

The Implementation of Blended and Student Centered Learnings at Universitas Kristen Krida Wacana

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Abstract

In this globalization era, higher education institutions are required to provide their students with essential skills to survive the industrial revolution 4.0. This phenomenon becomes more apparent in developing countries, where globalization is unavoidable and the utilization of advanced technology becomes a necessity. Blended learning (BL) and student center learning (SCL) may become the means for students and lecturers to be active participants of the learning processes. The purpose of this paper is to present our effort in preparing students to be more confident, self-reliant, eager to compete and collaborate as well as to master new knowledge in the field they have chosen to study. Six samples of SCL classes and one sample of BL class are described. Quantitative and qualitative approaches were applied to measure the process of implementing the learning methods. Results indicate favorable outcomes. It is recommended to use BL since it will include SCL in the near future to all classes offered at UKRIDA.

Keywords: learning process; blended learning; student center learning; advanced technology

Introduction

Universitas Kristen Krida Wacana (UKRIDA) has started to implement blended and student-centered learning in specific classes since the spring semester of 2018. Blended learning (BL) is a hybrid teaching and learning approach, combining traditional face to face and virtual classes. This term is used to describe the utilization of information technology during the learning process. Student-Centered Learning (SCL) is a teaching approach that actively involves students in their own learning processes. In this teaching method, lecturer should has a clear structure of planned activities for SCL and becomes an active facilitator. Students must be active in deciding what they want to achieve in the class. Usually, BL will involve SCL since BL allows personalized learning outcomes based on the student's learning pace.

An introduction to BL and its evaluation have been presented comprehensively by Boyer (2017). Similarly, University Malaysia Utara reported the use of BL method using action research in business communication in 2011, resulting in positive outcomes (Dzakiria, Don, Wahab, & Rahman, 2012). Freeman, et al. (2014) reported the results of meta-analysis from 225 studies comparing active and traditional learning methods in science, technology, engineering, and mathematics (STEM) courses. They used examination scores and class failures as indicators of the comparison in both methods. Results of their study indicated that active learning is much promising in both indicators.

Although BL is an innovative approach in the education processes, there are many things to be considered in applying the approach. Lalima and Dangwal (2017) from India wrote about the advantages and disadvantages of this innovative learning method. One of the advantages is the use of new technology in the teaching processes, yet it will also become a disadvantage since it will be very expensive in implementing the method. Recently, Bostanci

and Çavuşoğlu (2018) from Turkey indicated that teachers' trainee in English as a Second Language training course perform better in both teaching method pen and paper writing and BL process, yet when the two methods were compared, the result of BL was better.

Armbruster, Patel, Johnson, and Weiss (2009) practiced active learning using student-centered pedagogy in Introductory Biology class. Patel was from the department of education while the other authors were from the department of biology. Those authors collaborated in designing active learning in the class. They used various forms of learning processes in the class for major and non-major students. They reordered the presentation of the course materials, engaged students using problem-based learning content and developed active students' interactions in a new stimulating environment. They evaluated the success of the new approach using survey and examinations in consecutive three years of the course implementation. They compared results of the first-year examination prior to applying the new approach and two years after they implemented the active student learning processes. They found that the new learning approach was much better in improving the students' performance in the class. This journal article shows that in Department of Biology, the Georgetown University, Washington DC has started to use student-centered learning process at least in the introductory of biology course and results in a more satisfactory and better students' performance. An evidence has proved that active learning in America is a success.

In Sweden, Mozelius and Rydell (2017) reported in their study that from the perspective of teachers, they found problems in implementing BL in higher education, specifically in computer science. Besides, from the perspective of teachers, the study also discussed the BL from the perspective of the university and the learners. The trend for the university lately is using BL along with its advantages and disadvantages. One of the advantages is the use of new technology in the learning processes as well as the flexibility of older students to learn the knowledge at their own pace and time they have. On the other hand, teachers saw some obstacles in implementing the new trend in combining both face to face and virtual classes. The problems the teachers perceived were included of 'documentation and support'; 'introduction and training'; 'the time aspect'; and 'deduction and instructional design'. Teachers perceived that when they implemented the new learning technology there was no documental support that some techniques were not used. They felt that the introduction was too short and the lack of proper training. Teachers had to use a big amount of time to make preparations in this BLthe processes as well as developing various method and technology to properly design the instructions that the students would be easily understood during the learning processes.

From another study in a developing country, Ethiopia, Kumar (2016) found something else. He evaluated SCL in an English course. Briefly, he wrote about the problems that might arise when the course implemented active learning process. The active learning process was applied because, at times, students were not ready to be responsible to master the materials provided in their class due to their lack of confidence and interest to engage actively in the class in addition to the fear of failure. He suggested that lecturers had to find ways to motivate the students and develop various techniques to get the students involved actively in the classroom.

Related studies mentioned above, except the case in Ethiopia and Sweden, showed the evidence that BL and SCL are currently leading teaching methods compared to the traditional face to face between teachers and students, in which it is dominated by conventional one-way interaction in the class.

Based on that evidence, UKRIDA started to apply both teaching methods. For BL, UKRIDA is conducting a trial class in one computer programming class. The objective is to

check the new Learning Management System (LMS), the design and production of the learning materials, and assess the student's performance.

Earlier this year, UKRIDA received a grant from the Directorate of Higher Education of the Ministry of Research, Technology, and Higher Education in 2018 to develop SCL method in three study programs. They are classes at UKRIDA Department of English, Electrical Engineering, and Psychology. The objective of this project is to prepare students to anticipate the advancement of technology in industrial revolution 4.0., using active learning processes and technology in sample classes. This paper is to describe the implementation of SCL in six classes and BL in one class.

Method

The sample used in this project is six classes applying SCL method and one class applying the BL method. A qualitative approach is used to describe the process in the sample classes applying SCL method based on self-reports, interview, and observation reports. Six participating lecturers from the Department of Psychology and Department of English had submitted their individual self-reports in writing for the purpose of this project. Further information obtained from their observation reports is also added to their data where relevant. Furthermore, data from an interview with a lecturer from the Department of English is also included. In addition, observation reports are incorporated to describe the SCL processes in two courses conducted by the Department of Electrical Engineering.

The quantitative approach is applied based on quizzes and questionnaire conducted in the BL class. Data will be presented in a summary table for SCL classes comparing processes applied by one lecturer to another. In this paper, we focus more on the techniques applied by each lecturer in implementing the SCL. Quantitative data in BL class is put in percentage based on quizzes results.

Activities used in each class using SCL are different from one another. Each lecturer interpreted the active learning in their classes based on their understanding of the SCL method. A workshop about the principles of SCL and BL was conducted before the classes started.

Results

Previously, SCL approach had been roughly implemented in the class processes at UKRIDA . However, the careful and intentional SCL lesson and chapter design were the first to be introduced to the participating lecturers. Each lecturer facilitated three class meetings using specific SCL approach as required by the DIKTI Grant project. The meetings were observed by at least three fellow lecturers from related disciplines, who assessed, gave feedback, and discussed class improvements with the participating lecturers after each meeting. At one of the three meetings, a representation from UKRIDA Department of Quality Assurance also took role as an additional observer to offer the University's perspectives regarding to the class processes. All classes were professionally video-recorded, with the records archived at UKRIDA's Learning Resource Center.

The lecturers went through careful planning stages in an effort to intentionally design class activities which promote the students' active participation and collaboration. The SCL method used by the lecturers can be observed in Table 1.

Both classes on Psychology were attended by at least 30 fifth-semester undergraduate students, while at Department of English and both Engineering classes were less than 20 students. All classes were observed to host students with various level of abilities, with one Engineering class was reported difficult to engage.

Table 1. Summary of the self-reports and observation data from sample SCL classes

	AN	LOH	HJ	SMP	IT (as observed by JL)	JL (as observed by IK)
Department	Psychology	Psychology	English	English	Electrical engineering	Electrical Engineering
Course	Macro Applied Clinical Psychology	Micro Applied Clinical Psychology	Reading & Writing III	English Proficiency Test Preparation	Mechatronics	Electrical Engineering 101
Method implemented	A short quiz to assess home preparation, in-class collaborative discussion to enhance conceptual understanding, and role-playing to develop community assessment skills	Individual reflections and peer-verification in pairs to develop empathy skills	Brainstorming, evaluation of prior knowledge, active learning, cooperative learning, simulation/ project, peer-review & feedback, personal reflection	Jigsaw method	Group discussion in practicum	A blend of class-wide and group discussion, lecture, and experiment
Aid required	PowerPoint presentations, field project videos, activity pointers, discussion guides	Pen and paper worksheet, case study sheet, internet access, Padlet web app	Internet access, Padlet web app	Pen & paper worksheet, PCs, internet access	PCs, laptops, internet access	Internet access
Students context	Around 30 fifth-semester undergraduate students. The course is the first to address macro clinical psychology approaches for the students. Most have prepared themselves for the class topics at home by reading the book chapter.	30 fifth-semester undergraduate students. They had joined four related classes in order to develop their basic counseling skills. Most students are able to do limited emotional self-reflection. Most activities are done in situ except in the preparation for the first meeting, a self-reflection practice at home.	17 third -semester students (9 male, 8 female) who already know each other. Their English proficiencies are ranged from beginner to intermediate.	17-19 students. The course is the first in regards to English Proficiency Test, but the students have intermediate English skills. The students have prepared themselves at home with a summary paper made by a collaboration between the lecturer and the students.	8 fourth-year undergraduate students	17 first-semester students
Planning processes	<ol style="list-style-type: none"> Chapter design based on the Semester Lesson Plan Lesson design to specify the class activities 	<ol style="list-style-type: none"> Chapter design based on the Semester Lesson Plan Lesson design to specify the class activities Discussion with student assistants to prepare the worksheets Simulation of the class processes to anticipate 	<ol style="list-style-type: none"> Chapter design & lesson design initiated during SCL Training and developed in collaboration with LRC & other UDE lecturers. Teaching instructions and media have been slowly worked on to the D-days. 	There is no specific steps done in planning. Only the jigsaw group division was planned.	<i>Not reported</i>	<i>Not reported</i>

the students' responses
5. Worksheet revisions
and re-arrangement of
class activities

<p>SCL strengths, lecturers' side</p>	<ul style="list-style-type: none"> The lessons are carefully planned in accordance to the lesson goals and in consideration of the students' capacities SCL allows skills development and assessment through emotional and motoric engagements in addition to the cognitive development. This is essential in engaging students with various levels of potentials. 	<p>The immediate feedback from the observers have helped the lecturer to improve the class activities and the steps missing from the previous meetings</p>	<ul style="list-style-type: none"> The lecturer has more time to assist the slow-learners The lecturer became a 'learning partner' to the students – enriching each other's understanding of the topic 	<p>The lecturer learns to improve through each class process through self-reflection and observers' feedback</p>	<ul style="list-style-type: none"> SCL allows the students to participate in class-wide and pair discussions The providences of computer devices allow the students to actively and independently search and obtain information 	<p>SCL allows the students to participate in independent search for information and class-wide knowledge sharing (i.e. class presentation)</p>
<p>SCL strengths, students' side</p>	<ul style="list-style-type: none"> The students develop independence and accountability to their own learning processes The students learn to explore, question, and simulate the teaching method in class The class processes allow the students to experience the learning processes through most of their sensory faculties. The classes become 'livelier' as a result. 	<p>The SCL approach enables the students to develop emphatic skills through direct verification in pairs</p>	<ul style="list-style-type: none"> Well-crafted instructions enable active and independent learning after which students are able to reflect on their learning experience Students becomes motivated and engaged in critical and creative thinking as more questions and active answers come from students during the activities, including the quieter students. Pair-work and small group activities allow the students to coach each other in their development of skills 	<ul style="list-style-type: none"> Jigsaw method involves everybody in the classroom because it allows students to collaborate and rely on one another Students are allowed to explore the topics through their personal and provided devices. Students are observed to participate more actively and learn to use their devices for learning purposes Students are observed to creatively teaching and encourage each other in ways the lecturer would not have thought of 	<p><i>Not reported</i></p>	<ul style="list-style-type: none"> Students were observed to help each other in discussions and experiments, as well as to engage each other in class-wide discussions.

<p>Difficulties observed</p>	<ul style="list-style-type: none"> • The lecturer had difficulties in planning the lesson to increase student engagement and to enable knowledge formation with considerations to the large number of students and various student capacities • SCL requires the lecturer's flexibility and sensitivity in response to the class dynamics • The success of the SCL approach used is mostly influenced by the students' independent home preparation • Role-playing and simulation require a large room which at the moment is difficult to be available at UKRIDA 	<ul style="list-style-type: none"> • SCL requires a carefully specified lesson design to anticipate possibilities of practical student responses • Although the class processes have been carefully planned, the lecturer still found ineffective activities in the evaluation processes, i.e. case study activity • The students learn at different paces. The faster ones were found to be waiting for the others to finish the given task and chose to access their devices for unrelated purposes. 	<ul style="list-style-type: none"> • Preparation of lesson design and materials for SCL requires careful planning to produce precise and helpful instructions. • During the preparation, contingency plans for potential mistakes or learning difficulties need to be made. • Facilitating learning effectively in SCL is counterintuitive for teachers, however the outcome of SCL is considered quite rewarding. • SCL method takes more time than conventional lecture. The time limitation to cover the large amount of material cause difficulties in prioritizing the quality or the quantity of topics taught. • Some students reported that they felt nervous and restricted during the lessons as they were not used to have observers, camera and cameraman in the class. 	<ul style="list-style-type: none"> • There is limited time to prepare for each SCL class due to other responsibilities as a faculty member. However, the lecturer attributes this to her time management. • The lecturer admitted that not having background in education made her question whether her method was 'proper'. The SCL workshop delivered was not as effective as expected because it was tailored for science classes. • Other issues: Some students do not prepare for the lesson at home. A student has emotional problem which hinders her from being an active participant. 	<ul style="list-style-type: none"> • The lecturer's ability to move away from lecture-centered class to the promotion of active learning could only go as far as the students' initial knowledge about the topic, which in this particular class, was found to be limited. The students had little to no home preparation. • There are limited student interactions despite the effort to engage participation • Some of the planned activities, such as group presentations and conclusion, were not realized in practice due to time constraints 	<ul style="list-style-type: none"> • The lecturer is required to spend an extended amount of time to design a lesson with student engagement in mind. • The lecturer is required to be able to facilitate active engagement of all students in both class and group discussions • The lecturer's ability to move away from lecture-centered class to the promotion of active learning could only go as far as the students' prior knowledge about the topic, which in this particular class, was found to be very limited. • Students were active participants in individual search for information, but not all were involved in class discussion and experiments. Some were observed to be passive and worked individually despite the instruction. • The students learn at different paces. The faster ones were found to be waiting for the others and chose to access their devices for unrelated purposes.
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Blended Learning

Moving from the traditional learning to BL demands careful planning and serious substantial amount of preparation time. The lecturer has to prepare and make documentation of both weekly topics and very detailed weekly activities. The quality and the depth of the course should also be reflected in these two documents.

Procedures used in BL class are defined in eight types, which are: 1. Reading assignments; 2. Quizzes; 3. Lecture; 4. Group Discussions; 5. Presentations; 6. Expert Sharing; 7. Field Trip; 8. Tutorial/Lab/Training.

Firstly, the reading assignments in BL may come in many different forms, for example powerpoint presentations, short videos, e-books, youtube videos, and class lecture videos. Of these modalities, class videos are considered to have extra benefits. Students who were absent from a class will be able to watch the class videos on his/her own time. Also, slow learning students will be able to watch these videos repeatedly so that their understanding of the material may be at par with her/his classmates. Finally, lecturers may be able to evaluate and improve their own performance or correct wrong statements in the recordings.

Designing the powerpoint slides and/or producing short videos are the most demanding activities. However, these media are one of the advantages of BL. If done correctly, these media will allow easy fine-tuning and continuous improvement of the learning process. Moreover, they allow the institutions to have a standard learning quality for the course.

Secondly, quiz is indispensable to gauge the student's mastery of the class materials. Quiz may also come in many different forms such as multiple choices, fill in the blanks, essay questions, matching, etc. Lecturers may have the options to let students do the quizzes at home (unsupervised) or in class (supervised). By doing the quiz online, grading is easy and the result will be available immediately. Since lecturers always ask the students to take a quiz after each reading assignments, the reading comprehension skills, the mastery of the materials, and the quality of the materials presentation can be measured simultaneously. Also, by knowing their progress long before the midterm exam, lecturers will have enough time to help students who are relatively behind in their class. Therefore, the problem of dealing with high piles of quiz papers, computing the grades, and monitoring students' progress manually would be something of the past.

Thirdly, if the reading assignments are exhaustive and engaging, full-time lecture may not be mandatory and students would be able to progress according to the lecturer's plan. Nevertheless, the lecture is good for confirming some unclear materials and building a good relationship with the students and delivery of additional materials to expand the student's knowledge beyond the class.

Next, group discussion is beneficial for students. Students become the center of learning. It will encourage students to learn to collaborate with others. They would be able to learn how to become a group leader and a group member. This is a soft skill that is mandatory in today's society.

Additionally, presentations are the medium for students to learn how to overcome their fears and improve their self-confidence. Keep in mind that asking students to do presentations in class individually, will greatly exceed the allocated class meeting time. Also, it might be boring to fellow students. Therefore, doing group presentations would be preferable to individual presentations.

Expert Sharing is also always interesting for students. It may serve as a teaser, a sneak

preview of what the story of their future life would look like.

The field trip would require a lot of resources (time and money). But, its benefits would pay for itself many times. The field trip would let the students have a taste of a new world or reality they have never encountered before. This should prepare them mentally and at the same time let them decide their preferred position in a working environment.

Lastly, for some classes, tutorial or Lab activities are mandatory. For example, for computer programming or medical classes.

The Learning Management System (LMS)

One key component in BL is the Learning Management System. Many companies are competing to get into this market. However, all of them require the LMS to be cloud-based. When the server is unreliable, UKRIDA recommends having a campus server to host the LMS.

Sample data of quizzes to gauge the students’ progress and determine their final grade is seen in Figure 1 below:



Figure 1. Quiz score summary

Sample data of the students’ questionnaires to gauge and get information to improve the quality of the BL is seen in Figure 2 below:

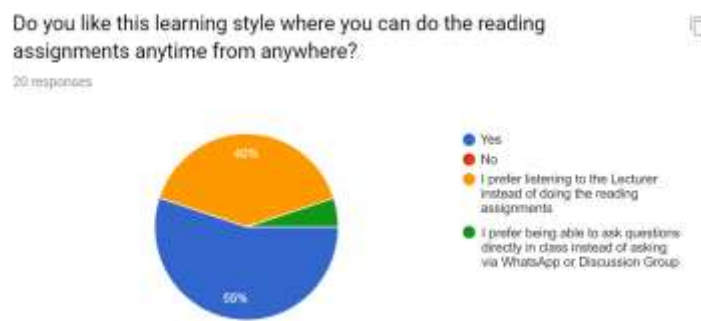


Figure 2. Students' opinion on mobile reading

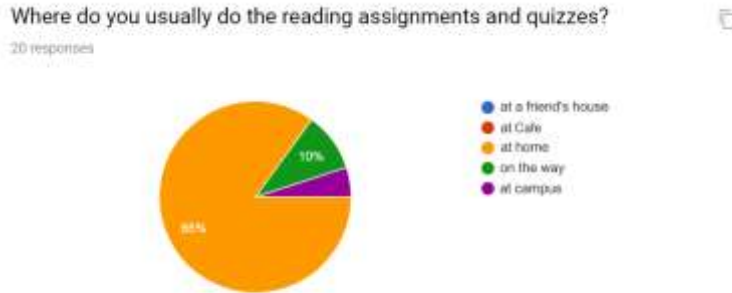


Figure 3. Student's favorite places to read assignments and do quizzes

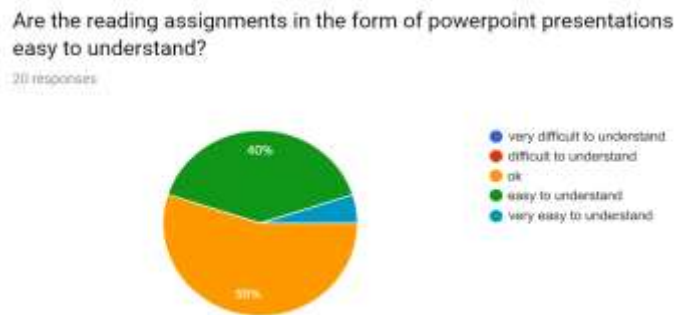


Figure 4. Clarity of reading assignments in the form of powerpoint presentations

The quiz shows that the students in the class have a lowest score of 30% up to 100% with the majority got 100% (see Fig. 1). These students are fresh graduate from High Schools where traditional teaching was utilized. The questionnaire was administered after the fifth meetings. The questionnaire shows that 55% students prefer to have the options to do the reading assignments at their own convenient time (See Fig. 2). 85% of the students did their quizzes at home (see Fig. 3). 45% of students think that learning from the power point presentation is easy or very easy. The rest of the students has no difficulty in learning from the powerpoint slides. Also, none of the students think that learning from the powerpoint slides are difficult or very difficult (see Fig. 4).

Discussions

Lack of lecturer's anticipation and students' preparation can be costly in terms of time when using SCL. For example, HJ of the Department of English reported that a large amount of materials required to be covered has caused difficulties in prioritizing the quality or the quantity of the topics to be taught. Lack of student preparation at home had forced IT in Engineering to revert back to lecturing in order to cover the initial knowledge. As a result, he was observed to have lost some time that he could have used to promote the students' active learning, and in turn, had to skip some of the planned activities. Similar phenomena have also been observed by Kumar (2016), Mozelius and Rydell (2017), and predicted by Boyer (2017).

All lecturers reported that SCL approach requires a more thorough preparation on both lecturers' and students' sides. All lecturers have to spend a significant amount of time to carefully design the class activities and instructions with student engagement in mind, while also considering the students' capacities and learning paces. Planning an SCL requires the lecturers to anticipate the students' initial knowledge, mood, and responses in order to keep the learning outcomes in check. SCL also requires the lecturers' ability and flexibility to facilitate the students' participation in classes, as well as to have a thorough understanding of the topics to be able to properly facilitate the students' formation of conclusions.

A lecturer in Psychology who applies simulation and role-playing method reported that the relatively large amount of students requires a large room, which is difficult to acquire at the moment at UKRIDA. As a result, she had to be resourceful in her lesson plan. For example, in her case, to utilize the relatively limited space in the classroom, she divided the students into groups of participants and observers so that the activity requires less space. The other lecturer in Psychology, whose method is reflection and verification to develop empathy, engaged five student assistants to aid her in the lesson design processes, in anticipating the students' responses, and in answering the students' individual questions as the class progresses.

From the perspective of teachers, what has been observed in SCL classes at UKRIDA were similar to what has been reported by Mozellus and Rydell (2017) of the SCL classes in Sweden. Problems observed by the teachers were included in the preparation of documentation and instruction. It becomes apparent that without specific training of SCL, teachers used their own interpretation in implementing the method, which may cause problems in the lesson delivery.

Similar to what has been reported by Bostanci and Çavuşoğlu (2018), Dzakiria, Don, Wahab, & Rahman (2012), Lalima and Dangwal (2017), BL outcomes at UKRIDA have been more promising. Although the preparation of this approach is very tedious as well as the high usage of advanced technology, students perceived the learning processes are more engaging and stimulating. In the BL method, lecturers combine all procedures written previously in method with face to face interaction in class. The new method is worthwhile to be implemented in all classes in the near future.

Conclusions

Despite the preparations required on both lecturers and students, all participating classes observed promising results in regard to the promotion of independent and collaborative formation of knowledge. They saw an increase on both quality and quantity of students' participation in exploration, questions, discussions, and in helping each other, including those of the quieter students. Lecturers from Department of English and Engineering reported that SCL approach helps the students to develop critical and creative thinking abilities as they are actively involved in group and class-wide discussions. SMP from Department of English is pleasantly surprised to find her students have their own creative way to teach and encourage each other in the learning processes. LOH from Psychology reported that SCL approach is suitable in teaching empathy skills, which engage relational and emotional dimensions of the learning experience. AN from Psychology reported that simulation and role-playing engage most of the students' sensory faculties. One of her class observers was exhilarated to find that her SCL method was successful to promote the active participation of all students he thought was impossible.

Blended learning method relies heavily on the Learning Management System (LMS) and internet connections. Therefore, having an LMS that meet the BL needs and reliable internet connections are the foremost requirements.

Also, having a quiz result displayed in chart form makes it easy to describe the student's performance distribution. This will be helpful in identifying the overall student's capability in following the class and the number of students performing under par.

At last, from the questionnaires, we can conclude that the majority of the students can accept BL and they are able to understand the class materials better.

Recommendations

Blended learning, where SCL is a must, should be the main learning method in the future because technology is growing rapidly and has affected new generation of students who rely heavily on technologies. Traditional teaching may become a niche market and available only for selected few people.

We should analyze the questionnaires further and compare them with the quiz results so that we can extract more information and insights about the students, the materials, and the learning process. The results can be used to evaluate and improve the materials and the learning process for the next students. Additional questionnaires should be conducted at the end of the semester.

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