

Chapter 10

Japanese First-Year PBL Students' Learning Processes: A Classroom Discourse Analysis

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10.1 Introduction

Problem-based learning (PBL) is characterised by small group collaborative learning, with a strong emphasis on the development of autonomous learning, problem-solving and critical thinking skills. These competencies are regarded as the key generic skills which need to be acquired in higher education (NCVER, 2003). PBL was originally developed in medical education at McMaster University in the late 1960s. The implementation of this educational model subsequently has been adopted widely in higher-education curricula. One of the defining characteristics of PBL is learner-centredness, in which students identify their own learning objectives from a scenario and 'solve' them (Hmelo-Silver, 2002). The PBL classroom differs pedagogically from traditional tertiary classrooms in that students are encouraged to collaboratively and autonomously build new knowledge based on each others' contributions to discussions.

Successful implementation of PBL which effectively promotes student learning and produces better learning outcomes has been found in previous studies, such as studies focusing on students' information literacy (Blumberg & Michael, 1992) and reasoning skills (Frederiksen, 1999). On the other hand, several pedagogical issues relating to students' participation in PBL have arisen (e.g., Khoo, 2003; Legg, 2005; Imafuku, 2007a; Woodward-Kron & Remedios, 2007). Asian higher education appears to have more pedagogical challenges, perhaps relating to the fact that the educational innovation has been quite recent, in comparison with Western countries where PBL approaches have been employed for more than 30 years. Khoo (2003) noted that the successful application of PBL methods to Asian schools might be impeded by some practical challenges, such as students' strong awareness of assessment during their performance, their lack of confidence, and their limited understanding of the pedagogical intent of PBL.

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The aim of this study was to examine how first-year undergraduate students adapt to a new learning culture over time. To investigate the changes in students' approaches to learning in PBL, the study explored the students' learning experiences at three different stages of their first year. To accomplish these major objectives, the following research questions were addressed:

1. What are the characteristics of discursive practices of Japanese students in PBL tutorials at different stages of the first year of university education?
2. How do Japanese students adapt to a new learning environment at university, and what are the factors that shape the new learning processes?

10.2 Student Learning in PBL

A PBL approach requires students themselves to construct knowledge through problem-solving tasks. That is, in the participant structure of PBL, students and tutors are expected to contribute to the discourse in different ways from the conventional classroom. The emergence of students' co-constructed knowledge and their highly interactive dynamics in tutorial groups have been illustrated in several previous studies (e.g., Hmelo-Silver & Barrows, 2008; Koschmann, Glenn, & Conlee, 1997; Visschers-Pleijers et al., 2006; Woodward-Kron & Remedios, 2007). Visschers-Pleijers and colleagues (2006) found that in a PBL setting collaborative knowledge construction amongst students occurred more frequently than any one student's elaboration of knowledge.

On the other hand, some research has highlighted differences between students' actual learning processes and the intentions of a PBL curriculum. For example, a study of PBL conducted in an English-medium of instruction university in Hong Kong (Legg, 2005) and an investigation of faculty-based support for PBL (Imafuku, 2007b) found that a 'Initiation-Response-Evaluation' (IRE) discourse sequential pattern, which is a strong characteristic of the conventional mode of classroom discourse, was prevalent in PBL. Imafuku (2009) argued that the emergence of different discourse patterns amongst PBL groups is associated with several factors, such as students' perceptions of learning in PBL, their learning styles and social relationships with peers. Hawthorne, Minas and Singh (2004) found that international students at an Australian university achieved lower results in PBL communication skills and showed a reluctance to adopt PBL tutorial roles when compared to Australia-born and Asia-born permanent resident students. Furthermore, quiet international students in PBL were much more likely to obtain marks in the lower 50% in subject-content areas than overseas-born Australian-education students. These results indicate that students' prior learning experience and cultural factors affect their learning processes in PBL.

Students' processes of socialisation into discourse are a pivotal aspect to reveal the complexities of student learning in a new educational context (Morita, 2002). Goffman (1981) proposed that students' socialisation processes

impact on the development of a participant framework which encompasses the configurations of interactional rights and responsibilities in a particular classroom activity, and the speaker's perceptions of others in terms of participant roles and social identities. To better understand the participant framework in the first-year PBL programme, it is also necessary to analyse students' cognitive dimensions, such as students' concepts of social identity, negotiating membership and perceptions of the learning environments, which are unavailable from video-recorded data of tutorials.

10.3 Conceptual Framework

In this study, discourse and culture are considered central aspects for investigating student learning in PBL. This leads to an examination of students' learning processes, i.e. the situated nature of pedagogical phenomenon. Lave and Wenger's (1991) notion of legitimate peripheral participation (LPP) was employed as a conceptual framework. The framework presents a situated process where a newcomer becomes a full participant in a sociocultural practice through interaction with more competent members. LPP is not necessarily characterised by harmony and peaceful processes, but can be a conflictual process of negotiation and transformation, because legitimate peripherality is implicated in social structure involving power relations amongst members in a community of practice (Lave & Wenger, 1991; Morita, 2002).

The legitimacy of participation constitutes a defining characteristic of ways of belonging that is not only a crucial condition for learning, but also a constitutive element of its content (Lave & Wenger, 1991). In this sense, anyone can be a potential member in a community of practice. Wenger (1998, p. 101) further elucidates legitimacy by noting that 'in order to be on an inbound trajectory, newcomers must be granted enough legitimacy to be treated as potential members'. The term peripherality is associated with 'an approximation of full participation that gives exposure to actual practice' (Wenger, 1998, p. 100). Peripheral participation means that participants who are not central but are on the margins of the activity in question acquire knowledge through their involvement with it (Flowerdew, 2000).

Based on this notion, this study regards academic discourse socialisation in PBL environments as a situated process in which first-year students become gradually competent in academic ways through their experiences of student-centred learning and interactions with group members in a given community (Morita, 2002). However, Nemoto (2007) noted that the concept of LPP tends to consider all novice members as equal. That is, the investigation of student learning from the perspective of LPP needs to carefully take account of students' negotiation of membership within a specific social context. In this study, for example, some first-year students may play a more central role in PBL, whereas others may be on the margins of the learning activity.

10.4 Research Methodology

10.4.1 Research Site

A private medical university in Japan agreed to be involved in this research. With a purpose of training medical experts who fully understand the importance of team care, an ‘interdisciplinary’ PBL approach, with groups consisting of 9 students from different faculties, is employed in the first-year educational programme. Each theme is completed in two tutorial sessions over 2 weeks, and the duration of each tutorial is approximately 3 h. In Session 1, students are encouraged to identify their learning objectives based on information from a scenario through discussions. Session 2 is undertaken to share the results of their independent learning. Specifically, learning objectives are presented with students taking turns to summarise their findings until all objectives have been covered. A summary of the PBL process at the university is provided in Table 10.1.

10.4.2 Participants

Four first-year undergraduate students were selected from three different faculties, namely, Aya, Ai, Takeshi and Ken (pseudonyms), all aged between 18 and 19 years. Table 10.2 provides an overview of the participants and their backgrounds.

Table 10.1 PBL process in the first-year programme

Session 1–3 h	
Step 1	- Read the scenario.
Step 2	- Select keywords or interesting information.
Step 3	- Identify the problems to discuss and knowledge gaps.
Step 4	- Draw up a mind-map to outline the mechanisms that relate each selected keyword.
Step 5	- Identify the learning issues.
Self-directed learning	
Step 6	- Individually study the allocated learning objectives using a variety of resources. - Submit summaries of independent learning to the PBL web system.
Session 2–3 h	
Step 7	- Share the results of independent learning. - Reach an understanding of what has been shared in the presentations.

Table 10.2 Participants in the first-year PBL programme

Name	Gender	Age	Faculty/School	First semester	Second semester
Aya	F	18	Pharmaceutical Sciences	Group 1	Group 3
Ai	F	18	Nursing	Group 1	Group 4
Takeshi	M	19	Pharmaceutical Sciences	Group 2	Group 4
Ken	M	18	Medicine	Group 2	Group 3

Since all PBL groups were rearranged in the second semester, the participants studied with new members in the second semester. In the first semester (April to August), Aya and Ai were in Group 1, while Takeshi and Ken were in Group 2. In the second semester (September to January), Aya and Ken were in Group 3, while Ai and Takeshi were in Group 4.

10.4.3 Data Collection and Analysis Procedures

The main data collection, which included classroom observations, recordings of PBL sessions and interviews with students, was conducted in June, September and December 2009. The themes of PBL during the data collection were as follows: Terminal cancer and informing (June), nutritional balance and osteoporosis (September) and social-welfare for the disabled (December). Since the PBL tutorials and interviews were conducted in Japanese, the data which appear in the following sections have been translated into English by the author.

Video-recordings of the PBL tutorials were undertaken by placing two HD-recorders in the corners of a classroom to record the tutorials from different angles. For this study, six 2.5-h video segments from Step 3 to Step 5 in each first PBL session were transcribed, because the process of formulating their learning issues in these steps can be fundamental to student learning in the subsequent session and also directly influence student learning outcomes in PBL. In discourse analysis, a move is regarded as a unit of analytical discourse organisation and is defined as a 'unit of discourse organisation that a speech functional pattern expresses' (Eggins & Slade, 1997). A new turn occurs when transferring from one speaker to another in a conversation. One turn can encompass one or more moves. Although Eggins and Slade's work (1997) was on casual conversations, this framework is transferable to the conversational context in this study in that their classification of various discourse purposes allows the researcher to codify all moves used in discussions involving multiple participants.

The first step of coding is to distinguish between two different macro-functions. Christie (2002) argued that all pedagogic activities contain two sets of language choices. First, the regulative macro-function is associated with instrumental functions to determine the directions of classroom activity. Second, the instructional macro-function is related to the 'content' that builds the substance of the teaching-learning activity, and is embedded in the regulative discourse (Christie, 2002).

In the second step of coding, each move in the instructional macro-function was provided with a speech function label. There are four main classes of moves: opening, continuing, responding and rejoinder (Eggins & Slade, 1997). Eggins and Slade provided a detailed analysis of casual conversations by employing 45 subclasses of moves, whereas this study simplified this typology in order to effectively examine the PBL discourse from a holistic point of view by identifying the use of specific key speech functions such as opening, developing, answering, clarifying and challenging moves. Figure 10.1 illustrates the

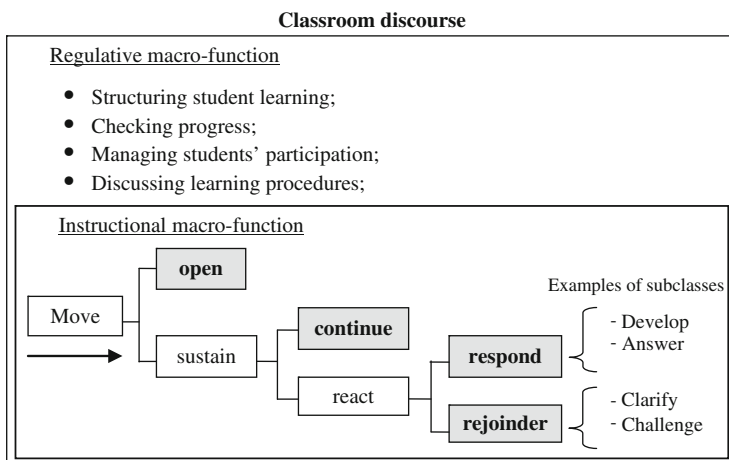


Fig. 10.1 Integration of the models of classroom discourse and speech functional analysis (Eggs & Slade, 1997; Christie, 2002)

modified framework of classroom discourse in this study based on the studies of Christie (2002) and Eggs and Slade (1997).

The opening, responding and rejoinder moves are a particular focus of this study, because these were the main moves used for students' collective knowledge-building, whereas elaboration of one student's opinion by continuing moves seldom occurred. Opening moves function to initiate talk through the introduction of a new proposition. A reacting move, which is achieved by another speaker taking a turn, contains two classes of moves. First, responding occurs when a speaker intends to complete the negotiation of a proposition. Second, a rejoinder occurs when the move exchange under the same proposition is prolonged to the next move. Each participant was assigned a code: facilitators (F1, F2, etc.), focal students (using the pseudonyms above) and other individual students (S1, S2, etc.). In analysing the transcriptions, first each turn was numbered, and then was divided into moves. Subsequently, a speech function name was given to each move based on the analysis of a function within the discourse (cf. Legg, 2005). Transcription conventions are provided in Appendix B (see also Bridges, McGrath, Yiu, & Cheng, 2010 for a discussion of multilingual transcriptions).

In addition to the observational data, contextual information, including the students' prior learning experiences, perceptions of learning in PBL and their cognitive process during the discussion, was elicited through semi-structured interviews conducted immediately after the recorded PBL tutorials. Following the Grounded Theory approach (Strauss & Corbin, 1998), interview transcripts were carefully reviewed multiple times to inductively generate salient categories of main factors attributing student learning.

10.5 Results

10.5.1 Students' Speech Functional Choices

In this study, four students' participation in PBL group discussions was observed over time. Since PBL groups were reorganised in September, the groups observed were different between the first semester (June) and second semester (September and December) (Section 10.4.2). The speech functional choices used by the participants on the three occasions are provided in Table 10.3. Five key moves in the instructional macro-function were identified in these group discussions, namely, open, develop, answer, clarify and challenge.

The following sections will focus on the features of total number of moves, developing and clarifying moves. The use of these moves can be pivotal to students' learning in PBL. Developing moves to add new information or modification to the previous move are necessary for the effective knowledge construction in group discussion (Imafuku, 2007b). Moreover, clarifying moves to obtain further information for a better understanding of the previous move are directly related to active listening skills which are an extension of generic communication skills (Robertson, 2005).

10.5.2 Total Number of Moves in Instructional Macro-functions

The overall oral participation patterns of the four students were examined first, by looking at the total number of moves including both opening and reacting. In Fig. 10.2, two types of change in oral participation can be observed.

As can be seen in Fig. 10.2, the quieter participants in June (Aya and Ken) took even less moves in September. However, they both made more contributions to the discussion in December. On the other hand, the two more active

Table 10.3 Overview of the changes in students' speech functional choices

		Total	Sustaining: React					Others
			Open	Develop	Answer	Clarify	Challenge	
Aya	June	19	0	0	1	0	0	18
	September	5	2	0	2	0	0	1
	December	34	1	10	3	2	0	18
Ai	June	74	3	4	25	3	0	40
	September	90	10	20	15	2	1	42
	December	83	3	29	15	1	2	35
Takeshi	June	145	17	17	15	8	5	83
	September	240	35	24	26	24	6	125
	December	182	7	47	10	32	6	80
Ken	June	34	3	7	14	1	0	9
	September	22	7	4	5	2	1	3
	December	146	31	31	9	13	5	57

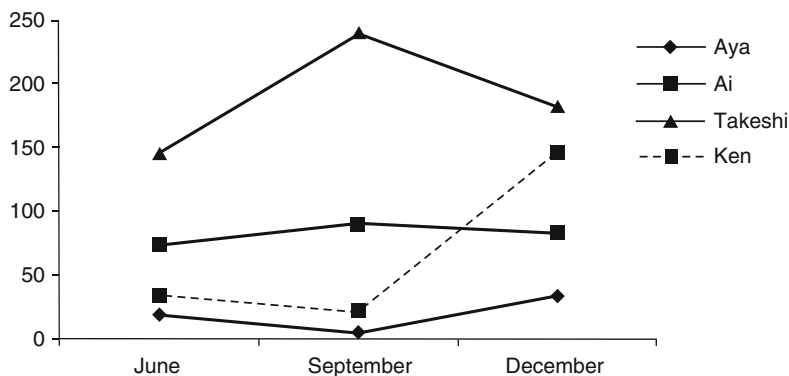


Fig. 10.2 Total number of moves taken by the students during 2009

participants in June (Ai and Takeshi) tended to take a greater number of moves in September, but then decreased their oral participation in December.

These participation patterns are probably associated with the students' perceptions of student learning in PBL, which strongly links with factors shaping the new learning processes as outlined below (see Section 10.6). For instance, at the early stage, Aya, who was a quiet participant, felt difficulty in expressing her opinions during the discussion. Her reticent behaviour can be attributed not only to her consideration that group conversation should not be interrupted by introducing her opinion which is not directly related to the topic, but also her anxiety about other members' negative evaluation of her opinion. She stated that she often gave up stating her opinion when the group's conversation shifted while she was still forming her ideas in her mind.

However, as Excerpt 1 shows, in December she started to realise that expressing opinions is an essential skill for her future career. That is, as she got a strong sense of becoming a medical professional in future, she became highly motivated for learning in PBL. The change in her perceptions of learning in PBL is considered to be related to the rise in the number of her moves as indicated in Fig. 10.2 (from 19 moves in June to 34 moves in December):

Excerpt 1

I'm sure that in future I will have to participate in discussions like PBL in a health care setting. If I didn't experience PBL, I couldn't probably express any opinions in the meetings. Through the PBL, I became more conscious of the importance of an active attitude. Particularly, it's important to more actively express my opinions based on a clear understanding of what other members said. Moreover, I think in PBL I could learn a little bit how to find an appropriate opportunity to speak along the direction of discussions. (Aya, 1 December 2009)

Takeshi, who was an active student initially, changed his participation patterns in PBL over the semesters in a different way from Aya. Although Takeshi was regarded as a dominant participant in June and September, his

total number of moves in December greatly decreased, as indicated in Fig. 10.2. He appeared to consider the nature of better communication skills through his experiences of PBL. Excerpt 2 indicates that he obtained a broader conception of what better communication is.

Excerpt 2

I think the purposes of PBL are to improve students' communication and teamwork skills. In the first semester, I tended to be talkative, and always wanted to express my thoughts in words. However, now, before speaking I try to think about whether my thoughts are appropriate to discussion. Imposing my opinion on other people is not better communication. In discussion, firstly it's important to listen to others. I realised the importance of carefully listening to others and understanding their opinions. In order to become a man who is good at communicating with people, it is important to become a good listener. (Takeshi, 7 December 2009)

In the first semester, Takeshi viewed speaking as the most significant behaviour in PBL. On the other hand, at the end of year, he was aware that communication is a two-way process and that listening is also an important skill in group work. Thus, he attempted to understand others' opinions, and then to expand on the discussion by providing his opinion or factual information. The decrease in his total number of moves in December reflected his changed attitude towards communication, including that listening is one of the most important skills. This active student managed his own participation to maintain the balance of other members' contributions.

10.5.3 Developing and Clarifying Moves

In the following section, the focus is on an analysis of the students' use of developing and clarifying moves. In order to elaborately construct knowledge in group discussion, it is important to expand on a previous speaker's proposition by adding further information, exemplifying or providing causal qualifications. Table 10.3 above indicates that all four of the focal students increasingly took developing moves over the academic year. Aya expressed her hopes for the next PBL tutorials in Excerpt 3:

Excerpt 3

In the next PBL, without hesitation, I want to provide my opinion of what a previous speaker said, for instance, making a contribution to the discussion, um, by expanding on other members' ideas. (Aya, 28 September 2009)

An example of Aya's use of developing moves in December can be found in Excerpt 4, below. In this segment of discussion, students in Group 3 discussed support for disabilities. In Move 767, Aya expanded on S1's suggestion in the previous turn by paraphrasing it into 'their personal experiences' based on her understanding. Furthermore, in Move 769, Aya made a contribution to the discussion by indicating the importance of investigating the support from various points of view.

Excerpt 4

762	F1	さっきのお話聞いてると(.) いろいろ家族のこととか(.) いろいろ言ってたけど(.) どうですか. sakkino ohanashi kiiteruto (.) iiroiro kazoku no koto toka (.) iiroiro ittetakedo (.) doudesuka. Just before (.) you were talking about the disabled people's families weren't you?	Open
763	S1	あー(.) 周りのサポート(.) 家族からの aa (.) mawarino sapooto (.) kazoku karano Ah, a kind of support from people around them, from their families.	Answer
764	S2	家族のサポートって知らないね(.) でも調べられかな? Kazoku no sapoototte shiranaine (.) demo shiraberareru kana? We don't know much about what kinds of support they provide (.) but can we study it?	Develop
765	Ken	うーん(.) 答えを全部調べなくちゃいけないわけじゃないし Uun (.) kotae wo zenbu shirabenakutya ikenai wake janaishi Umm (.) we don't have to study all kinds of support for the next tutorial	Develop
766	S1	じゃあ(.) どんなサポートをしているかって聞く(.) 障害者に jaa (.) donna sapooto wo shiterukatte kiku (.) shoogaisha ni So (.) we can ask some disabled people about what kinds of support they have received	Develop
→ 767	Aya	体験談みたいな = taikendan mitaina = Like their personal experiences related to the support =	Develop
768	S1	=そう(.) 体験談 =soo (.) taikendan =Yes (.) experiences	Agree
→ 769	Aya	障害者(.) 障害者の身近な人(.) 家族からの = shoogaisha (.) shoogaisha no mijikana hito (.) kazokukara no = From the perspectives of a disabled person, people who are close to him, and his family =	Develop
770	Ken	=周りの人がどのようなサポートをしているのか =mawarino hito ga donoyouna sapooto wo shiteirunoka =How they provide help with the disabled people.	Develop

(Group 3's PBL session, 1 December 2009)

Aya attempted to take part in the discussion by adding further information or her opinion to the previous move. Although she was still regarded as a quiet student in December, her attitude towards learning in PBL seems to have changed as indicated by the fact that Aya made 10 developing moves in December. One could argue that she is in the process of an 'approximation to full participation' (Wenger, 1998, p.100).

The second key speech function is the clarifying move which has a discourse purpose of getting additional information needed to understand a prior move (Eggins & Slade, 1997). A clarifying move is one of the important functions in group discussions in that the discourse purpose of obtaining a better understanding of a previous speaker's opinion is closely related to active listening skills. On the other hand, a resolving move is employed to provide clarification which has been demanded in a clarifying move. That is, these moves are often used as a pair of linguistic exchanges.

One instance of a conversation including clarifying and resolving moves is provided in Excerpt 5. In this exchange, the students discussed a physical disability handbook issued by the Japanese government. In Moves 86 to 90, Ai and S12 shared their knowledge of the disability handbook. Subsequently, Takeshi took a clarifying move to get further information of the value of the handbook (Move 91). Furthermore, he asked members to provide an example of 'no admission fee' in Move 95. Because he was apparently not familiar with the support system for disabilities in Japan, he tried to be actively involved in the conversation by obtaining more general information about the handbook.

Excerpt 5

84	S10	あとさ (.) サポート (.) 聞いたことあるよね. いろいろ. Open 例えば援助 (.) 金銭的な atosa (.) sapooto (.) kiitakoto aruyone. iroiro. tatoeba enjo (.) kinsentekina And (.) I heard the disabled have several supports (.) such as financial, or livelihood assistance.	
85	S12	[うん] [Un.] [yes.]	Acknowledge
86	S12	障害者手帳つてあるよね? Shoogaisha techoo tte aruyone? <u>They have a physical disability handbook which is</u> <u>issued by the government, haven't they? =</u>	Develop
87	S10	=うん= =un= = Yes =	Acknowledge
88	S12	=なんかランク付けみたいなのあって =nanka rankuduke mitainano atte = It is graded according to the extent of disability.	Continue
89	Ai	なんかいっぱい公共施設とかバスとか無料になつたりする. Nanka ippai kookyooishitsu toka basu toka muryooni nattarisuru. I suppose, people who got the handbook can use public facilities and transportation for free.	Develop
90	S12	高校のときの担任の先生は (.) 耳悪くて持ってた. koukouno tokino tanninno sensei wa (.) mimi warukute motteta. My teacher in high school has the handbook because he can't hear very well.	Develop

(continued)

→ 91	Takeshi	え(.) 何かに使えるの?その手帳は. e? (.) nanikani tukaeruno? Sono techoo wa. If they can have the handbook, what kinds of advantages can they enjoy?	Clarify
92	S12	うーん(.) なんか入場料がただとか(.) たぶん uun (.) nanka nyuujooroo ga tadanitoka (.) tabun Umm (.) no admission fee for them (.) maybe.	Resolve
93	Ai	[うん] [un] [hmm]	Agree
→ 94	Takeshi	え? どういうところ?= e? douiutokono?= What? For example?= =バスとか電車とか =basu toka densha toka =Such as (.) bus, train and so on.	Clarify
95	Ai	=バスとか電車とか =basu toka densha toka =Such as (.) bus, train and so on.	Resolve
96	Takeshi	へえ. hee. I see.	Acknowledge

(Group 4's PBL session, 1 December 2009)

Takeshi's use of clarifying moves indicates that listening is not simply hearing others in silence but actively understanding others' opinions and the topic by sometimes asking for further related information and clarification. The increase in the number of clarifying moves in Takeshi's use of speech functions from 8 moves (June) to 32 moves (December) was probably associated with his perception that active listening is pivotal to better communication.

These findings show that these four focal students tried to identify what they need to improve in order to better participate in group discussion. For instance, Aya needed to more actively express her opinions, whereas Takeshi sought to improve his listening skills to better understand other members' opinions. Changes in their approaches to learning in PBL appeared to influence changes in their use of speech functions over time.

10.6 Factors Shaping the New Learning Process

In this study the four focal students appeared to attempt to manage their own tutorial participation and adjust themselves to the new educational context so as to become full participants in PBL. In the following sections, four factors that appeared to shape their new learning process are presented, based on the introspective (interview) data. Although the four key factors will be introduced separately, it is likely that they are interconnected in various ways.

10.6.1 Prior Learning Experience and Apprehension About Communication

Some students stated that their prior learning experiences gave rise to apprehension about communication in discussion sessions. As Excerpt 6 shows, in the first semester, Ai was confused about the new pedagogical environment of PBL due to a lack of experience with an interactive learning mode:

Excerpt 6

Because I seldom had an opportunity to do group discussion previously, I felt difficulty in doing PBL at the early stage. In the first semester I worried a lot about other members' negative reaction towards my opinions, and I was often afraid about whether other members thought my opinions were irrelevant or even stupid. So, I sometimes intentionally kept silent even though I had a certain opinion. However, now I understand the importance of sharing my opinions in the discussions. (Ai, 7 December 2009)

Specifically, it seems that most of the students in this study tended to be apprehensive not that their knowledge might be wrong, but that they might stand out among other group members by making irrelevant remarks to a discussion topic. Their tendency to align to the group could obstruct the necessary actions in discussion, such as making a counterargument and promoting a better understanding of the theme by returning to a previous topic. In Excerpt 7 below, Ken emphasised the importance of maintaining the smooth flow of the group's conversation rather than sharing his opinion on the previous topic:

Excerpt 7

Ken: Even though I have a firm opinion, I tend to concede the floor to him when he starts to speak a little bit earlier than me, and I will wait until he finishes talking. However, if he changes it to the new topic during his conversation, I'm sure I will give up expressing my opinion about the previous topic. I don't want to interrupt the group's conversation. (Ken, 29 June 2009)

His oral participation might have been affected by the cultural notion derived from the prior experience of schooling that stresses group conformity and solidarity (Kubota, 1999). As indicated in Table 10.3, Ken made only 33 moves in June. Most of his reticence can be explained by a sociocultural silence influenced by norms of classroom communication and communication in general in Japanese society (Nakane, 2002). However, the influence of such apprehension towards communication and participation appeared to be weakening as the students acquired experience of PBL.

10.6.2 Identity as a Medical Professional and Motivation

The fact that the development of identity as a medical professional can be influential to students' learning in PBL was introduced in Excerpt 1 of Aya's case. Students' consciousness of their future career seemed to have been stimulated by a 2-week practical training programme implemented in the middle of the academic year (September). In this practical training programme, the

first-year students were encouraged to observe a health care site and assist in some simple tasks through communication with medical professionals and patients. Their experiences of this programme appeared to positively influence their participation in PBL in the second semester. Excerpt 8 clearly shows the relationship between Ai's experience of practical training and her participation in PBL in the second semester:

Excerpt 8

In the first semester, when I took the PBL, I wondered why I had to do these classes. However, after experiencing the practical training, I strongly think that effective communication amongst medical professions is essential to provide better medical care for patients. I also noticed the importance of expressing my opinions in a health care site. In fact, a group study such as PBL provides a good opportunity to practice my communication skills, because I need to discuss with my colleagues in the future. (Ai, 7 December 2009)

Her identity as a future nurse, which was developed in the practical training programme, resulted in enhancing her intrinsic motivation to participate in PBL. Furthermore, her experience of this training partly appears to have led to the change in her conceptions of learning in PBL. Excerpt 8 implies that, in investigating students' learning in PBL, it is also important to understand the relationship between their experiences of PBL and other courses.

10.6.3 Students' Perceptions of Learning in PBL

A 1-year observation of these students' learning in PBL found that their participation was associated with their perceptions of the learning environment in PBL. As mentioned in the previous sections, once they identified essential skills for their future career, Ai and Aya regarded PBL as a good training environment for these skills.

Ken also changed his perceptions of the PBL learning environment. In June, he considered PBL only as an opportunity to display his knowledge from a medical student's perspective. Based on the comments from the students in other disciplines, namely Ai, Aya and Takeshi, medical students are generally more self-confident in content knowledge than the group members from other faculties. The interviews also indicated that they are regarded by others as the more intelligent group members, because the medical students passed an entrance examination with a higher level of difficulty. However, in September, Ken was able to consider PBL as a place where students try to identify the problem and solve it together. Excerpt 9 shows his hopes for the next tutorial in terms of his perceptions of PBL as collective learning:

Excerpt 9

Today, I should have given more help to other members, particularly when the chair and scribe were confused with their roles. I think that my feeling that today's group discussion was unsatisfactory can be due to my participation which couldn't help other members. Next time I need to improve this point. (Ken, 28 September 2009)

10.6.4 Social Relationship with Peers and Positioning in Group

Lastly, data analysis indicated that the social relationship with peers influenced the students' learning processes in PBL. Because at this Japanese university PBL groups are reorganised in the middle of the academic year, students need to work with new group members from September. As Excerpt 10 shows, Takeshi expressed uncertainty, as he began to work with the new group members:

Excerpt 10

Today, I was rather quiet, because I don't like this new group very much. ... I found that one member tends to actively manage group learning as a leader, which is the same character as mine. If possible, I always want to become the chair to manage the group discussion. But if two students want to be the chair in one group, it was not effective. (Takeshi, 5 October 2009)

In September, he encountered a new member who was similar in character to himself, in attempting to take the lead in the discussion. There were some cases in this particular tutorial in which Takeshi hesitated to take the initiative in the discussion and kept silent. He often sat far back in his chair, slightly further away from the table than others, which might have indicated his reluctance to be involved in the discussion. Takeshi was not satisfied with his own participation, and started to consider how he could contribute to PBL learning in this particular group. Consequently, as Excerpt 11 below indicates, in December Takeshi adopted a position of creating an open and free atmosphere for the effective group discussion instead of taking the lead in the discussion. Remedios (2005) proposed that such positioning activity is a fundamental tool for negotiating membership in a group:

Excerpt 11

I found that my role in this particular group is to establish a better learning atmosphere and social relationship among members so as to prompt all members' participation. It is not good to fall silent like the PBL in September. I need to consider how I can contribute to this group. (Takeshi, 7 December 2009)

Takeshi dealt with the interpersonal difficulty with regard to social relationship with peers during PBL tutorials by identifying a suitable position for the new circumstance. The change in his attitude towards tutorial participation appeared to have been based on his thoughts that maintaining social harmony between group members promotes effective group work. This case, where Takeshi's participation is associated with both his perceptions of a learning environment and of the self in relation with others, clearly indicates that different factors are overlapping.

10.7 Discussion

This chapter examined discursive characteristics of students' participation in PBL and factors that shape their new learning process. The main findings were that students attempted to contribute to the PBL learning by accomplishing

their own roles in the particular context of the group discussion with the intention to participate as fully as possible. The study suggested that their socialisation process into the new academic community might be positively or negatively affected by several factors, such as prior learning experience, identity as a medical professional, perceptions of learning in PBL and power relations with peers. Although the PBL environment can be a challenging one for first-year students, it can also provide an opportunity to autonomously develop their generic skills.

In order to reveal the complexities of student learning, the educational contexts should be comprehensively examined from various analytical perspectives. First, as students' identity formation in a given community is interrelated to their participation, it is important to investigate students' learning process with the concept of a trajectory which 'has a coherence through time that connects the past, the present and the future' (Wenger, 1998, p. 154). That is, a better understanding of students' prior learning experience, present participation, aspirations for future learning and identity as a future medical professional is essential to explore PBL in an in-depth manner. Second, students' learning in PBL should be examined on the basis of Wenger's (1998) concept that the community of practice cannot be understood independently of other practices. It is therefore important to analyse not only their participation in PBL but also the interconnection between their experiences of PBL and other courses as academic communities. For instance, Ai's awareness of the importance of effective communication skills through her experience of practical training promoted the change in her perceptions of learning in PBL. Furthermore, in this study, most Japanese students had a strong sense of membership in the PBL groups, which might be associated with a Japanese cultural norm stressing group-centred, harmonising behaviour in the society (Takai & Ota, 1994; Matsudaira, Fukuhara, & Kitamura, 2008). As a result, the students tended to maintain harmony with peers and to worry about other members' evaluations of their opinions. This finding implies that the relationship between students' learning and social context is a pivotal analytical dimension in that the students' learning process is situated in a Japanese higher-educational context.

Even though these findings cannot be generalised to all Japanese students in the first year of PBL, this study suggests that the combination of analyses of speech functions and introspective data is an effective analytical method of obtaining a better understanding of students' learning processes.

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