 3, School 1). When I was studying in medical school, one of my teachers asked me to make a summary of the pathomechanism of liver diseases. When he did bedside teaching, he asked students questions about liver diseases. I answered all the questions and then, he was proud of me for what I had answered. It seems that my teacher was actually implementing what we know as a student-centred approach' (Teacher 11, School 1).

Finally, teachers who identified themselves as pedagogical experts sometimes felt a need to offer personalised support when they saw their students face problems studying. This, too, is consistent with a student-centred teaching perspective:

'As a student counsellor, I found that students' learning problems [were] varied and personal. So, the solutions to their learning problems cannot be generalised, and I should not use similar approaches for all students' (Teacher 2, School 2).

Situations that prompted teachers to reflect on their mission

Difficulties with teaching in a student-centred manner and growing professionally as a teacher were the situations that prompted teachers to reflect on what inspired them and what lent meaning and significance to their work.

Situations that discouraged teachers from embracing a student-centred mission

Teachers reported that time constraints prevented them from facilitating students' learning in the best possible way. Their clinical duties often clashed with their teaching schedules, which made it difficult for them to spend time with students. Consequently, dedicating more time and energy to individual students was considered as burdensome:

'We feel frustrated in conducting all the existing activities. I want to work as a tutor or facilitator with 100% idealism. However, this is difficult to do if my clinical and preclinical activities clash' (Teacher 3, School 1).

We also feel that the level of our busyness with the PBL system is much higher than with the previous system. It turns out that the current system is even heavier' (Teacher 10, School 1).

Situations that encouraged teachers to embrace a student-centred mission

Teachers who initially struggled with student-centred teaching (during lecturing, skills training and facilitating small-group learning in PBL) discovered that they could ask their students and others for feedback on their teaching performance which could serve purposes of professional growth:

'At the end of my lectures, I usually send my students a questionnaire in Google Form. I ask them to provide feedback by giving rating scores for my teaching performance and suggestions for improvement. In that way, I can identify shortcomings in my teaching' (Teacher 5, School 2).

'When students read more and had the latest updates, but I did not know the knowledge yet, I felt a little embarrassed. But this did not traumatise me. Instead, I tried to realise that science is indeed growing' (Teacher 11, School 1).

Discussion

This study explored the situations in which teachers in PBL settings felt either encouraged or discouraged to embrace student-centred beliefs, identities and missions. These situations were derived from the time when they themselves were medical students, from their teaching experiences as well as from their present, day-to-day clinical duties.

Although all teachers in this study had undergone PBL training and had experience as PBL tutors, not all of them adopted inner aspects that were congruent with a studentcentred perspective. Some were still reluctant to embrace this perspective, for they believed that full PBL implementation was incompatible with their culture, identified themselves as knowledge transmitters and had responsibilities that clashed with their teaching commitments. Other teachers, by contrast, did adopt inner aspects that were congruent with a student-centred perspective. They believed that PBL better prepares students for continuous professional development and future clinical practice, identified themselves as facilitators of students' learning and accepted feedback from their students to improve their student-centred teaching performance. This finding confirmed that having all the necessary tutor competencies in PBL does not mean that individual teachers have inner aspects that always warrant a student-centred teaching perspective (Sahin 2006). Specific situations encountered in their daily work made teachers reflect on their inner aspects, which either favourably or adversely affected their perception of a student-centred teaching approach (Korthagen 2017; Park and Ertmer 2007). In the following paragraphs, we will discuss our findings in light of each of Korthagen's three inner aspects: teachers' beliefs, identity and mission.

Our study described several situations that either encouraged or discouraged teachers to adopt student-centred beliefs. Situations of PBL teaching in which students learned inappropriately, were poorly prepared and performed poorly on exams strengthened the belief in some of the teachers that a student-centred approach was incompatible with Indonesian culture. This finding ties in with previous studies demonstrating that Asian culture, which is characterised by strong hierarchical relations, influences teachers to believe that their students are insufficiently confident to seek information, fear arguing with authority figures, lack the enthusiasm to study, lack motivation or an ability to ask questions and do not actively participate in discussions (Khoo 2003; Frambach et al. 2012; Kwan 2019). Observing students' unfavourable learning circumstances is what induced some of these teachers to embrace a teacher-centred perspective (Hofstede 2011).

Other teachers, however, reported that students in PBL were better prepared to become lifelong learners in clinical practice than those in the lecture-based curriculum. Such observations invigorated student-centred beliefs, particularly the appreciation for active learning in PBL (Jacobs et al. 2012). This finding also echoes other studies which pointed out that PBL better prepares students for the development of professional skills and has a positive effect on their learning. This is all indispensable to medical professionalism and lifelong learning (Dolmans et al. 2005; Schmidt et al. 2009; Trullàs et al. 2022).

With respect to the situations that prompted teachers to reflect on their *identity*, we found that those with a more teacher-centred perspective tended to feel uncomfortable discussing topics outside their expertise; they primarily considered themselves as subject matter experts rather than facilitators. Previous studies have also found that teachers often felt more comfortable facilitating students in their own area of expertise (Ahmed et al. 2007). Indeed, in lecture-based curricula, it is common for teachers to feel they should have a deep and full understanding of the topic materials and be well versed in many concepts and their relationships (Beijaard et al. 2000).

At the same time, however, we found that participants' past teaching and learning experiences from their own training and work as a tutor aroused a desire to facilitate students' learning in the PBL discussions and to help them learn. Beijaard et al. (2000) and Steinert et al. (2019) pointed out that student-centred identities are shaped and reinforced when the situations encourage teachers to be more of a learning facilitator who emphasises the teacher-student relationship or the engagement with students rather than a knowledge transmitter.

Thirdly, we identified several situations that prompted teachers to reflect on their *mission*, that is, on what inspired them and lent meaning and significance to their work. Time constraints due to clinical duties and other priorities were the situations that decreased teachers' motivation to work as a tutor. Zulfikar (2009) and Zhao and Zhang (2017) argued that teachers experience problems or obstacles when their work is not aligned with their personal orientation. In such cases, they take no pleasure in their work and feel powerless. Consequently, they are not motivated to improve their teaching (Steinert and Mann 2006), perceiving their roles as facilitators of student learning as an additional burden (Hiemstra 2013).

Conversely, Cecero and Prout (2014) posited that teachers will be motivated to improve their teaching performance when their personal and professional orientations are in alignment. Indeed, in our study, some of the teachers felt challenged by their knowledge and teaching limitations to admit these shortcomings, open their minds and receive feedback to improve their teaching performance. Without feeling embarrassed, they were open to receiving feedback from anyone, including their students.

In summary, the findings of this study suggest that teachers' outer aspects – often influenced by their prior problem-based teaching and learning experiences, learning situations from their own training as well as clinical duties – strongly interact with their inner aspects, thereby mediating their teaching perspective. For instance, the duties in their clinical environment could interact with their mission, whereas the competencies gained from previous training experiences could shape their identity (i.e. professional role).

Similarly, these outer and inner aspects combined influence teachers' behaviour, spurring those with subject matter expertise to adopt a teacher-centred identity, for instance by giving mini-lectures to transmit their knowledge or displaying comparable teacher-centred behaviours in the PBL sessions. These observations provide evidence for Korthagen's onion model: teachers' outer aspects influence their inner aspects and vice versa (Korthagen 2014).

Implications for practice

This study has revealed that certain situations affect teachers' inner aspects in such a way that they are either encouraged or discouraged to embrace a student-centred perspective. Korthagen (2014) was already keen to point out that if these inner aspects are not compliant with student-centredness, teachers might be disinclined to abandon their teacher-centred behaviour. Therefore, institutions should be aware of these tendencies and adjust their professional development programmes accordingly. By specifically targeting teachers' inner aspects, they might be better able to address teachers' individual educational needs. Moreover, the situations we have described represent significant teacher experiences that influence their professional work (Kirby 2012). Knowledge of these situations can help institutions to design teacher workshops or trainings that are based on real-life teaching settings (Dolmans and Tigelaar 2012; van Merriënboer and Kirschner 2018; van Merriënboer 2019). They can use the situations to prompt reflection on teachers' inner aspects; such reflective learning has proven to be a powerful strategy for teaching professionalism (Rademacher et al. 2010).

Limitations and suggestions for future research

A few limitations to this study are worth addressing. First, our study findings relied heavily on teachers' responses in the FGDs and should therefore be interpreted with caution. However, we have sought to enhance the trustworthiness of the data by applying researcher triangulation, with two researchers attending the group discussions and all researchers joining in the data analysis. We welcome future studies that also use methodological triangulation, such as video recording and reflection on teachers' actions, to gain more insight into the relationship between participants' teaching perspectives and the situations they experienced in their current, daily teaching practice (Stalmeijer et al. 2014).

Second, the transferability of the findings to other medical schools is limited. Although we conducted this study in two medical schools across different regions in Indonesia, the diversity of situations might be limited, as both schools were required to implement PBL by governmental regulations and both had a hybrid PBL curriculum in which lecturing played a dominant role. Nevertheless, our findings can still offer other researchers and institutions meaningful insights into the types of situations and their influences on teachers' inner aspects that yield a student-centred perspective. That said, additional research may still be necessary to explore more situations in different contexts.

Conclusion

The findings of this study have revealed how teachers' experiences in particular situations affected their inner aspects, such as beliefs, identity and mission. Derived from the time when they themselves were students, their PBL teaching practices or from being a supervisor in the clinic, these situations influenced and consolidated their beliefs,

identity and mission and, consequently, their position on the continuum from teacher-centred to student-centred learning. Teachers' outer aspects strongly interacted with their inner aspects, in turn shaping their teaching perspectives. Combined, these outer and inner aspects influenced teachers' behaviours. It is important that institutions be aware of how teachers' inner aspects are mediated by the situations they encounter in their working contexts. The insights from the study at hand could support the launch of professional development initiatives that are tailored to teachers' specific educational needs.

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Notes on contributors

Lukas Daniel Leatemia, MD, M.Sc., is a PhD student in the School of Health Professions Education (SHE), Maastricht University, Maastricht, the Netherlands, and academic staff member in the Department of Medical Education, Faculty of Medicine, Mulawarman University, Samarinda, Indonesia.

Boukje Compen, PhD, is an assistant professor affiliated with the Department of Educational Development and Research and the School of Health Professions Education, Faculty of Health Medicine and Life Sciences, Maastricht University, Maastricht, the Netherlands.

Diana H. J. M. Dolmans, PhD, is a full professor in the field of health professions education innovation and research in the Department of Educational Development and Research and the School of Health Professions Education, Faculty of Health Medicine and Life Sciences, Maastricht University, Maastricht, the Netherlands.

Jeroen J. G. van Merrienboer, PhD, is professor of Learning and Instruction in the Department of Educational Development and Research and the School of Health Professions Education, Faculty of Health Medicine and Life Sciences, Maastricht University, Maastricht, the Netherlands.

Astrid Pratidina Susilo, MD, PhD, is an academic staff member in the Department of Medical Education and Bioethics, Faculty of Medicine, Universitas Surabaya, Indonesia. She is also a practising anaesthesiologist and a researcher in health professions education.

ORCID

Lukas Daniel Leatemia D http://orcid.org/0000-0003-3529-2405 Boukje Compen D http://orcid.org/0000-0002-3914-8139 Diana H. J. M. Dolmans D http://orcid.org/0000-0002-4802-1156 Jeroen J. G. van Merrienboer D http://orcid.org/0000-0002-5868-7031 Astrid Pratidina Susilo D http://orcid.org/0000-0002-4371-1721

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Appendix

FGD guide

After giving an introduction and a brief explanation of the study's aims and background, we raised the following two main questions for discussion among participants:

- 1. Would you tell me an event or situation from your experience that made you want to display student-centred behaviour or change your behaviour to become more student-centred?
- 2. What experience/event/situation made it difficult for you to act in a student-centred fashion or to embrace a student-centred perspective?