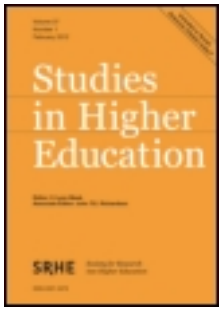

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Quiet or questioning? Students' discussion behaviors in student-centered education across cultures

Janneke M. Frambach [a] , Erik W. Driessen [a] , Philip Beh [b] & Cees P.M. van der Vleuten [a]

[a] Department of Educational Development and Research, Maastricht University, Maastricht, the Netherlands

[b] Department of Pathology, University of Hong Kong, Hong Kong, China

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Quiet or questioning? Students' discussion behaviors in student-centered education across cultures

Janneke M. Frambach[a]*, Erik W. Driessen[a], Philip Beh[b] and Cees P.M. van der Vleuten[a]

[a]*Department of Educational Development and Research, Maastricht University, Maastricht, the Netherlands;* [b]*Department of Pathology, University of Hong Kong, Hong Kong, China*

A tool used in student-centered education is discussion among students in small learning groups. The Western origin of student-centered education, coupled with cross-cultural differences in communication styles, may detract from its cross-cultural applicability. This study investigates how in student-centered education, students' cultural backgrounds are expressed in discussions and shape students' discussion behaviors and skills. A comparative case study using problem-based learning as a student-centered model was conducted in three medical schools located in East Asia, Western Europe and the Middle East. Four cultural factors were found to potentially cause students, especially those in the non-Western schools, to refrain from speaking up, asking questions, and challenging others in discussions. Six contextual factors mediated the influence of the cultural factors. The findings were incorporated in a conceptual model. The conclusion seems justified that student-centered education is feasible in different cultural contexts, but across these contexts, processes and outcomes are likely to differ.

Keywords: cross-cultural issues in teaching and learning; problem-based learning; communication; sociocultural perspectives; medical students

Introduction

Many studies have confirmed the widely acknowledged notion that communication styles differ across cultural contexts (e.g. Gudykunst 2005; Hu and Fan 2011; Smith 2011). This also applies, by implication, to the way students communicate with their peers and their teachers (Hofstede 1986). In recent years, there has been a steady increase in the number of higher education institutions worldwide that have introduced student-centered education, which is intrinsically different from traditional teacher-centered approaches. The former aims to focus on students' learning rather than on teachers' teaching (Cannon and Newble 2000). Institutions embrace this approach partly because it encourages students to take charge of their own learning, which is assumed to stimulate lifelong learning, critical thinking, motivation, and independent problem-solving skills (Barrows 1996; Cannon and Newble 2000; Lonka and Ahola 1995). One of the educational tools in student-centered education is small group work, where students are expected to actively engage in critical discussions about learning topics, problem cases, or projects. Active participation in discussions is assumed to

*Corresponding author. Email: J.Frambach@maastrichtuniversity.nl

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enhance students' collaborative skills, independence, motivation, and critical thinking (Del Favero et al. 2007; Schmidt and Moust 1998).

Several authors have contended that this type of interactive and independent behavior reflects typically Western values, such as individualism and a focus on verbal interaction (Altinyelken 2010; Frambach et al. 2012; Nguyen et al. 2009). Values of other cultures may not be compatible with the Western values residing in the student-centered approach. This leads to the question as to how the communication styles of students from different cultures are expressed and shaped in discussions in student-centered education, which might shed light on – possibly unintended – cross-cultural differences in processes and outcomes in student-centered higher education. Research has indeed indicated that interactive, team-based and teacher-independent discussions in student-centered education can cause tensions due to their not being consistent with learning approaches and communication styles in non-Western settings (Frambach et al. 2012; Gwee 2008; Khoo 2003; Wang, Harding, and Mai 2012). In student-centered education, students are expected to show rather assertive behaviors – such as speaking up, asking questions, and challenging the opinions of others – and students' responses to this may vary between cultures thereby shaping learning processes and outcomes in different ways.

Cross-cultural differences in communication styles have been extensively researched, particularly in Eastern and Western cultures (e.g. Brew et al. 2011; Smith 2011; Yeung and Kashima 2012). Eastern cultures are often characterized as collectivistic, in contrast to Western cultures, which are regarded as individualistic (Hofstede 2001; Triandis 1995). Collectivism refers to being concerned with the group rather than the individual, interdependence of group members, and behaviors that are shaped by group norms and values (Hui and Triandis 1986). It should be noted though that cultural diversity within Eastern and Western regions can be larger than across, and they cannot be characterized straightforwardly as either collectivistic or individualistic. Previous research has, however, shown a general preference of Eastern cultures for collectivistic communication styles, which tend to favor harmonious group relations, avoidance of conflict, and indirect communication as opposed to a more confrontational, direct, and outspoken style of individualistic cultures (Brew et al. 2011; Oetzel et al. 2001; Smith 2011). Consequently, it seems logical to assume that the distinction between individualistic Western cultures and collectivistic Eastern cultures is likely to lead to cross-cultural differences in communicative behaviors demonstrated by students in discussions in student-centered education.

This sociocultural study attempted to identify the existence and nature of such cross-cultural differences by investigating the discussion process and the development of students' communicative behaviors in student-centered education in three institutions of higher education in different cultural regions: East Asia, the Middle East, and Western Europe. This way, the study aims to provide insight into how cross-cultural differences in communication styles are expressed and shaped in student-centered education, and how this may impact on the cross-cultural applicability of student-centered methods in higher education.

The case of problem-based learning

Problem-based learning (PBL) is the student-centered educational model that was selected as the object of this case study. Originally developed in the West, more specifically in medical education in Canada in the 1960s, PBL has spread to different

disciplines and countries around the world (Barrows 1996; Gwee 2008; Savin-Baden 2000), though its effect remains controversial (Dochy et al. 2003; Kirschner, Sweller, and Clark 2006; Schmidt et al. 2009). In contrast to teacher-centered, lecture-based educational approaches, PBL places students at the center of the educational process by encouraging them to direct their own learning processes, construct knowledge actively, and develop problem-solving and team communication skills (Dolmans et al. 2005; Visschers-Pleijers 2006). Tutorials take a central role in PBL, during which a small group of students collaboratively discusses a learning issue presented as a problem case, aided by a tutor who acts as a facilitator rather than a knowledge transmitter (Barrows 1996).

Despite PBL's spread around the world, its cross-cultural applicability has been questioned. In a study of the implementation of PBL in a Chinese context, Walker, Bridges, and Chan (1996) found that cultural tensions affected group dynamics, the discussion process, and communication issues, with Chinese students showing a strong sense of politeness, harmony, and conformity as well as reluctance to directly introduce arguments in the discussion. Khoo (2003) described several Asian cultural attitudes that might be incompatible with PBL, such as fear of confrontation, dependency on and respect for authority, a distaste for outspokenness, reluctance to ask questions, and low participation in class discussions. He also identified aspects, however, that seem quite compatible with PBL, such as strong self-discipline and collaboration among students. Also Hussain and others (2007) report positive reactions to PBL in three Asian universities, but at the same time they show inhibitions to students' development of critical thinking during PBL sessions, due to a non-confrontational attitude. However, they emphasize that in Western universities too the achievement of critical thought might be difficult for students (Hussain et al. 2007).

Although the majority of studies on the implementation of PBL in non-Western settings has been conducted in East Asia, the few studies that were conducted in the Middle East suggested that similar issues and difficulties with PBL are encountered in this region, and that these seem to be, at least partially, attributable to cultural factors (Bridger 2007; Frambach et al. 2012; Mpofu 1999; Yazigi, Nemr, and Abou Jaoude 2004). Based on these considerations, PBL was selected as the discussion-based, student-centered educational model to be examined in this study.

A sociocultural approach

Because of the paucity of empirical comparative studies of student-centered education in Western and non-Western settings, a sociocultural approach was used to explore the impact not only of cultural but also of educational and possibly other factors on students' discussion behaviors. Sociocultural theory is based on the work of several Russian scholars, notably Vygotsky (1978), on which others have elaborated, e.g. Rogoff (1993) and Engeström (1999). Sociocultural theorists emphasize that individuals are inherently influenced, or mediated, by their environment and cannot be understood outside of it (Rogoff and Chavajay 1995; Vásquez 2006). Individuals continuously *internalize* their social, cultural, and contextual surroundings, while at the same time influencing their surroundings by *externalizing* their inner values and beliefs (Engeström and Miettinen 1999). This sociocultural perspective led to the following research question: to what extent do students across three cultures *externalize* their cultural backgrounds and simultaneously *internalize* the discussion aspect of PBL, and how does this shape their discussion behaviors and skills?

As remarked above, a sociocultural approach allows for consideration of other factors – besides PBL and students' cultural backgrounds – which might mediate students' discussion behaviors. Interestingly, research on the implementation of PBL in the West has also revealed problems with the PBL process, notably superficiality of small group discussions (Moust, Van Berkel, and Schmidt 2005). More contextual factors besides cultural ones may play a role, such as institutional, organizational, and curricular aspects. By adopting an explorative and open sociocultural perspective, this study aimed for broad coverage of contextual factors to build a comprehensive picture of the influences shaping students' discussion behaviors and skills in student-centered higher education across cultures. For a more extensive discussion of how sociocultural theory can be used to study students' behavior and development in problem-based learning see Frambach et al. 2012.

Method

Methodology

Consistent with the sociocultural perspective that guided this study, the participants were investigated in their natural setting. A comparative, instrumental case study (Stake 2000) was deemed suitable for this purpose, because it enables investigation of an issue as a holistic phenomenon, encompassing its cultural and contextual setting, while comparison of multiple cases could provide insight arising from differences and similarities across cases.

Setting

As PBL is most widely used in medical education – the discipline where it was originally developed – the study was conducted in medical schools. To enable informative comparisons, it was decided to include a Western medical school and two medical schools in different non-Western settings. For selection of the latter, nine international medical education experts were asked to suggest medical schools that met the following criteria: (1) location in a non-Western cultural setting; (2) PBL as a substantial teaching method in the undergraduate curriculum; (3) more than five years of experience with PBL in the curriculum. Eleven of 22 suggestions met all criteria, from which a medical school in Hong Kong and a medical school in the Arab part of the Middle East were selected based on their locations in different Eastern cultural regions. Since the Middle Eastern school wished to remain anonymous, its national location is not revealed here. Thick description of cultural and other contextual factors was used to overcome the wideness of the term Middle East, as Middle Eastern nations share but evidently also differ in cultural characteristics. The selection of a medical school in the Netherlands as a Western case was based on pragmatic reasons, but the school met selection criteria two and three, while of necessity failing criterion one. The study was approved by the ethical review boards of the Hong Kong and the Middle Eastern schools, while no approval was required for the study at the Dutch school.

Table 1 lists several PBL aspects for the three schools. Since their foundation, the Dutch and the Middle Eastern school had used PBL as the major educational method in the undergraduate years, with relatively few teacher-based lectures. The Hong Kong school had implemented PBL as part of an overall curriculum reform in the 1990s

Table 1. Characteristics of PBL in the three institutions.

	Middle Eastern school	Hong Kong school	Dutch school
Period of applying PBL	>30 years	>10 years	>30 years
Average number of lectures per week	4	7	2
Average PBL group size	10	10	10
Average number of discussion sessions per week: Year 1 and 2 (Year 3)	2 (2)	2 (1)	2 (1)
Language of instruction	English (formally) Arabic (informally)	English	Dutch

aimed at moving from a traditional teacher-centered curriculum to a student-centered one. The reform resulted in a hybrid curriculum that was partly lecture-based and partly PBL.

Data collection

As the study was conducted within the framework of a broader research project on the cross-cultural applicability of PBL (Frambach et al. 2012), data collection methods focused also on other PBL aspects besides group discussions. In each of the institutions, data were collected during one month of fieldwork between November 2009 and April 2010. In the Middle Eastern and Hong Kong schools, data were collected by the first author and in the Dutch medical school by an external research assistant to ensure that data collection was done by an outsider to the school in question. Several qualitative data collection methods were used.

First, a total of 88 individual in-depth interviews were conducted with students, tutors, and key staff involved in PBL, lasting an average of one hour each. The interviews were semi-structured, with questions focusing on practices, experiences, perceptions, preferences, and difficulties relating to PBL; PBL discussion sessions; adaptive behaviors of students in response to PBL and PBL discussions; the development of discussion and other PBL-related skills; changes and differences between year levels; students' past educational experiences; and the nature, meaning, and influence of cultural and other contextual factors. The participants were asked to give oral and written informed consent, and they received a symbolic gift as gratitude. The interviews were audio recorded and transcribed verbatim.

Interview participants were recruited purposively to include both male and female students, students from different PBL groups, and students born and raised in the local setting. A number of students who had lived and attended school in another country for some time were also included, because this was expected to yield richer comparative information. Approximately equal numbers of students from the first and the third year were included to detect differences with respect to experienced difficulties and discussion behaviors and skills. The students were recruited through announcements in lectures and in PBL sessions. The tutors were also selected purposively to include tutors with different disciplinary backgrounds, and tutors from the first and third year. Table 2 presents demographic data on the student and tutor samples. Key staff involved in PBL were selected through snowball sampling. At each institution they included (former) deans of medicine and/or education, directors of medical education

Table 2. Demographic information about the student and tutor samples.

	Middle Eastern school	Hong Kong school	Dutch school
Students			
Mean age: first-year students	17.3	18.6*	19.1
Mean age: third-year students	19.0	21.0**	21.3
Gender: female	42.1%	47.4%	88.9%
Ethnicity: Arab, Chinese, Dutch, respectively	97.4%	94.7%	77.8%
International experience: students who had lived abroad >1 year	15.8%	15.8%	16.7%
Tutors			
Gender: female	6 of 6	1 of 6	2 of 5
Disciplinary background	anatomy (2) histology medical education (3)	anatomy biochemistry pathology (3) surgery	anatomy (2) pharmacology orthopaedics family medicine
Ethnicity: Arab, Chinese, Dutch, respectively	6 of 6	4 of 6	5 of 5

Note: *Excluded: 2 unknown, 1 outlier; **Excluded: 1 unknown, 1 outlier.

departments, and staff who were involved in the PBL implementation from the beginning and had performed a range of coordinating roles.

Secondly, a total of 32 PBL discussion sessions were observed. An observation sheet was developed which focused on discussion behaviors, cultural differences in learning and communication, and other contextual factors that might affect the discussions. For the observations, different PBL groups from the first and the third year were randomly selected. Before the session, the researcher was briefly introduced and the students were asked to conduct the session as usual. The researcher took field notes and filled in the observation sheet, without participating in the session. Table 3 shows how the observations and interviews were distributed over the three institutions.

Thirdly, documents about the implementation and application of PBL were obtained from key staff, such as information booklets for students, course schedules, problem cases, forms to evaluate students, information about the curriculum, and general evaluations of PBL. Finally, additional contextual information about the institutional and local culture was collected by participant observation during lectures, in faculty offices, and during leisure activities. The researchers recorded this information in a research journal.

Data analysis

Template Analysis, a specific step-wise type of thematic analysis, was used to analyze the data (King 2004, 2010). In Template Analysis a succession of coding templates

Table 3. Number of interviews and observations at the three institutions.

	Middle Eastern school	Hong Kong school	Dutch school	Total
Interviews first-year students	9	10	9	28
Interviews third-year students	10	9	9	28
Interviews PBL tutors	6	6	5	17
Interviews key PBL staff	5	5	5	15
Total number of interviews	**30**	**30**	**28**	**88**
Observations in Year 1	5	6	8	19
Observations in Year 3	5	6	2	13
Total number of observations	**10**	**12**	**10**	**32**

consisting of hierarchically structured themes is developed and iteratively applied to the data with themes being modified continuously as the analysis progresses. Figure 1 presents the different templates and the related steps. To start with, the researchers formulated themes that were *a priori* anticipated to be identified in the analysis, such as difficulties that students encountered in the discussion sessions, or strategies which they developed to deal with the sessions. The first and second author independently coded a subsample of the interview transcripts with these themes, during which they identified new themes, modified existing themes and deleted redundant themes. Coding was performed using Atlas.ti Version 6.2 (Scientific Software Development, GmbH, Berlin, Germany), a software program for qualitative data analysis. After reaching agreement on the occurrence and interpretation of themes through discussion, the two authors developed an initial coding template, which was applied to half of the interview transcripts.

After the final template was developed and iteratively applied to the first half of the transcripts, the researchers interpreted the findings while focusing on the identification of patterns, causes, frequency, meaning, and salience with regard to tensions and difficulties in PBL discussions, students' change and development, factors influencing student behaviors, and comparisons between the three institutions and between first-year and third-year students across and within the institutions. The focused template that resulted from the interpretation was applied to the remaining half of the transcripts

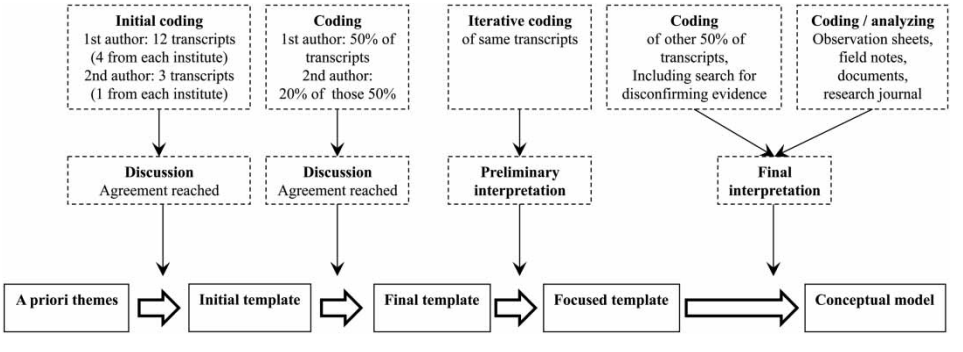

Figure 1. The Template Analysis process.

with particular attention for disconfirming evidence, and was also used to analyze the observation sheets, field notes, documents and research journal. A final interpretation resulted in a conceptual model encompassing the relationships between cultural and other contextual factors, cross-cultural differences in students' communicative behaviors and development in relation to PBL discussions.

Trustworthiness

Several measures were taken to enhance the study's trustworthiness. First, triangulation of data was achieved through multiple data-collection methods. Second, data collection continued until saturation occurred. Third, the coding process was iterative, included a search for disconfirming evidence, and was conducted independently by two researchers. Fourth, to increase awareness of researcher bias the researchers kept a reflexive research journal during fieldwork. Fifth, the data were collected by researchers who were outsiders to the institutions they investigated, as this was assumed to encourage participants to give honest answers. Finally, a member check among a sample of the interview participants was conducted. In response to the question asking whether they agreed with summaries of preliminary results and would provide comments, confirmatory responses were received as well as some additional comments and clarifications. The latter were taken into account in the analysis and interpretation of the data.

Results

The results from the four data sources (interviews, observations, documents, and context information) are presented in an integrated manner. Students of the three schools were found to internalize PBL and externalize their cultural backgrounds to different degrees, which led to cross-cultural differences in discussion behaviors. Behaviors of speaking up, asking questions, and challenging others in the discussion were found to be influenced by four cultural factors: (1) uncertainty and tradition, (2) group relations and face, (3) hierarchical relations, and (4) achievement and competition. Compared with the Western case, the two non-Western cases showed a stronger impact of these factors, which generally had an adverse effect on the discussion process.

This relationship, however, was not straightforward, as six other contextual factors were also found to either inhibit or enhance discussion behaviors: (1) the nature of students' prior school education, (2) the scope of PBL implementation, (3) students' personal characteristics, (4) language of instruction, (5) tutor behavior, and (6) the assessment system. In the three schools, the students' discussion behaviors and skills and their development from the first to the third year were shaped by complex interactions between contextual factors, cultural factors, and the PBL discussion sessions. The conceptual model is presented in Figure 2. Below, the different factors in the model and their interactions are discussed – not in order of importance – and illustrated by quotes from the interviews. Table 4 provides a detailed overview of the potential of the contextual factors to inhibit or enhance discussion dynamics.

Uncertainty and tradition

In the Middle Eastern case, feelings of uncertainty appeared to inhibit students from speaking up in the discussion. First-year students in particular experienced uncertainty

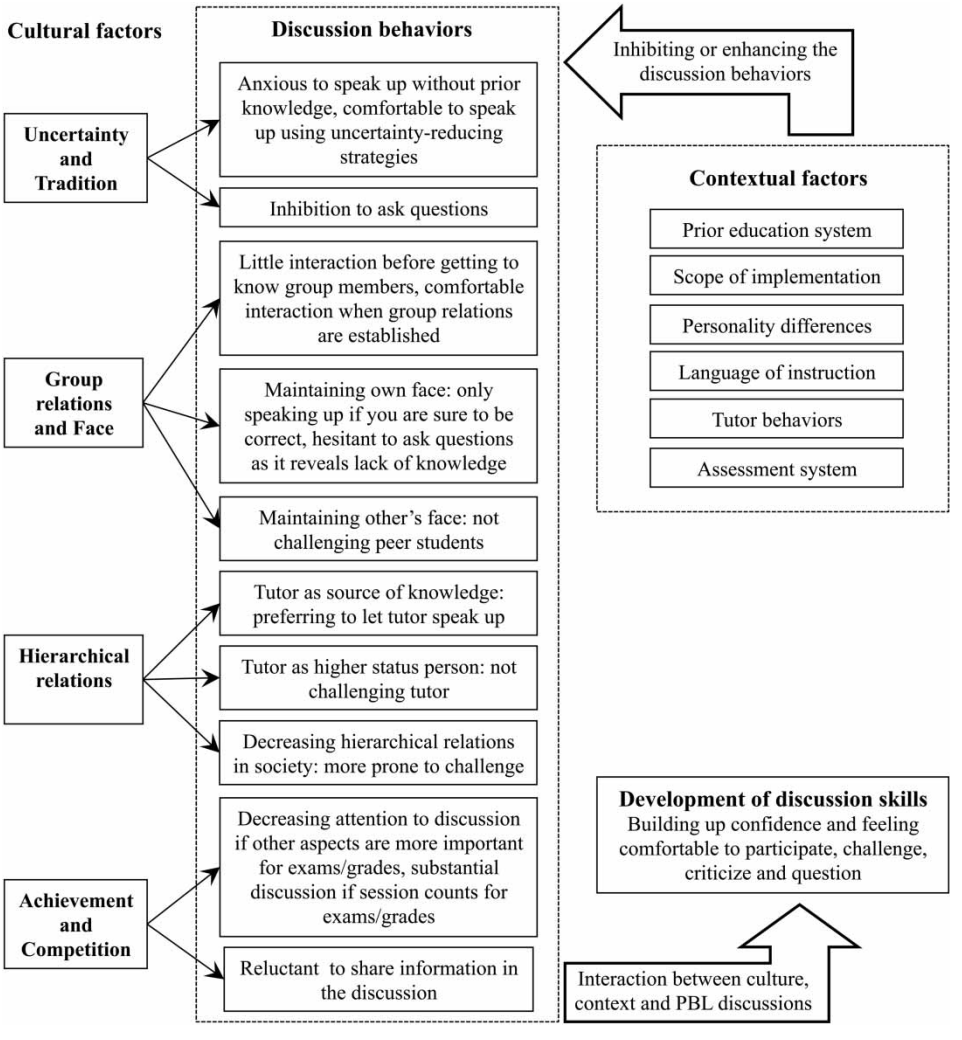

Figure 2. Conceptual model of factors involved in cross-cultural differences in students' discussion behaviors and skills.

in the PBL discussion sessions, which was aggravated by the teacher-centered nature of their secondary school education (see the discussion on prior education below). Having to discuss a problem case without relevant prior knowledge gave rise to feelings of uncertainty, which prevented students from speaking up. As a tutor explained:

> The first year is difficult to students. They face many difficulties…. The system of education is different from the system in secondary schools. In the discussion meeting, they were very angry and confused, because they did not yet have any medical knowledge. So they did not say anything…. They are afraid to say anything, to think. (Middle East tutor 5)

However, the Middle Eastern students developed uncertainty-reducing strategies to cope with their anxiety, thereby mitigating their feelings of uncertainty in discussion sessions.

Table 4. Discussion inhibiting and enhancing elements of contextual factors.

Contextual factor	Inhibiting the discussion	Enhancing the discussion
Prior education system	Traditional, teacher-centered system	Student-centered system
Scope of implementation	Content of PBL covered in lectures	Content mainly covered in PBL sessions
Personality differences	Dominant and quiet students	Curious and confident students
Language of instruction	Other than native language if not sufficiently mastered by all students	Formal or informal use of native language
Tutor behavior	Dominant tutor or inactive tutor	Active tutor who stimulates and explains
Assessment system	No substantial assessment in PBL session	Substantial assessment in PBL session

For example, before the discussion session, they asked about the topic of the problem case from senior students – since the cases changed only slightly year to year – which enabled them to prepare for the session. Also, some students organized informal meetings before the actual session, in which they checked if all the learning topics had been covered and agreed on who would talk about what, thereby eliminating most of the uncertainties for the formal discussion session with the tutor. A third-year student commented:

> Before the debriefing session, we have a small meeting with a group of the class and try to discuss the information…. So before the session we try to fulfill all the learning objectives and after that, in the session, everyone is ready to discuss the problem from all points. (Middle East third-year student 3)

In Hong Kong, uncertainty among students was also found, but the scope of PBL implementation (see discussion on the scope of implementation below) enabled students to reduce their anxiety to the extent that it did not inhibit them from speaking up. In the Dutch case, feelings of uncertainty were also present, but to a lesser degree compared with the other two institutions. First-year Dutch students indicated that they felt uncertain about the expected depth of the discussion. Another result from the interviews and observations was that in all three institutions, third-year students were more confident than first-year students in participating actively and communicating in the discussions.

A factor that was mainly found in the Middle Eastern case was tradition, which was strongly related to uncertainty – though the latter related more to ambiguous situations, whereas the former was about opposing change out of respect for tradition, and stimulating a moderate, humble, and devout attitude. This had the effect of inhibiting questioning. A staff member explained how a traditional religious perspective could contribute to students' reluctance to ask questions in the discussion:

> In Islam, Haram is prohibited, and if you commit it, you will go to … it is evil … you will never see paradise. Halal is the opposite, it is something acceptable, it is good to do, and if you do it, you will go to paradise. With the first unwelcome question from a child [*referring to previous quote: questions about God for example, you know the very fantastic questions of the very young children trying to discover life*], we tell him that this is Haram and this is prohibited, 'you should not ask this question'. So the question itself is prohibited. When you keep telling your baby this, after some time, he takes life as Haram or Halal and he tries to avoid what is Haram. (Middle East staff 5)

However, it was noted by both Middle Eastern and Hong Kong participants that traditional values were changing throughout society (see the discussion on hierarchical relations below).

Prior education system

The results indicated that the more traditional and teacher-centered the secondary education of students had been, the more obstacles they experienced to participating in discussions (Table 4). Secondary school education was characterized as teacher-centered by both the Middle Eastern and Hong Kong respondents. Dutch secondary schools were characterized as more student-centered, and Dutch students did not see their previous education as an obstacle to participating in PBL discussions. Nevertheless, they also needed time to get used to the PBL system. An aspect that might also be of influence on the degree to which students experienced difficulties was age. Table 2 shows that the Middle Eastern students had a lower average age than the Hong Kong and Dutch students when entering university, which might partly account for a higher level of anxiety.

Interestingly, in the Hong Kong and Middle Eastern cases, students who had attended international secondary schools or who had had Western educational experiences (Table 2) were characterized as more vocal, in terms of both fluency in the English language and attitude. This underlines the influence of prior educational experiences. A Hong Kong tutor explained:

> These students are very much coached to express and communicate…. They know how important it is to be able to go out there. Many local students don't know that yet. They think, 'If I know it, I can do multiple choice and I will have a good career.' (Hong Kong tutor 1)

Scope of implementation

The results indicated that the more learning content was covered in lectures instead of in PBL sessions, the less likely students were to engage in critical and in-depth discussions during the PBL sessions to construct their own knowledge (Table 4). In the hybrid, partly lecture-based approach of the Hong Kong school (Table 1), the students often repeated factual knowledge from the lectures in the PBL sessions rather than asking critical questions about it or trying to construct their own knowledge by challenging existing views. On the other hand, the Hong Kong hybrid approach reduced uncertainty, making students less afraid to speak up in the discussions, because of their higher degree of prior knowledge as a result of the lectures.

Group relations and face

Middle Eastern students were found to lay strong value on group relations, which could make them feel uncomfortable about taking part in the discussion if they did not know the other group members yet.

> Especially in the first year, I didn't know the people in my class, I didn't know anyone of the students. We were all very shy, we didn't talk at all in the discussion session, that was not nice. I felt shy, I didn't talk too much. (Middle East third-year student 2)

After a while, however, when students became friends and grew to trust one another, they felt more confident in participating. The school had adapted its policy to this

group focus, and groups were allowed to stay together for one year, as opposed to six weeks in the Dutch case and up to one semester in Hong Kong, which created a safe group environment to comfortably participate in discussions. Dutch students on the other hand indicated they were happy about changing groups every six weeks, which for them meant a continuous challenge to participate.

In Hong Kong too, students were found to focus on group relations, which was mainly expressed in students' concern about maintaining their own and others' face in front of the group. This affected their behavior in that they were less ready to speak up, ask questions, and challenge their peers. For example, concern about losing face meant that students would only say something if they were sure it was correct, both content-wise and pronunciation-wise (see the discussion on language of instruction below).

> You see, for the Chinese, face is very important. Face means that if I do a poor job everyone will laugh at me, and I'll feel terrible. I have shamed myself; I've shamed my school education, my parents. Probably that is related to not speaking too much. My parents have always taught me it's better to listen than to blablabla. Generally the Chinese are more reserved. Secondly, if you speak, then make sure you speak well. If you can't speak well then there's a double reason for not speaking. I think an element of that is that they're very embarrassed. So instead of pronouncing a word they don't even try. (Hong Kong staff 1)

Furthermore, Hong Kong students were hesitant to ask questions, because they interpreted this as revealing a lack of knowledge, which they perceived as loss of face in front of the group. Hong Kong and Middle Eastern students were also concerned about their group members' face loss, because they valued harmonious and friendly group relations. Consequently, they were reluctant to challenge their peers by directly speaking to them, asking them critical questions, opposing their statements, or commenting on their behavior in the discussion session. Dutch students were found to be more concerned with the discussion process than with group relations, and were more ready to express criticism of group members.

> You just say, 'I think you talk way too much and you are interrupting all the time'. You just say that. And also, you just say, 'I think you are really well prepared always and I like your contributions to the group'. Yeah, you just say it honestly. (Dutch third-year student 2)

However, while gaining familiarity with the purpose and process of PBL, Middle Eastern and Hong Kong students were more ready to make critical comments in the discussion.

> Well, sometimes there are some things that are hard to say to my colleagues, but it is for their own good, so I have to tell them. (Middle East first-year student 2)

> My tutor of the last block, he emphasized criticism very much. He says that being a doctor, you should have critical thinking instead of admiring others' opinions…. Sometimes it embarrasses me to criticize so directly, but I think this is a step that you cannot avoid so we should get used to it, not feeling ashamed or trying to escape from it. (Hong Kong first-year student 7)

Personality differences

In all three institutions, large differences in discussion behaviors were observed between individual students. Differences based on gender (Table 2) were not found. Very quiet or very dominant students were not appreciated by the group (Table 4).

> I was in a group in which nobody said anything, you had to point at people to get them to talk. (Dutch third-year student 3)

> Some are quite dominating and they will just talk a lot. Then you don't have a chance to speak up. (Hong Kong third-year student 2)

Language of instruction

Discussion behaviors were also affected by the language of instruction (Table 4). The Hong Kong sessions were conducted in English, the second language of most students and tutors, which was a problem for those who felt their English fluency was not up to standard. While most tutors had an adequate level of English, large differences were found between individual students (see the discussion on the prior education system below for language differences between local students and students who had attended international secondary schools). Concerns about loss of face would cause these students to remain silent – even if they felt they really had something to say – just because they did not know how to say it. In the Middle Eastern case, the students were informally allowed to speak Arabic during the sessions, which enhanced interaction and participation.

Hierarchical relations

In the Hong Kong and Middle Eastern cases, a focus on hierarchical relations was found to influence students' discussion behaviors in terms of how they approached the tutor. Students were inclined to depend on their tutor as a source of knowledge, rather than on themselves, as this tutor explained about first-year students:

> Every time they want to say something or to discuss anything, they look at me. I try to tell them not to look at me. I am not the center of the session, they are the center of the session…. But they still feel that the teacher should be the center of everything, should be the one to give the answers, and should be the one who has the upper hand on them…. They still feel like this, but I think it will take a transition time, as I told them, after a while, you will feel the reverse. (Middle East tutor 3)

The results did indeed show that students increasingly learned to depend on themselves instead of on the tutor during the discussions. In Hong Kong, it was noted that relations between students and staff had generally become less hierarchical since the implementation of PBL.

> What is so nice is that in the last ten years I've students smiling at me, you know. I see students smiling at me on the streets and on the wards, and I say 'Why is that guy smiling at me? Oh yes, he was in my PBL group'. They say 'Hi Professor X'. Isn't that nice? In the old days, if they know you're Professor X giving a lecture, they would be trying to run away, because they're afraid I would ask them a question. (Hong Kong staff 1)

Another effect of the importance of hierarchical (and group) relations in the Middle Eastern and Hong Kong cases was that students felt the tutor should not be challenged. Respect for the teacher was valued highly by the students, and openly disagreeing with a teacher was considered disrespectful, even though students might actually disagree with the teacher.

> I think Chinese people in general are less willing to challenge. They are the last ones to question. It is not that they are necessarily convinced by you, but they may not voice their disagreement. It is proof of serenity on hierarchical level. They are quieter. (Hong Kong tutor 1)

Interestingly, in both the Hong Kong and Middle Eastern cases, respondents characterized their society as moving away from traditional values, with people becoming more vocal and willing to challenge authority, which was reflected in students' behavior in the discussions and elsewhere.

> Certainly the post-nineties generation of students is far more willing to challenge authority. (Hong Kong tutor 3)

> Students in this generation are different from our generation. They are more confident as a generation…. I do not know, we felt more respect for the older people. (Middle Eastern tutor 1)

In the Dutch case, a critical attitude towards the tutor was not unusual, and was even encouraged by some tutors.

> I always say, every time to all of my groups, like, if there is anything you don't agree with, about how I'm doing it, you should say so. And students do that. (Dutch tutor 4)

Dutch society was generally characterized as less hierarchical than non-Western societies, and it was argued that this affected how students approached their tutor during the discussions.

> I think it is due to, everybody is equal and everyone's opinion is important and everyone has a voice…. And there is the tutor, who often is a clinician and of course he stands above me, but the gap is not very big. We are not so shy as to never dare to criticize him or never dare to ask a critical question. (Dutch third-year student 5)

Tutor behaviors

Within each of the institutions, large differences were found in the way tutors facilitated the discussion sessions, and this had a major impact on students' discussion behaviors. While some tutors dominated the discussion to the extent that students had no opportunity to speak at all, other tutors displayed a lack of motivation, remaining passive during the sessions, neither stimulating the discussion nor giving explanations when students got stuck (Table 4). Neither type of behavior stimulated students to engage in a lively discussion.

> I once had a tutor who would do the entire discussion herself. And we just listened to her, she was talking very well and we were convinced by what she was saying, but we were not discussing you know…. If the tutor just wants to talk we can't tell her or him to shut up. (Middle East third-year student 2)

Achievement and competition

In Hong Kong and the Middle East, respondents felt their society was characterized by a strong focus on achievement, and being successful and being the best were highly valued.

> I think it is a general condition that Hong Kong students or Hong Kong teachers or Hong Kong parents lay a lot of stress on your grades and the exam results, on your performance. (Hong Kong third-year student 1)

> Every student seeks to be the greatest one in his career and wants to be a great professor. In our faculty, I dream of becoming the greatest doctor. (Middle East third-year student 3)

Competition was closely related to achievement, with students continuously competing to be the best among their peers. A consequence for the discussion sessions was that some students were reluctant to share the information with peers.

> The idea of being the best one on the list, or the top of the list, in the minds of some students is that you have to keep the information that you find between the sessions secret, you keep it to yourself. They think that exchanging information with other students will mean that the other students will be better than you. (Middle East third-year student 3)

The cultural factors of achievement and competition were found to be less prominent among the Dutch students, although these students too were characterized as exam focused. In all the institutions, however, it was the nature of the assessment system that ultimately determined to what extent an exam-directed focus inhibited or enhanced discussion behaviors.

Assessment system

Assessment during the discussion sessions influenced discussion behaviors (Table 4). In the Hong Kong case, the tutor continuously assessed students on participation and communication aspects, which contributed to students' final grades. As a result of this assessment and their focus on achievement, first-year Hong Kong students managed to overcome their anxiety about contributing to the discussions, and became keen to participate, debate, and challenge their peers.

> In the first two years … you are just fighting to talk, because the more you talk supposedly the higher the mark you get. (Hong Kong third-year student 4)

> Most of the students focus strongly on the continuous assessment. They are always worrying about the scores… They say, 'So we have to say something in the tutorial, otherwise there will no score that day.' (Hong Kong first-year student 4)

Third-year Hong Kong students, by contrast, were observed to be less active than the first-year students. They had discovered that, in practice, it was virtually impossible to fail the PBL assessment, because only in very extreme cases tutors would fail students. This made it unnecessary for the students to try hard in the sessions. In the Dutch case too, students felt that the assessment of their behavior in the sessions had no substantial consequences. In the Middle Eastern case, students felt more confident to speak up as they realized they were not assessed on the content of their contributions to the discussion.

> First I was not talking much in our class. But after, I got the idea that it is not something related to degrees and exams and something like that. We are just free to talk about what we know about that subject. (Middle Eastern third-year student 10)

Discussion

Main findings

The aim of this study was to investigate how the cultural backgrounds of students across three cultures were expressed in the PBL discussions, and how this shaped students' discussion behaviors and skills. Four cultural factors related to students' backgrounds were externalized by the students, causing interference with the discussion process. Uncertainty and tradition, group relations and face, hierarchical relations, and achievement and competition were generally found to inhibit students from speaking up, asking questions, and challenging others in discussions. However, a focus on group relations in the Middle Eastern case and, in the Hong Kong case, a focus on achievement coupled with the nature of the assessment system were found to improve discussion dynamics as well. Cultural values in the Dutch case seemed to reflect a lesser presence of the four cultural factors identified in this study, which in general was found to enhance discussion dynamics.

Previous research has also found these cultural factors to be related to communication behaviors. Hwang and others (2003), for example, pointed to a relation between concern about face loss and reluctance to ask questions. Gudykunst's intercultural communication theory posits relationships between uncertainty, group relations, and hierarchical relations on the one hand and higher levels of anxiety about communicating with strangers or higher status persons on the other hand (Gudykunst 2005). Fassinger (1995) reported a relationship between achievement and classroom interaction, with students' participation increasing if they perceived it would have a positive effect on their grades. The cultural factor of uncertainty and tradition, as well as group relations and face, can be argued to include two separate factors each. Because of the high degree of interrelatedness with regard to the topic under investigation, however, in this study they were conceptualized as single factors, though it should be noted that a range of different possibilities and perspectives for categorizing and conceptualizing culture and cultural factors exists (e.g. Geertz 1973; Hofstede 2001; Trompenaars and Hampden-Turner 1998).

In addition to cultural factors, six mediating contextual factors were identified that, depending on their nature, either inhibited or enhanced students' discussion behaviors. While the distinction between cultural and other contextual factors was sometimes hard to make considering the interrelatedness of all factors, these six factors related more to either organizational decisions or individual characteristics rather than culture. In the three institutions alike, the nature of the secondary school system, the scope of PBL implementation, students' personalities, language of instruction, the behavior of tutors, and the assessment system were found to impact on the discussions.

This is consistent with previous research reporting the strong influence of traditional, teacher-centered and exam-focused secondary schools on students in the Middle East and Hong Kong (Al Kadri et al. 2011; Bridger 2007; Chan 1999; Leung, Ginns, and Kember 2008); language difficulties of non-Western students in Western educational models (Bridger 2007; Khoo 2003; Ladyshewsky 1996); and the importance of the scope of PBL implementation, personality differences between students, the assessment system, and the major mediating role of the tutor in discussion sessions (Dochy et al. 2003; Dolmans et al. 2005; Moust, Van Berkel, and Schmidt 2005). The role of personality differences is furthermore emphasized by previous research that found individual variations to be larger than cultural variations in preferences for direct communication styles (Park et al. 2012).

The current study showed that interactions between contextual factors, cultural factors, and the student-centered educational model determined how students internalized the discussion aspect of PBL, and consequently how their discussion skills developed. In each of the institutions, these skills were found to increase as students moved from first to third year. Generally, students gained confidence and felt more comfortable – sometimes helped by their own coping strategies – in participating in the discussions, asking questions, and criticizing and challenging the statements or behaviors of others. The students at the three institutions differed considerably, however, in the rate of development of discussion behaviors and skills. The stronger impact of the four cultural factors in the non-Western schools compared to the Western school generally meant that students experienced more difficulty in engaging in student-centered discussions, a problem that was augmented by the traditional nature of their teacher-centered secondary school systems. The difference between the two non-Western institutions in the scope of PBL implementation accounted for differences in the development of discussion behaviors and skills. While the hybrid implementation in Hong Kong stimulated students to actively engage in discussions because the lectures reduced their feelings of uncertainty, the 'full' PBL implementation in the Middle Eastern case – and in the Dutch case – encouraged students to use the discussions to build knowledge, which stimulated them to engage in more critical discussions.

Implications

Cultural and contextual challenges

The findings justify doubts that have been expressed (see the introductory discussion) about the cross-cultural applicability of student-centered education. They also show that a student-centered, discussion-based educational model poses more challenges in non-Western cultures than in a Western culture, leading to different processes and outcomes in terms of students' discussion behaviors and skills. The comparison of a Western case and two non-Western cases yielded a conceptual model of cross-cultural differences affecting students' behaviors and skills in student-centered discussions. By incorporating other contextual factors in the model, the study underscores the major mediating role of contextual factors in relation to cultural factors, and justifies the assumption that the relationship between cultural factors and discussion behaviors and skills is not straightforward. Moreover, the substantial involvement of contextual factors implies that a student-centered, discussion-based educational method is likely to pose challenges in any culture, including Western cultures in which cultural values might be compatible with the method, but other contextual factors could complicate students' adaptation. Despite these challenges, however, this study appears to demonstrate that it is quite feasible to use a student-centered approach in higher education in different cultures – a claim that is supported by the fact that the three institutions had each been applying the model for over a decade. Apparently, difficulties can coexist with cross-culturally different, context-specific, yet solid discussion processes in student-centered higher education.

The complexity of individualism–collectivism

This study appears to confirm the expectation that a distinction between collectivistic Eastern cultures and individualistic Western cultures would be reflected in students'

communication behaviors, and consequently, that student-centered education may pose more challenges in non-Western settings due to their collectivist orientation. Previous research showed that the cultural factors of uncertainty and tradition, group relations and face, and hierarchical relations are interrelated, while they were all related to the cultural concept of collectivism (Gudykunst 2005; Oetzel et al. 2001). However, the two non-Western cases were also characterized by a strong focus on competition and achievement, which is often associated with individualism rather than collectivism (Fontaine et al. 2008; Liao and Bond 2011).

A number of previous studies has suggested that the concepts of collectivism and individualism are far more complex than is generally thought, as for example is evidenced by studies in Hong Kong, in which participants scored high on both individualism and collectivistic face concerns (Hwang, Francesco, and Kessler 2003; Liao and Bond 2011). Thus, some societies may be defined as collectivistic in certain aspects, but as individualistic in others, which seems consistent with this study's findings. The question is how this plays out in the cross-cultural implementation of discussion-based, student-centered education. The results of the current study suggest that a focus on the individualistic factor of achievement – which also other studies have found to be of major importance in Hong Kong and of influence on Hong Kong students (Brown and Wang 2011) – can mitigate the inhibiting effects of collectivistic factors, although this depends heavily on certain contextual factors, notably the assessment system. Further research might investigate how collectivistic and individualistic factors can be used as a balance to optimize discussion processes in higher education across cultures.

The flexibility of learning approaches

Although student-centered education seems to confront students and teachers in non-Western settings with specific challenges, the results indicate that non-Western students, to a certain degree, do adapt their learning behaviors in respect of communication and discussion to fit with the Western student-centered model. At the same time, however, a non-Western cultural and contextual background may inhibit the development of these behaviors and skills. Interestingly, previous studies have showed that Chinese students who were studying in the West were very capable of adapting their different learning approach to fit with the Western method (Gieve and Clark 2005; Gu and Schweisfurth 2006), or at least adapted their approaches more than students taking the same course in China (Wang, Harding, and Mai 2012). So, while students might be very able to change their learning approach when learning in a different cultural environment, they may encounter more problems when a new method is applied in their own cultural setting, in which their learning and discussion approaches seem to be less flexible, but still able to change.

Limitations and conclusions

A limitation of the study is its heavy reliance on self-reported interview data, which should be interpreted with caution. The trustworthiness of the data, however, was enhanced by triangulation of data from different sources and different groups of participants. A second limitation is that the cross-sectional rather than longitudinal student sample prevented investigation of the actual long-term development of individual students. However, in the interviews the third-year students were explicitly asked to focus

on their development since their enrolment in university. Their recall of what it felt like to be a first-year student generally coincided with the views expressed by the first-year students in the study.

The findings from this qualitative study do not lend themselves to generalization. However, researchers might take from the results those aspects and implications they deem applicable to their own setting, as the study's transferability was enhanced by providing thick description of the factors involved. Future research might investigate more cases in different as well as in similar cultural settings, and furthermore focus on other aspects of student-centered education beyond the discussion aspect. The conceptual model presented in this study could serve as a starting point for such research.

The results of the current study emphasize that educationalists in higher education across cultures, and future research on cross-cultural differences in education should consider the role of contextual factors, specifically in mediating the effects of cultural factors. By contextualization of cross-cultural findings the ecological validity of a study can be increased as it better approximates real-life situations. By focusing on the influence of context and culture, this study has provided evidence for the cross-cultural applicability of student-centered education, although it should be accepted that its process and outcome, or students' behaviors and skills, are likely to differ across contexts.

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