

## **Employing Wikibook project in a linguistics course to promote peer teaching and learning**

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**Abstract** Peer teaching and learning are learner-centred approaches with great potential for promoting effective learning, and the fast development of Web 2.0 technology has opened new doors for promoting peer teaching and learning. In this study, we aim to establish peer teaching and learning among students by employing a Wikibook project in the course 'Introduction to Linguistics' in the Hong Kong Institute of Education. Students were asked to work in groups to write an academic book online, and the Wikibook technology allows students to peer-edit and peer-comment on each other's academic works online. Peer teaching sessions were arranged as well based on the content of the Wikibook. To determine students' perceptions on peer teaching and learning occurring in the course, two surveys and follow-up interviews were conducted. The findings suggest that the Wikibook project is an effective way to promote peer teaching and learning in higher education.

**Keywords** Wikibook; peer teaching; peer learning; peer assessment; collaborative learning

## **1. Introduction**

Dramatic changes in the nature of higher education have always occurred, resulting from higher participation rates and learning diversities. These may have altered the main mission and modes of delivery in tertiary education. One consequence is that the major force in teaching is more concerned with teaching effectiveness, and teaching now requires active engagement from students to fill gaps in learning diversities (Biggs and Tang 2011). Aligning the assessment of learning to what is to be learned is very important as it is more effective in motivating students to learn; this is the so-called 'constructive alignment' (McMahon and Thakore 2006, p. 10). In this connection, students are encouraged to assume a more active role in knowledge acquisition and are required to complete learning activities designed to help them achieve the desired learning outcomes, effectively changing students from passive learners to active learners (Brophy 2010). In this study, the Wikibook project is designed to assess students' attainments of the course-intended learning outcomes and to let students become active—and eventually autonomous—learners through peer learning, peer teaching, peer assessment, and collaborative learning.

In the Wikibook project, students studying the course 'Introduction to Linguistics' at the Hong Kong Institute of Education are divided into groups of three to five, and members in each group have to co-author a chapter of a student-authored academic book titled 'Introduction to Linguistics' based on the topics introduced in this course. Each group of students have to research a given linguistic topic carefully by searching and reading as many relevant reference books/articles as possible in the library or on the Web, and then synthesize the information and write the chapter on their own as a group. During the process, the group members need to co-construct the knowledge, have mutual engagement and have open discussions via a Wikibook page which allows the tracking of individual contribution and changes (Su and Beaumont, 2010) (the entire chapter construction history is recorded and accessible to all members via the Wikibook page). Moreover, students exchange their ideas and have social interactions and dynamics by having informal meetings or communicating through online/mobile technologies; they can revise the content of the chapter any time on the wikibook page and refine their analytical and synthetical skills by reading the peer comments posted on the Wikibook page and responding to them before final submission of their chapter. By so doing, "learning is more as a matter of participation in a social process of knowledge construction than an individual endeavor" (Lipponen, 2002, p. 74). Lipponen (2002) also claims that wiki enhances peer interaction and group work, and facilitates sharing and distributing knowledge and expertise among a community of learners.

## **2. Theoretical Foundation**

### **2.1 Vygotsky's sociocultural theory**

Vygotsky's sociocultural theory of human learning describes learning as a social process and as the origination of human intelligence in society or culture. Vygotsky posited that human learning could not be understood independently from social and cultural forces that influence individuals and that sociocultural interaction is critical to learning (Barnard and Campbell 2005). All ideas and concepts are learned through the sharing of

these ideas with other members in the culture and are passed on by one member of society to another.

Educators should encourage social interaction in an educational context, and project work can be assigned by instructors. Students are then able to benefit from their shared experiences and to develop and test theories in a social context, which makes these new theories part of their internalized experiences (Freeman 2010). Moreover, they are able to begin the process of co-construction of knowledge (Velez et al. 2011). This allows the more knowledgeable individuals to support the less able ones in building firm understandings that will eventually allow them to solve problems on their own. The ultimate aim is autonomy; as Vygotsky (1978, p. 87) put it, "what the learner can do with assistance today she will be able to do by herself tomorrow".

## 2.2 Learner autonomy

One of the most important challenges facing foreign-language teachers is that of making students self-sufficient, autonomous learners who can manage their own learning and survive outside the sheltered environment of the classroom (Louis 2006). To Benson (2001), autonomy can be broadly defined as the capacity to take control of one's own learning and is an attribute of the learner's approach to the learning process. Holec (1981) defines autonomy as "... the ability to take charge of one's learning..." (cited in Louis 2006), while Little (1991, p. 4) sees it as "... a capacity for detachment, critical reflection, decision making, and independent action... The capacity for autonomy will be displayed both in the way the learner learns and in the way he or she transfers what has been learned to wider contexts." He suggests that Vygotsky offered the idea of collaboration as a key factor in the development of autonomy (Little, 1996).

The Wikibook project required students to create collaboratively a series of high quality Wikibook chapters on the topic 'Introduction to Linguistics'. The design was to foster learner autonomy and allow learners to have responsibilities as individuals and as members of a group. In the process, students take responsibility for their own learning to compile the Wikibook chapters. Moreover, they need the ability to control their own learning activities by researching their selected topics and presenting the important ideas to their peers without the involvement of teachers since teachers are only facilitators and supporters. Students have to make decisions about what to include in their presentations and in Wikibook chapters as well as give responses to peer presentations or feedback to their peers' Wikibook chapters beyond usual instructions. Additionally, students have critical reflection on their learning activities during the process. Consequently, students have become autonomous learners as they entail a variety of self-regulatory behaviours that develop—through practice—as fully integrated parts of the knowledge and skills that are the goals of learning (Little 2004).

## 2.3 Instructional strategies

As Vygotsky (1978) stated, learning always occurs and cannot be separated from social contexts. Therefore, students can learn through interactions and communications with peers, teachers, and other experts. Consequently, teachers can create a learning environment that maximizes learners' abilities to interact with each other through discussion, collaboration, assessment, and feedback. Additionally, instructional strategies that promote the distribution of expert knowledge, where students collaboratively work together on a task (e.g., conducting research, sharing results, and producing a final project) help to create a collaborative

learning community.

Based on the aforementioned theory, student engagement, responsibility, and student-student interactions in the learning process are central to the design of instructional strategies in the course "Introduction to Linguistics." Moreover, Winston and Zimmerman (2004, p. 396) point out that "peer effects exist when a person's behaviour is affected by his or her interactions with peers—"equals"—so in higher education, peer effects result from interactions between students. Teachers should exploit this apparent truth." Therefore, four instructional strategies are proposed—peer learning, peer teaching, peer assessment, and collaborative learning—in hopes that these strategies can foster deeper knowledge construction, facilitate student discussions, and build active learning communities among the students through a small group project: Wikibook project.

### 2.3.1 Peer learning

Peer learning has a long history. Topping (2005, p. 631) defines it as "the acquisition of knowledge and skill through active helping and supporting among status equals or matched companions. It involves people from similar social groupings who are not professional teachers helping each other to learn and learning themselves by so doing". Boud, Cohen, and Sampson (1999, pp. 413-4) refer to peer learning as "the use of teaching and learning strategies in which students learn with and from each other without the immediate intervention by a teacher".

Essentially, peer learning refers to students—generally of the same class or cohort or in a similar situation to one another—learning with and from each other as fellow learners without any implied authority to any individual. This is based on the belief that "students learn a great deal by explaining their ideas to others and by participating in activities in which they can learn from their peers (Boud 2001, p. 3)." The use of peer learning in schools aims to sharpen academic skills such as listening and communication, to enhance subject matter mastery by promoting deeper levels of understanding based on discussion and a free exchange of ideas, and to promote interactions with classmates to have an effective and successful team experience (De Lisi 2002).

Every week throughout the course 'Introduction to Linguistics', one group of students writing a Wikibook chapter was required to post a draft of their chapter online by a deadline, and other students in the same tutorial class were required to read their peer work and leave online comments on the draft. When students read the Wikibook chapters, they learn from their peer's work. Overall, interactions and learning occur among peers both inside and outside the groups, and when learners communicate with a truly equal peer, a feeling of cooperation emerges, forming a foundation for significant, retained learning (De Lisi 2002).

### 2.3.2 Peer teaching

Peer teaching is not a new concept. It has been described as "a variety of peer tutoring in which students take turns in the role of teacher" (Falchikov 2001, p. 5), which encourages students to assume a more active role in knowledge acquisition (De Lisi 2002; Topping 2005) while it simultaneously increases both general productivity and small-group student interactions (Whitman 1988).

Most young learners beyond elementary school are more attentive to what their peers say than to lessons presented by adults (Thompson 1992). Learners feel relaxed and less constrained in learning under the peer

teacher who is considered a "surrogate teacher" (Topping 2005, p. 631). In this context, the active involvement of students in developing learning materials and activities in their presentations is seen as contributing to a student-centred approach and learner autonomy, as well as being conducive to students' learning (Thompson 1992). The group presentations, led by a group of peer teachers, greatly contribute to the socialization process. "The peer teacher serves as a 'significant other' or role model that has proven to be even more effective in many cases than traditional teachers in instilling enthusiasm towards learning (Whitman 1988, p. xv)."

According to Goldschmid and Goldschmid (1976), student-learning groups are one type of peer teaching. In this study, students were formed into small groups of three to five to compile a Wikibook chapter and to prepare a 20-minute peer teaching session (in the form of a mini lecture) based on their Wikibook chapter content, which was delivered at the beginning of a tutorial class. The peer teaching performance was video-recorded and formally assessed by the lecturer.

### 2.3.3 Peer assessment

Peer assessment, a form of innovative assessment that aims to improve the quality of learning (McDowell 1995), can be defined as "an arrangement for peers to consider the level, value, worth, quality, or successfulness of the products or outcomes of learning of others of similar status" (Topping et al. 2000, p. 151). According to Falchikov (2007), peer assessment includes processes requiring students to "provide either feedback or grades (or both) to their peers on a product, process, or performance, based on the criteria of excellence for that product or event which students may have been involved in determining" (p. 132). Therefore, the aims of adopting peer assessment are to increase student responsibility and autonomy, while striving for a more advanced and deeper understanding of the subject matter and skills, and to involve students in critical reflection.

According to Boud (2001), peer learning settings "provide opportunities for additional self and peer assessment of a formative kind. It provides opportunities for giving and receiving feedback on one's work and a context for comparing oneself to others" (p. 9). In this study, students are required to read all the Wikibook chapters written by their classmates and write comments online as the wiki provides students with opportunities to "create, revise and insert comments in a single article in a simple manner where the result is immediately obvious" (Su and Beaumont, 2010, p. 417). Also Su and Beaumont (2010) believe that the wiki environment promotes peer and self-assessment, "which Boud and Falchikov (2007) consider one of the keys to self-regulated learning and sustainable assessment" (p. 418). When writing comments, they need to include the following content: what they learned by reading the chapter, what they found most interesting/beneficial, what they think could be improved, and what subtopics they would suggest being included in such a chapter. Finally, they have to rate each chapter on a one-to-five scale (1=low quality, 5=high quality). In this case, we are using peer assessment as a form of formative assessment, and students are involved in assessing, critiquing, and making value judgments and standards of their peer's work in an interactive and dynamic process.

### 2.3.4 Collaborative learning

Collaboration always implies people working together toward a goal. Collaborative learning can be defined as a process of constructing knowledge through interaction with others (Dillenbourg 1999). Dillenbourg (1999)

elaborates that collaborative learning takes the form of instructions to subjects, a physical setting, and other institutional constraints; hence, there is a kind of "collaborative" contract, either between the peers or between the peers and the teacher, implying learners contribute to the solution. Collaborative learning usually restructures the classroom away from the traditional lecture to small-group work requiring intensive interaction between students and the faculty member while working through complex projects (Cabrera et al. 2002).

In collaborative learning, the teacher serves as a facilitator of student learning: creating opportunities for student interaction, guiding student discourse, and developing learning environments where students actively engage in the co-construction of knowledge. Thus, collaborative learning requires students to work interdependently, relying on their own collective and co-constructed knowledge and understanding, rather than on the teacher's instruction.

In this study, students taking 'Introduction to Linguistics' were divided into groups of three to five, and each group member was asked to contribute 1000 words to a chapter in a student-authored academic book based on the topics introduced in this course. Each chapter must also include 10 multiple-choice comprehension questions based on the content of the chapter. Students had to collaborate closely at all stages: brainstorming and planning the content of the chapter at the beginning stage and then giving a group peer-teaching session based on the content of the first draft of the chapter. Furthermore, after the peer-teaching session, they were given two more weeks to finalize their Wikibook chapter before submitting it to the lecturer for grading. During the draft-revising process, group members were required to peer edit each other's sections in the chapter to ensure the overall coherence and cohesion of the chapter and the consistency of the writing style. Members of the same group received the same group grade, which means they had shared responsibility in improving the overall quality of the chapter.

#### 2.4 Wikis and collaborative writing

Clark and Mason (2008) and Fitch (2007) point out that Wikis are increasingly gaining popularity in educational settings because of the potential benefits they bring to teaching and learning (cited in Hadjerrouit 2011, p. 431). Wiki is an innovative social technology tool that supports interaction and collaboration among users and offers new possibilities for learning (Paus-Hasebrink et al. 2010). McPherson (2006) defines Wiki as "a collaborative web space housing a collection of works (textual and multimedia) created by and edited by many authors" (p. 67). To Lamb and Johnson (2007), Wikis are "collaboratively created websites. They involve young authors in selecting, evaluating, revising, editing, and publishing information and ideas" (p. 57). Based on these definitions, a Wiki, characterized by a variety of unique and powerful collaboration features and information sharing, serves as a means to engage students and enhance their motivations to become active participants in learning. The use of Wikis in the learning environment is centred on the theory of collaborative learning (Carney-Strahler 2011).

Meaningful interactions of the tasks in Wikis not only equip students with the essential language skills needed for effective communication, but also provide students with authentic learning contexts that a conventional classroom setting does not offer (Mak and Coniam 2008). Parker and Chao (2007) agree that a wiki is one of many Web 2.0 components that can be used "as a learning process enhancement" (p. 56), "as a source of information and knowledge, and as a tool for collaborative authoring" (p. 57). Moreover, Wikis enable

users to create and edit subject-specific knowledge collaboratively within a shared and openly accessible digital space (Wheeler, Yeomans, & Wheeler 2008). Through mutual contributions, students are believed to have positively developed their writing skills and enhanced their writing experiences (McPherson 2006). Hadjerrouit (2011) thinks that the most important characteristic of Wikis is that "they provide support for the collaborative production of shared knowledge, documents, and study materials by means of reading, writing, group reflection, and interaction" (p. 434). Wikis also promote reflective learning, because learners are encouraged to reflect on their knowledge and make it explicit, while "Wikis allow this reflection to be done collaboratively, moving closer to a fully social constructivist mode of learning" (Parker and Chao 2007, p. 59). Last but not least, wikis may also display some of the elements that Wenger (2001) believes fundamental to the formation of successful communities of practice – among them, a virtual presence, a variety of interactions, easy participation, valuable content, connections to a broader subject field, personal and community identity and interaction, democratic participation, and evolution over time.

As mentioned before, in this study, students in groups of three to five had to write a Wikibook chapter on a linguistics topic, providing students with an opportunity to synthesize ideas and "create a collaborative project that is broader, deeper, and more interconnected than that created in a traditional writing environment" (Lam and Johnson 2007, p. 58). Moreover, to improve the quality of the final products, a peer-review process was undertaken by asking students to evaluate each other's Wikis and suggest improvements and constructive comments regarding content, linking, and integration of the pages. In this case, students experienced collaborative writing while constructing their knowledge of linguistics, and developed higher-order thinking and skills in discussion and analysis in a social context (Carney-Strahler 2011; McPherson 2006).

### **3. Research Questions**

The research questions of this study are: Have students studying the course 'Introduction to Linguistics' had past experiences in peer learning, peer teaching, peer assessment, and collaborative learning? What are their expectations of experiencing these learning activities in the course 'Introduction to Linguistics'? How helpful do students find peer learning, peer teaching, peer assessment, and collaborative learning in the course? What are students' overall perceptions of the Wikibook project that promotes peer learning, peer teaching, peer assessment, and collaborative learning in the course? What are the implications?

### **4. Methodology**

In the current study, three pilot groups with a total of 96 first-year undergraduate students were set up in the "Introduction to Linguistics" class, and participated in a Wikibook project. Each group consisted of students from both the Bachelor of Education (English Language) (BEd(EL)) and the Bachelor of Arts (Language Studies) (BA(LS)) programmes in the Hong Kong Institute of Education. Students of the BEd(EL) programme have the opportunity to develop knowledge of English and different methods of teaching English as a second language so that they are well-prepared to become qualified primary/secondary English teachers. The BA(LS)

programme aims to cultivate in the students a greater cross-cultural awareness and to prepare students for such dynamic careers as media and publications, culture and entertainment, advertising and public relations, business, education and the civil service. The three pilot tutorial groups in this course comprise students of both programmes with the aim to encourage the exchange of knowledge and culture among the students. Both qualitative and quantitative methods were used in this study.

#### 4.1 Questionnaire surveys

To find out students' initial perceptions on peer teaching and learning, one pre-course questionnaire survey was conducted in the first tutorial session. A more comprehensive post-course questionnaire survey was also conducted in the last tutorial session to discover students' perceptions of peer teaching and learning that occurred in the course after they had worked on the Wikibook project. In the pre-course questionnaire survey, students were asked whether they had experienced peer learning, peer teaching, peer assessment, and collaborative learning in the past, and whether they would like to experience these learning processes in the course 'Introduction to Linguistics'. In the post-course questionnaire survey, students were asked how helpful they found the peer learning, peer teaching, peer assessment, and collaborative learning activities in facilitating them to achieve the course goals (Likert-scale, 1 = least helpful; 5 = most helpful), and whether they would agree that: they were able to play a more active role in the learning process; they built up a collaborative relationship with peers; they were more motivated to learning; there were more interaction among students; and the teaching and learning were more student centred (Likert-scale, 1 = strongly disagree; 5 = strongly agree). To ensure the quality of the questionnaire items, a colleague with expertise in the implementation of Wikibook projects was consulted and the questionnaires were revised based on his comments. The questionnaires were also piloted and students' feedback were collected to improve the clarity of the question items. A reliability analysis of the Likert-scale questions shows that the reliability (Cronbach's Alpha) of all Likert-scale questions range from 0.711 to 0.824, suggesting that all the scales were well written and hence reliable.

#### 4.2 Follow-up interviews

Three follow-up group interviews were carried out with the aims of further clarifying the students' perceptions on peer teaching and learning that occurred in the course. 5 interviewees were randomly recruited from each experimental tutorial class, and altogether 15 students participated in the interviews, eight from the BEd (EL) programme and seven from the BA (LS) programme. The purpose of such sampling method was to collect a more or less representative view from students of both programmes who participated in this study. The duration of the interviews was around 30 to 45 minutes. The interview guiding questions are shown below.

- How did your group arrange the 'division of labour' when doing the Wikibook project?
- How did you communicate with group members when trying to complete the Wikibook project? Was it helpful to your learning? How and why?
- What were the main challenges in the process of completing this task? How did you handle those challenges?



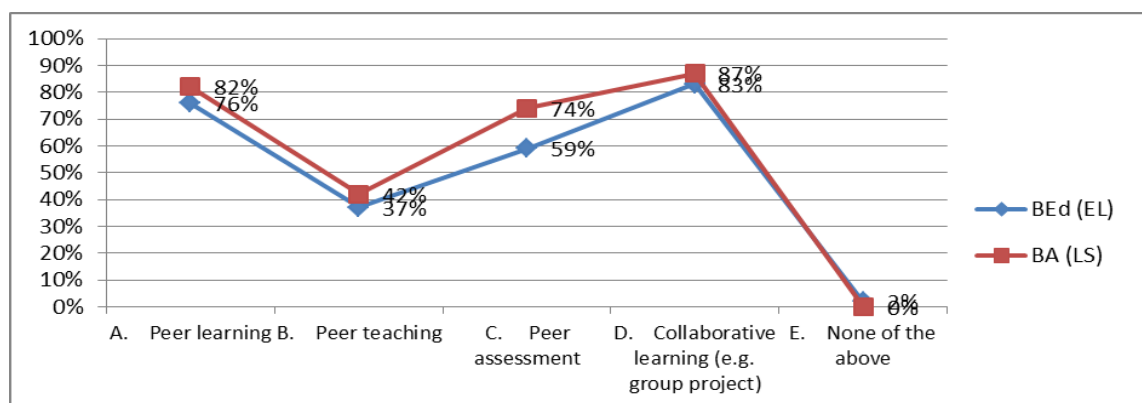
- How did you give online comments on other groups' draft Wikibook chapters (explain when you did it/how carefully you read the chapters/how you decided what feedback to give/etc.)? Did you find giving online comments beneficial to your learning? Why or why not?
- When you received comments from your peers on your own draft Wikibook chapter, did you find the comments useful? What kinds of comments did you find most useful? How did the comments help you in learning more about the topic/learning more about writing/preparing your presentation/rewriting your chapter?
- What do you think of your peers' ratings (one-to-five scale) of your Wikibook chapter? Was it fair?
- As a presenter, what do you think of your own group's Wikibook chapter oral presentation? Do you think you were able to teach your peers something valuable? Please elaborate.
- As an audience member, what do you think of your classmates' Wikibook chapter oral presentations? Did you learn something valuable? Please elaborate.
- Is there anything else about your learning experiences in this course that you would like to share?

In order to assure the quality of the interview data, during the interviews, the project research assistant restated or summarized information and then questioned the participants to determine accuracy. After the interviews, all of the findings were shared with the participants involved, and they were invited to critically analyze the findings and comment on them. The participants affirmed that the summaries reflected their views and experiences.

## 5. Results

### 5.1 Pre-course questionnaire survey

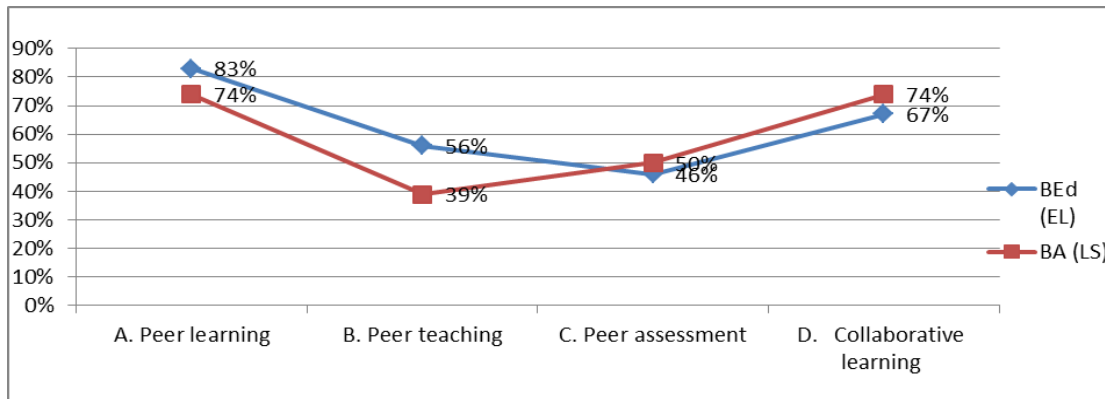
In the first tutorial session, the pre-course questionnaire survey was administered among all students in the three tutorial groups. Ninety-two copies of completed questionnaires were collected and analysed.



**Chart 1** Students' learning experiences in the past

Chart 1 shows that students from both programmes had the teaching and learning experiences—peer learning,

peer teaching, peer assessment, and collaborative learning—in their past school lives, except one student from the BEd (EL) programme who stated he/she had no such experience. Students had more experiences in collaborative learning as this ranked the highest percentage in both programmes, but fewer students (37% of BEd (EL) and 42% of BA (LS)) had experienced peer teaching in the past.

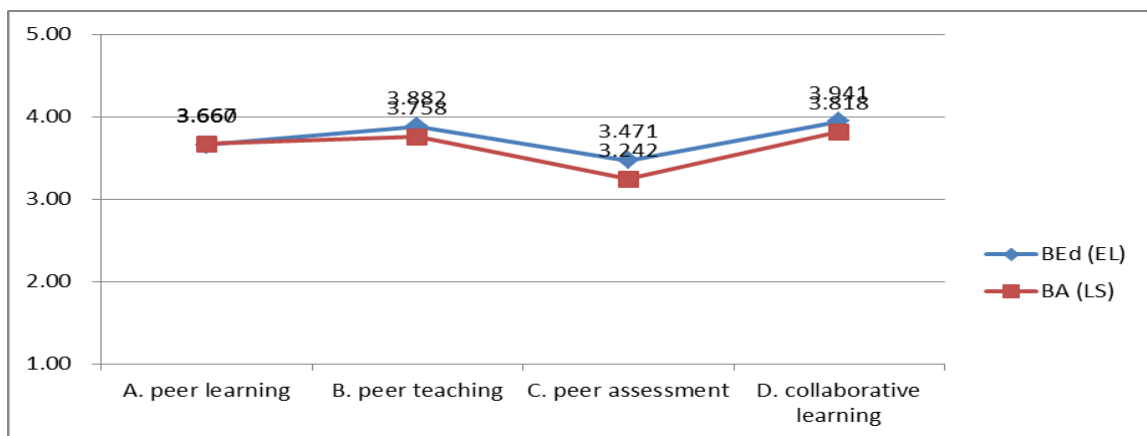


**Chart 2** Students' expected learning experiences in the course

Chart 2 shows students from the BEd (EL) programme would like to experience peer learning the most (83%, the highest percentage), whereas BA (LS) students would like to experience both peer learning and collaborative learning the most in this course (74%, the highest percentage). However, fewer BA (LS) students (39%) expected to experience peer teaching.

### 5.2 Post-course questionnaire survey

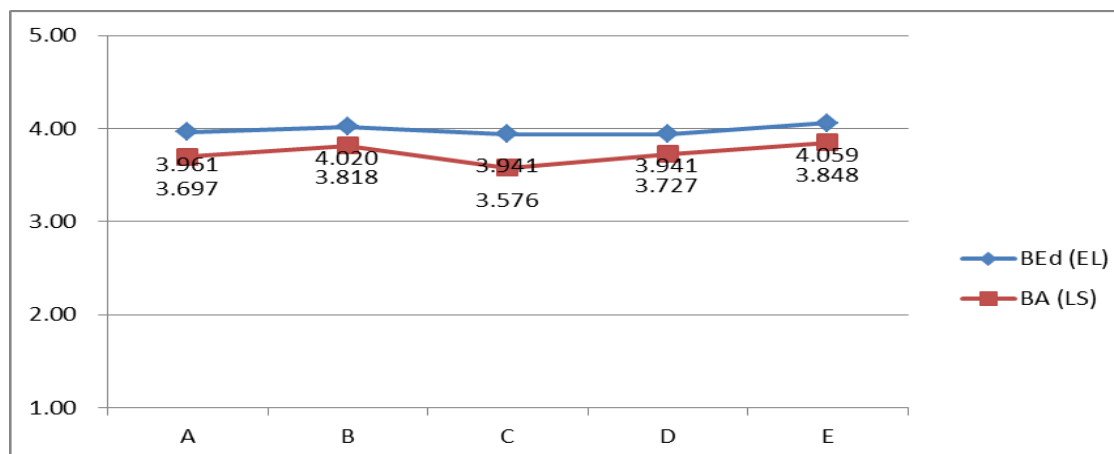
The post-course questionnaire copies were given to students in the three tutorial groups in the last tutorial session. Eighty-five copies of questionnaires were received and analysed.



**Chart 3** Mean scores of the helpfulness of peer teaching & learning strategies

Chart 3 shows the mean scores of the peer teaching and learning strategies in the course. The data show that, in general, students from both the BEd (EL) and BA (LS) programmes were positive towards the helpfulness of

the strategies as the mean scores of their responses were all above 3.24 on a one-to-five scale.



**Chart 4** Mean scores of students' perception of the course

Chart 4 shows, in general, students from both BEd (EL) and BA (LS) programmes were positive towards the effectiveness of this course. They mostly agreed (the mean scores were all above 3.576 on a one-to-five scale.) that they were able to play a more active role in the learning process (A), they built a cooperative relationship with their peers (B), they had more peer interactions (C), they were more motivated to learn (D), and the teaching and learning were more student-centred (E). Overall, the BE(EL) students' responses were slightly more positive than the BA(LS) students' responses.

### 5.3 Report on Follow-up interviews

Three groups of follow-up interviews were conducted with aims to clarify further the students' perceptions of peer teaching and learning that occurred in the course. Fifteen students participated in the interviews.

#### 5.3.1 Challenges faced by students and solutions

When doing the Wikibook project, students faced quite a lot of challenges, and they had to find solutions to solve these problems. Firstly, reference books in the library were either not enough or the ones they wanted were on loan, so students had to search the internet for web information. Secondly, as the topics were new to them, either they were unclear of the concepts or had confusion during the process. Then they had to read more books and consult the tutors face-to-face or through emails. Thirdly, the presentation time was limited to 20 minutes and students found it very difficult to present all the materials they had prepared in such a short period of time; however, they learnt to focus on the most important information with interesting examples and to make the presentation as precise as possible. Finally, students were pressurized when uploading their chapters onto the "turnitin" anti-plagiarism system—which sometimes had technical problems and indicated a high percentage of plagiarism—and then they had to modify their work as much as they could.

#### 5.3.2 Social interactions and dynamics

For social interactions, technological devices such as WhatsApp, Facebook, email, and Google Document were used to facilitate communications among group members and to share materials among themselves. Students found these devices very useful, which could also help them to solve their problems in a more efficient way as communications among them could take place anywhere and anytime. As for social dynamics, the groups would first discuss how to divide the chapters into different sub-topics or sections and then most groups would draw lots to decide which member was responsible for writing a certain sub-topic or section; while in other groups, members would choose to write the sections they thought they were interested in or on first-come-first-served basis. Arguments among the group members were rare and compromise could be reached easily. One BA (LS) student said, "Because everything is just so new to us, we are interested in every sub-topic and actually we just communicate through the WhatsApp. No argument at all." One BEd (EL) student expressed, "There's no argument when we use a fair method – the lucky draw."

### 5.3.3 Peer learning

Students had to read each other's Wikibook chapters online to learn the subject content in their peer's work. Most students confessed that they read the first few chapters more carefully than the later chapters as there were more and more workloads towards the middle and at the end of the course. The main benefit students gained from peer learning was that they could learn the basic concepts of the topics, especially when illustrated with interesting examples and pictures, etc.

One BEd (EL) student claimed, "Yes, because there are many advantages. Because you don't know that chapter, and after you read all those works from other groups, then you know more about the chapter. But then I consider this very time-consuming because you need to read word-by-word and make comments. But this is beneficial." One BA (LS) student pointed out, "Besides teachers, we have a chance to listen to our peer presentation, and we can challenge our peer and learn from them. However, we dare not to challenge our teachers." Another BA (LS) student added, "Presentation is more entertaining because our peer has the creativity to make the presentation more interesting. Whenever you have something to ask and want to know more, they can answer you and solve your problem because they are mainly focused on their work, and they discover many things that you might not be able to take out in a lesson."

### 5.3.4 Peer teaching

In this study, peer teaching was promoted through students' group presentations. As presenters, students were anxious but were confident that their peers could learn from their presentations as they had done a lot of research before the presentations and there were always illustrations with pictures, videos, and useful links. Students, being an audience, strongly agreed that they could learn from their peer's presentations, as the presenters were very familiar with the concepts and information of the chapters. They were impressed by the new ideas introduced, which were not covered by the textbook and the lectures.

One BA (LS) student stated, "I think it helps consolidate what we have learnt from the lecture, and it is like a second lecture after the first one, and you can learn more, especially the topic they are talking about." Another BA (LS) added, "Apart from the content, I think the way of presenting is very special, such as role-play, we can

learn by watching their presentation, and next time, when it is our presentation, we can do better." One BEd (EL) student responded, "We sometimes get confused and need to get a clear concept of what is being talked about, and so we do learn from different examples given by different students in their presentations because every student has his own examples. So when we put them together, we can have a better understanding of the whole topic."

#### 5.3.5 Peer assessment

In the study, students had to comment and grade other groups' Wikibook chapters online. They found this beneficial to a limited extent. It is because most comments focused on the spelling and grammatical mistakes, the formatting, the pictures, the links, the tables and the organization, etc. but less on the content. However, when finalizing their Wikibook chapters, students would refer to their peer's comments.

One BEd (EL) student said, "Making comments is useful because we may forget some parts if we don't make this kind of comment every week. When we make the comments, at least we will remember this and that and we can review what we have learnt." One BA (LS) student added, "I think some of our classmates are very careful as they can spot three to four spelling mistakes, and that means they have read through our whole chapter. I like this point, and I think the online commentary is very useful. Without this practice, we might not have read the others' chapters. Now, at least once a week, we have to go to the website of Introduction to Linguistics and read the others' Wikibook chapters and make some comments. It's useful."

The students' online comments can be categorized as follows:

- A. Encouragement: constructive vs. non-constructive;
- B. Suggestions for improvement in five areas: language, content, formatting, organization, and referencing;
- C. Contributing new ideas;
- D. Criticisms: constructive criticisms vs. non-constructive criticisms.

Some students thought the grading might not always be fair, as they tended to give higher marks to their peers. "Sometimes you don't have to be really honest with the grades. So we tend to give higher marks because if you give less than 4 or 3, then you will cause yourself trouble" commented by one BEd (EL) student. One BA (LS) student added, "We are afraid that others will take revenge."

#### 5.3.6 Collaborative learning

Collaborative learning did occur when students worked as a group on the Wikibook chapters. Students enjoyed working as a group on the Wikibook chapters. On one hand, they could explore most of the linguistic knowledge by themselves when working as a group; on the other hand, students found the group members were helpful, responsible, cooperative, and friendly; hence, they built close relationships with their classmates, facilitating their learning.

One BA (LS) student said happily, "Yes, because we go to different classes, sometimes we can learn from the other students as well, such as they can share with us what they have learnt in class, something that we don't know about." One BEd (EL) student expressed her anxiety, "We have to admit that the workload is heavy, and we are not professional linguists, so sometimes we get lost in the chapter. We may think we are doing a really

good job because we have done a lot of research, we have written a lot, but sometimes we don't know where we are, just out of track. You know that the consequences will be devastating if you just write something wrong. So we'll ask our lecturer for advice. Maybe we give him the outline of our chapter, so he will proofread it once again to make sure it's okay and we can go ahead and just do it."

### *5.3.7 Socialization*

Since learning is a social process, students experienced socialization in the Wikibook project. First, students developed certain skills as communication skill, presentation skill, writing skill and speaking skill in this study. An English-speaking BEd (EL) student claimed, "I think it is quite fun working in a group because we can actually communicate with each other and it is actually helping our communication skills in English, especially when they need to talk to me. People who are shy to speak actually have to speak up because this is the project that they have to do." One BEd (EL) student stressed, "I agree that we can develop our writing skill when writing the Wikibook chapter and enhance our speaking skill when we are giving presentation." One BA (LS) student said, "I believe the way of presenting is very special, just like role play, youtube link and we can learn by watching their presentation and next time when it is our presentation we can do better." Second, students developed social relationship with students of other programme. One BA (LS) student pointed out, "At first we don't know students of other programme. But then when we are in the same group, we start to know more about one another and then we are working together all the time so we have the opportunities to share a lot of things, like our thoughts, and our interests etc..... sometimes we can learn from the other students as well like, they can share with us what they have learnt in class or something that we don't know about." One BEd (EL) student added, "The good thing is we can expand our connection, we know people from different programmes and all that."

## **6. Discussions**

From the two questionnaire surveys, we can tell that, first, students from both BEd (EL) and BA (LS) welcomed the opportunities to work collaboratively. Second, they felt positively towards the peer teaching and learning approaches, which were perceived as student-centred. The majority agreed that they were able to play a more active role in the learning process, build a cooperative relationship with their peers, and had more peer interactions. Overall, the BEd(EL) students' responses were slightly more positive than the BA(LS) students' regarding peer teaching and learning, and one likely reason is that, for BEd(EL) students, interacting and collaborating with others is considered extremely important, as they are preparing themselves to become future teachers. The peer teaching and learning activities would be valuable pedagogical strategies that could be adopted when they teach students in the future. For BA(LS) students, as they would pursue dynamic careers such as media and publications, advertising and public relations, business, and the civil service, they might not feel as strongly as the BEd(EL) students about pedagogical strategies such as peer teaching and learning.

Goh (2006) claims, "the group can transcend mastery of content to generate new knowledge together" in a peer learning and peer learning and teaching situation (p. 146). During the learning process, learners are equal

partners who actively participate in discussions and feedback, thus constructing their own knowledge. In the study, both learners and peer teachers benefit from peer teaching and learning. Learners benefit from peer teaching and learning as many students feel more comfortable asking questions of their peers than they do of their teachers. Peer teachers benefit from peer teaching because, in exploring, reviewing, and organizing the material to be presented, student teachers gain a better understanding of the subject, and they are peer helpers who transmit the subject knowledge and explain their ideas to their peers who participate in the presentation sessions. In this case, students are committed to developing learning materials and activities in their Wikibook chapters and presentations and have become autonomous learners with an independent capacity to make and carry out the choices that govern their actions with their ability and willingness (Littlewood, 1996).

O'Donnell and Topping (1998) point out that peer assessment focuses on the product or outcomes of learning, because "when peers interact with the purpose of assessing one another's work, the expectation is that the quality of work of all concerned will often improve as a result of the thinking involved and feedback provided" (p. 256). It is true in this study that the peer assessment process benefits the students with high quality learning, which encourages transfer of learning and critical self-reflection, enhances the students' learning experience, and facilitates better learning through seeing their peer's strengths and weaknesses. Moreover, students can develop their abilities to work collaboratively as well as their lifelong learning skills. In personal development, students become responsible, self-directed and autonomous learners with more confidence and improved motivation in learning.

According to Ruth and Houghton (2009), wikis "in particular, allow more open, potentially fluid interactions between participants in a learning environment" (p. 137). In the Wikibook project, collaborative learning puts the focus on the interaction occurring between students as they work to complete tasks rather than focus on student's individual accomplishments. The process promotes student learning and allows for the building of invaluable social connections with peers. Students feel satisfied when they are able to put their skills to use in accomplishing their assignments, especially the analytical and synthetical skills, bringing meaning to what is being studied. Moreover, the students' personal connections and positive relationships among themselves have been increased, and they do not feel isolated. The results revealed that students received social, emotional, and academic peer support and that the creation of supportive peer groups continued outside of class. Moreover, the students learned from each other's work and from the process of working on their group project because of the open editing and collaborative writing environment of a Wiki. This is also reflected in the post-course survey that the mean scores of the helpfulness of collaborative learning (chart 3) perceived by students were the highest among the four teaching and learning strategies in the course.

Although the Wikibook project is a meaningful activity that supports peer teaching and learning and collaboration among group members, there are some limitations. Firstly, the degree of the collaboration is difficult to measure. For example, as there are many individual parts in a Wikibook project, it is important that a group leader is selected and put the parts together. Quite often the division of labour becomes an issue, as less capable members might rely too much on other members' help in completing the tasks. Moreover, peer-review—a process where the groups of students read, comment on, and make suggestions for their peer's work—was not as positively perceived as we had thought, because many students found it hard to give

constructive comments to others due to their limited subject knowledge, and some students were not engaged effectively in collaboration because they did not want to change or modify others' work. Furthermore, when carrying out peer assessment, students tend to give higher grades to their peers because they did not want to offend their friends who might take revenge by giving lower grades to them in return.

## 7. Conclusion

The main purpose of this research was to explore the role of peer learning and teaching in supporting learning through a Wikibook project. What it discovered was that peer learning and teaching was a challenging strategy to adopt, and required careful preparation, monitoring, feedback, and follow-up of the students in a range of skills to prepare them for this mode of learning. The peer learning and teaching strategy is found to be a powerful mode of learning in motivating the students to become actively engaged and committed learners and authorizing them to take ownership for their own learning by preparing notes with explanations and examples for their peers. Moreover, they have to take the initiatives and assume social control of the learning process, and gradually, they have become autonomous learners. This strategy also assists them in achieving a more organized and integrated conceptual understanding of the knowledge learnt. It also provides an authentic learning experience for the students in which they learn how to manage interactions with their peers to have a successful and effective team experience, as there are always controversies and group dynamics. By exercising their skills in working with, learning from, and communicating with one another, students develop themselves into a community of learners while promoting deep learning. The Wikibook project takes advantage of the Web 2.0 technology and provides students with opportunities to experience social and experiential learning in which they learn to respect and tolerate their group members, and finally, they have personal development in self-confidence and self-assertion. Based on this study, we recommend that more peer teaching and learning strategies be promoted in higher education through the employment of Web 2.0 technology such as wikis.

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