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Evaluating the role of tutors in problem-based learning sessions

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Abstract

The aim of this study is to determine students' and tutors' perceptions of the role of tutors in problem-based learning sessions, and the relationship between students' and tutors' views. An instrument was developed to determine students' and tutors' view of the tutor role. All the statements received high scores; sex, year and curricular language had no effect on the results. The differences between the mean values for dimensions in the tutors' total scores were as statistically significant as were the students' scores. The correlation between the scores of students and tutors was analyzed and found not to be statistically significant.

1. Introduction

The tutor role is important in problem-based learning (PBL) (De Grave, Dolmans & van der Vleuten, 1998). A number of studies have identified important dimensions of tutor performance which stimulate student learning. The tutor serves as a facilitator rather than as the group leader, ceding control of the direction of the discussion, and the agenda for solving the problem to the students. The tutor's task is to ask probing questions, to help students clarify their thinking, and, when necessary, to guide group processes (Özçakır, 2001; Carder, Willingham & Bibb, 2001; Felder, 1996).

Most teachers in medical schools have had primarily lecture-based experience; they are subject-matter experts, and are accustomed to delivering this knowledge to students by lecturing. Understandably, they feel uncomfortable with the tutor role in PBL. Some tutors, confronted with this new role, assume that a tutor should be passive; they follow the student-centered model so rigidly that they, as tutors, become totally uninvolved. In fact, a tutor should encourage specific kinds of cognitive activities, such as making connections, providing feedback and helping students to monitor their own learning. This implies that tutoring requires other skills than lecturing. A tutor's performance might not be a stable teacher characteristic, but may be situation-specific (Dolmans, Gijselaers, Moust, De Grave, Wolfhagen & Vleuten, 2002). It is difficult to develop recipes to help teachers conduct PBL sessions.

Shifting from the traditional teaching role to the tutor role in PBL leads to many difficulties in adopting the methodology. When institutions decide to implement PBL, there is a need for faculty development. To be useful, faculty development

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programmes should be based on a theory of effective tutoring and there should be instruments to give tutors feedback about their performance. Such an instrument should be based on the tasks set for the tutor at the school in which the instrument will be used, as well as on theoretical conceptions about the tutor role (De Grave, Dolmans & van der Vleuten, 1998).

In PBL, students should be aware of the tutor's responsibilities as well as their own. Effective tutors are identified by students as being able to promote discussion and they are often seen as part of the group (Goldie, Schwartz & Morrison 2000). Some students, like some of their tutors who have experienced more traditional teaching methods, expect a more teacher-centered approach. Students may have problems adapting to a completely new teaching method; however the period of adaptation is relatively short for those who have already experienced a similar approach to learning (Hoad-Reddick & Theaker, 2003).

The aim of this study is to determine both the students' and the tutors' perceptions of the role of tutors in PBL sessions and the relationship between students' and tutors' views at Hacettepe University, Faculty of Medicine.

2. Methods

Subjects: The subjects of the study were second and third year students of both the English and Turkish streams, and tutors. The 284 second-year students were in the Hematology and Cardiovascular Systems Subject Committee and the 351 third-year students were in the Endocrinology Subject Committee. For PBL tutorials, the second year students were organised into 26 groups, and the third year students into 22 groups. A tutor facilitated each tutorial group. All the students and tutors were invited to participate in the study (without any sampling); 89% of students (567 students) and 88% of tutors (42 tutors) completed the study.

Research Design and Implementation; An instrument was developed and used to determine students' and tutors' view about the tutor role. At the end of the last PBL session, students and tutors filled out the instrument.

Instruments: The Hacettepe Tutor Evaluation Scale (HTES) was developed with items based on the tutor literature. Items were rated on a five-point Likert scale ranging from 1 "strongly disagree" to 5 "strongly agree". The scale contained 22 items over 4 dimensions. Here are dimensions of the scale:

- Dimension 1- Supporting the learning process and metacognitive knowledge (9 items)

- Dimension 2- Conducting PBL (6 items)

- Dimension 3- Communication and supporting students' autonomy (4 items)

- Dimension 4- Assessing and Giving Feedback (3 items)

The Cronbach alpha coefficients for reliability were respectively 0.90, 0.87, 0.74 and 0.77.

Statistical Analysis: Firstly, scores out of five for each dimension were generated by summing the responses and dividing by the number of questions in each dimension. The scale score was generated in a similar way. To compare scores between dimensions the one-way ANOVA for repeated measures and the post-hoc Bonferroni test was used. Spearman rank correlation coefficients were used to determine the relationship between students' and tutors' scores.

3. Results

The difference between the mean values for dimensions was evaluated. The mean values of the students' total scores were statistically significant (n=557, F=46.27, p<0.001). In all the pairs of dimensions, mean values were statistically different (p<0.001) except in the evaluation of the pair, 'conducting PBL' and 'communication and supporting students' autonomy' (p>0.05). The scores for 'supporting the learning process and metacognitive knowledge' and 'assessing and giving feedback' were lower than the other dimensions (Table 1).

The results were similar when the group of tutors scored themselves. The difference between the mean values for dimensions in the tutors' total scores were statistically significant and similar to the students' scores (n=42, F=5,37, p<0.002). When the results were evaluated to define the differing groups, the difference between the mean values of 'conducting PBL' and 'supporting the learning process and metacognitive knowledge' (p<0.001); and 'conducting PBL' and 'assessing and giving

feedback' were found significant (p<0.03). As for the students, the scores for 'supporting the learning process and metacognitive knowledge' and 'assessing and giving feedback' were lower than the other dimensions (Table 1).

Table 1. Total scores of students and tutors for different dimensions of the scale.

Dimensions	Students (n=557)		Tutors (n=42)	
	Mean	SD	Mean	SD
1. Supporting the learning process and metacognitive knowledge	3.78	0.76	3.81	0.58
2. Conducting PBL	3.96	0.76	4.09	0.61
3. Communication and supporting students' autonomy	3.94	0.78	4.03	0.74
4. Assessing and giving feedback	3.62	0.93	3.68	1.00
	F=46.27, p<0.001		F=5.37, p<0.002	

* Calculated using one way ANOVA for repeated measures. To define the differing group, a Bonferroni test was used.

** SD= Standard Deviation

The correlation between the scores of students and tutors regarding the performance of the tutor role was also analyzed. There was no significant relationship between the correlation coefficients of dimensions and total scores (Table 2).

Table 2. The correlation between the scores of students and tutors on the dimensions of the scale

Students	Tutors				
	Supporting the learning process and metacognitive knowledge	Conducting PBL	Communication and supporting students' autonomy	Assessing and giving feedback	Total
Supporting learning process and metacognitive knowledge	$r_s= 0.229$ p>0.05				
Conducting PBL		$r_s= 0.132$ p>0.05			
Communication and supporting students' autonomy			$r_s= 0.160$ p>0.05		
Assessing and giving feedback				$r_s= 0.207$ p>0.05	
Total					$r_s= 0.203$ p>0.05

4. Discussion

In various studies, the characteristics of tutors were defined as facilitating the critical thinking of students who meet problems (Das, Mpofu, Hasan & Stewart, 2002), supporting discussion (Felder, 1996), eliminating conflicts (Hitchcock & Helen-Zoi, 2000), focusing on students' directing the learning process (De Grave, Dolmans & van der Vleuten, 1999), supporting the learning process (Pinto, Rendas & Gamboa, 2001; Reznich & Werner, 2004 and knowing when and how to intervene (Maudsley, 2002; Haith-Cooper, 2000). In our study, there were statistically significant differences between dimensions when the total scores of both students and tutors were evaluated. The scores for 'supporting the learning process and metacognitive knowledge' (mean values were 3.78 for students and 3.81 for tutors) and 'assessing and giving feedback' (mean values were 3.62 for students and 3.68 for tutors) were lower than the other dimensions (Table 1).

'Assessment and feedback' covers determining the current situation and giving information about it. It leads to defining unattained or new goals. Student participation in PBL sessions helps them become independent learners. Metacognition skills are important in this process. Metacognition is the learners' awareness of what and how they learn; metacognitive knowledge is used

to organize thinking and learning processes. Three basic skills are needed: planning, monitoring and evaluating (Woolfolk, 1998). Student awareness should be emphasized to produce independent learners. These two processes are important keystones in achieving the goal of PBL: those students will become self-directed learners.

There was no statistically significant relationship between the evaluations of students and tutors. In the study by Das et al. (1998), there was a negative but statistically insignificant relationship between students and tutors in total scores. In our study, however, there was no concordance between the perceptions of students and tutors.

5. Conclusions

Tutors are important elements in the success of PBL tutorials. Periodic evaluation of tutors' professional behavior helps to determine need for faculty development. The results of our study demonstrated that tutors need to achieve the skills and attitudes for "supporting the learning process and metacognitive knowledge" and "assessing and giving feedback".

As there was no consensus on the roles of students and tutors in PBL, activities should be organized for sharing and discussing the principles of PBL, its components and the different roles. Any feedback from students will enrich the evaluation provided to tutors. Feedback from students is important and has priority for the very reasons that they are the subjects of learning, and the objects of teaching.

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