

BLENDLED LEARNING: A 21ST CENTURY LEARNING MODEL AT COLLEGE

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ABSTRACT

The rapid advancement of information and communication technology in the 21st century is forcing teachers who teach students at every level of education to change their behavior and mindset, even committees that support them to achieve their teaching goals. The right approach is how one can integrate technology and education, i.e., through the Blended Learning Model. This model combines the usual online teaching and teaching classrooms. The strength of this model is that it can increase interaction between students anytime and anywhere. Rapidly growing technology integration has brought powerful changes to the education system and improved digital skills for students and lecturers. Technology can also influence how think, learn, and interact. Technological developments encourage educators to understand and utilize technology in learning and learning activities to create a dynamic learning environment.

Keywords: Blended learning, ICT, 21st century learning models.

INTRODUCTION

Rapidly increasing technology integration has brought powerful changes to the education system and improved digital skills for both students and lecturers. Klopfer, E., Osterweil, S., Groff, J., & Haas, J. (2009), see that today's technology is more than just for entertainment alone. Technology can also influence how you think, learn, and interact. However, in its implementation to change a conventional instructional approach is not an easy task, especially when engaging technology into the learning process. Technological developments encourage educators to understand and utilize technology in learning and learning activities to create a dynamic learning environment. One example is the development of new learning models, such as blended learning.

In the ICT era as it is today, the students who will be faced are students who were born and developed in the digital age, so like it or dislike, teachers must also have high-tech literacy. The Institute of Teacher Education as a producer of prospective educators/teachers needs to equip teachers and prospective teachers to be skilled in using technology, especially ICT because the future of teachers is related to ICT. Eggen and Kauchak (2012) assert that 21st-century school standards or the digital age for teachers and students relate to the application of technology in learning. Teachers should be able to prepare their students for life in the digital age, one of which is by using their knowledge of the subject matter, learning and technology to facilitate advanced student learning experiences, creativity, and innovation in face-to-face and virtual situations. One way teachers/lecturers can work to improve services in face-to-face and virtual (online) situations is through the Blended Learning Model, which is further abbreviated as BLM. Initially, the term blended learning was used to describe knowledge that tries to combine

face-to-face learning with online learning. The concept of blended learning began to develop with several experts who set and defined the Blended learning model.

Model Blended Learning Understanding

A model is a plan, representation, or description that describes an object, system, or concept that is often simplified or idealized. The learning model is a specific approach to teaching (Eggen and Kauchak, 2012:7) and contains instructional elements such as films, books, programs, curriculum (Joyce & Weil (1992:4). A learning model is a specific form or design that is systematically designed based on the theory of learning or the basis of thinking how students learn to achieve learning goals as well as having a learning environment setting, the interaction process used to help students obtain better learning outcomes. Model components consist of synapses, social systems, reaction principles, support systems and instructional impacts and companion impacts. These five components will be used to reconstruct the development or creation of a learning model.

According to Fitzpatrick, Jamey (2012), blended learning is a combination of online-based learning with face-to-face learning in (conventional) classrooms. Kaur, M. (2013) also stated that blended learning is an effective combination with various delivery models, teaching models and learning styles that can be done in an interactive learning environment on online learning (e-learning) and face-to-face learning. So this model can be applied to any subject. Thoroughly blended learning means learning patterns that contain elements of mixing or merging between one learning pattern and another. Blended learning is one of the latest educational issues in the development of globalization and technology. Many institutions or practitioners have developed and provided definitions with their language, according to the practice's typology.

One of the learning models that can be applied through the use of technology-based media is the blended learning model. According to Thorne (2013) defines blended learning as a mix of e-learning and multimedia technologies, such as video streaming, virtual classes, online text animation combined with traditional forms of classroom training. According to Garner & Oke (2015), blended learning is a learning environment designed by bringing together face to face learning (F2F) with online learning that aims to improve students' learning outcomes.

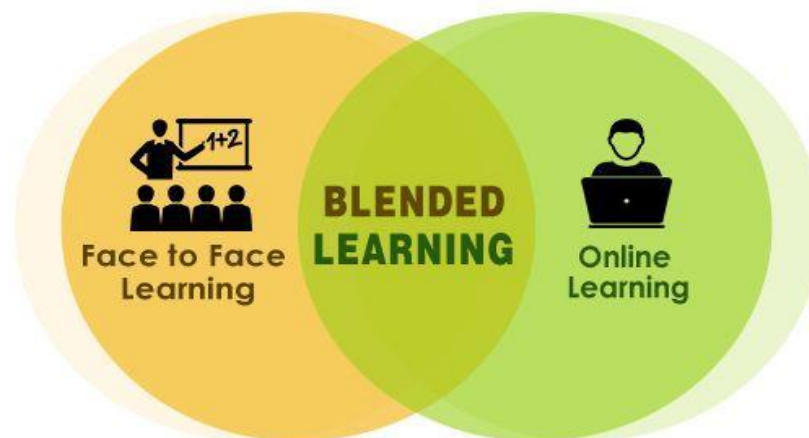


Figure 1.1 Blended learning illustration.

Heinze A and Procter C. (2010) state that blended learning is a mixture of various learning strategies and delivery methods that will optimize the learning experience for its users. Blended learning is a hybrid learning concept that integrates traditional classroom sessions and e-learning elements to combine the benefits of both forms of knowledge (Yaman et al., 2010). While according to (Shroff et al., 2010), blended learning is a delivery program that utilizes more than one method to provide information to students

Blended Learning Concept

The learning system in blended learning is flexible because students can control learning activities according to time, place, path and pace so that students have more opportunity to interact with lecturers and students during the learning process in the classroom. Besides, blended learning can optimize learning and student experience personally. However, blended learning is still controlled by lecturers based on the design of the learning plan that has been set remotely (Patrick, S & Sturgis, C., 2015), as in table 1.1 below.

Table 1.1 Control elements in the Blended Learning Model

Control Elements	Description
Time	Learning is no longer limited to the school day; they can learn according to the time they have.
Place	Learning is not limited to classroom learning only; they can learn anywhere like a home, library, etc.
Path	Learning is no longer limited to classroom learning by teachers, but the utilization of interactive and adaptive software allows learners to learn in methods tailored to their needs.
Pace	Learning is tailored based on their speed; they can use more time when needed for the learning process.

Blended learning can improve students' access and flexibility, enhance active learning levels, and achieve better student experience and results. However, Saliba, G., Rankine, L., & Cortez, H (2013) stated that all of this would be realized if lecturers who use blended learning can improve teaching skills and utilization of e-learning media.

In the implementation of learning, we can explain the relationship between learning types and the percentage of content online. According to Ronsen, D & Stewart, C., (2015), there are four types of learning, as in this 1.2 table.

Table 1.2 Type of learning.

The Proportion Of Content Submitted Online	Learning Type	Description
0%	Convesional	They are learning without utilizing online facilities because learning is only face-to-face in the classroom.
1-29%	Web facilitated	Learning that uses web-based technology to facilitate face-to-face learning. For example, it is using CMS or the web to post syllabuses

		and tasks.
30-79%	<i>Blended learning</i>	Learning that describes the correct mixed (hybrid) model in the mix, a course that combines the online learning process using e-learning or the web and face-to-face.
80-100%	<i>E-Learning</i>	Online learning usually, in online courses or distance learning, and there are no face-to-face meetings.

Key Model Blended learning

Carman, J. M (2005) has identified five essential keys that must exist in blended learning model design, among others:

1) Live Events

Live events are face-to-face, or synchronous live learning led by instructors and all students participate face-to-face in the same time and place directly in the classroom or at the same time but in different places (virtual classrooms). Face-to-face learning can be used to create an engaging and practical learning experience that can achieve learning goals.

2) Self-learn with Online Content

The self-learning experience can be carried out anytime and anywhere (Asynchronous) with online content. The learning process can be performed using text-based or multi-time based (video, animation, simulation, images, audio, or a combination of such media), which can be accessed online (via the web or mobile device in the application: audio streaming, video streaming, e-book, which can be accessed by students anytime and anywhere, to be accessed offline in CD form, and print.

3) Collaboration

Designing blended learning of an educator or instructor should be able to build collaboration between students and students through communication tools made in the form of chatrooms, discussion forums, such as email, discussion, online chat, website and social media, for deepening of material, problem-solving or project tasks. With this collaboration, it is expected that students' scientific insights will be broader because it involves various parties with diverse learning resources.

4) Assessment

An educator in improving Blended learning can combine several types of assessments, i.e. tests or non-tests, or authentic tests can be poured in the form of projects or products that can be done both online and offline until the assessment is followed by students to be more flexible. The review is critical to measure the knowledge of students. Pre-assessment can be done before face-to-face and independent learning to determine initial experience, and post-assessment can be done by following scheduled online learning, to measure learning transfer.

5) Performance support materials

Reference materials are indispensable to improve student learning retention and learning outcomes in blended learning models. Teaching materials must be prepared in digital form and accessible to study participants both offline and online to support the competence of students in mastering material.

Blended Learning Classification

ICT has the potential to improve the effectiveness of learning, access to learning resources through the internet provides opportunities for students who have initially been out of reach to

obtain more information. The blended learning model is a new way to improve the learning process in college. Graham (2005) cited three main reasons why blended learning models were chosen in college, among others: increased pedagogy; increased access and flexibility; and increased cost-effectiveness. At the same time, Osguthorpe (2005) identified six reasons for using blended learning models: (1) rich in teaching, (2) access to knowledge, (3) social interaction, (4) private institutions, (5) cost-effectiveness, and (6) ease of revision. Various institutions develop blended learning models according to their desired purpose. Graham (2005) explained that all blended learning models could occur at the activity level, lecture level, program level, or institutional level. Of the four classes, model blended learning activities in teachers, lecturers and instructors are more likely inactivity and lecture levels.

According to Horn & Staker (2011), there are several blended learning models developed in educational institutions, including those seen in Figure 1.2 below:

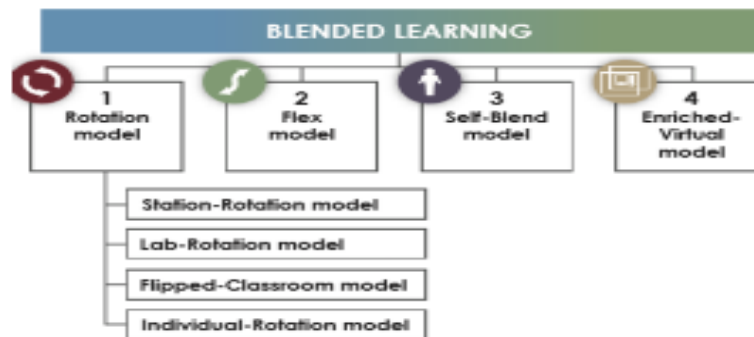


Figure 1.2 Blended Learning Model Type

1. Rotation Model

It integrates online learning and face-to-face learning in the classroom with a substitute instructor's supervision with an orderly schedule. The instructor will announce when the time has come to take turns, and all students will proceed to the next learning activity (Powell, A. et al., 2015: 6). The Rotation Model includes four sub-models, namely:

a. Station-Rotation Model

In this model, students rotate between stations in class, and at least one of these stations includes an online learning component. Other stations involve traditional learning approaches, such as group discussions, lectures, group work, projects, and percentages. Students rotate around each station according to the schedule set by the teacher.

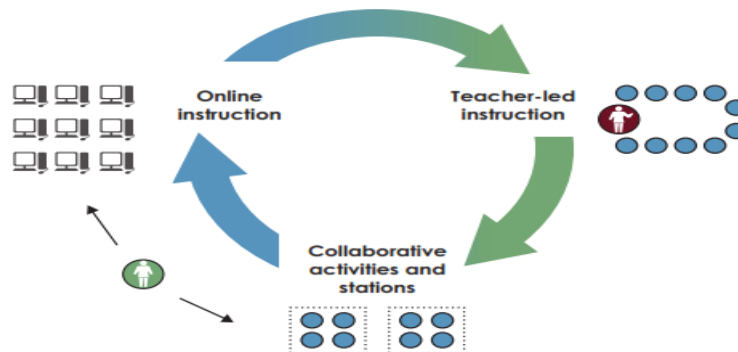


Figure 1.3 Station Rotation Type

b. Lab-Rotation Model

This rotation model is similar to the above model, but the online learning component takes place in a learning laboratory specifically designed for the online learning process (e-learning). Students alternate between classroom learning and e-learning laboratories. Example: In essential computer learning, students do classroom learning and do 2 hours of online learning to continue the virtual computer learning learned in the previous class.

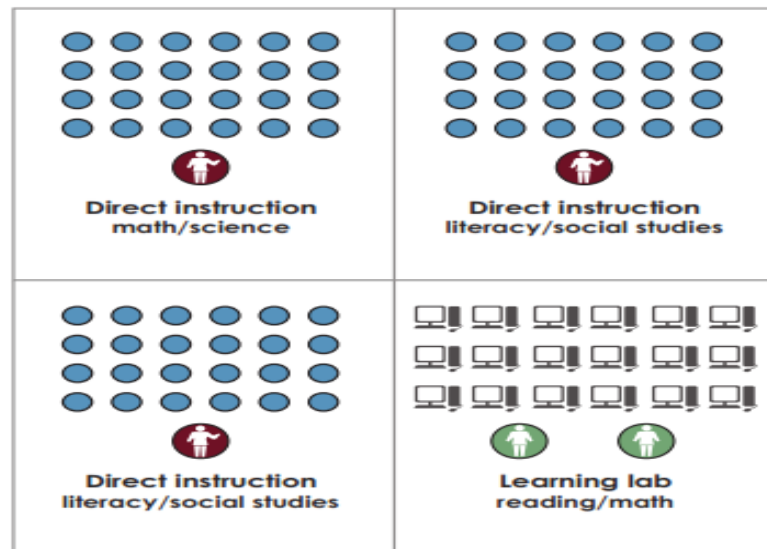


Figure 1.4. Lab Rotation Type

c. Flipped-Classroom Model

The application of rotation models wherein certain subjects (such as basic computers) takes turns according to the schedule stipulated between face-to-face practice in school and online learning. Online content delivery and instruction, which distinguishes Flipped classes from students who only do homework online at night. The Flipped-Classroom model is in line with the idea that mixed learning includes some student control elements such as time, space, paths, and places because it allows students to choose the location where they receive content and instruction online.

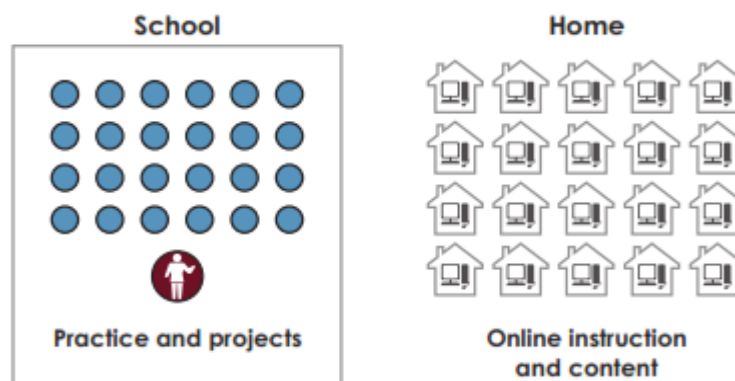


Figure 1.5. Flipped Classroom Model Type

d. Individual-Rotation Model

Students adjust the way students take individual turns between learning, in-class, and online learning in this rotation model. Unlike other rotation models, students don't need to rotate to any available station. For example, students with high needs can be rolled into small groups not required by all students. Elementary computer students may have a good rotation for intensive online reading programs (Jessica, Brittan, H., & Lucas, W., (2014).

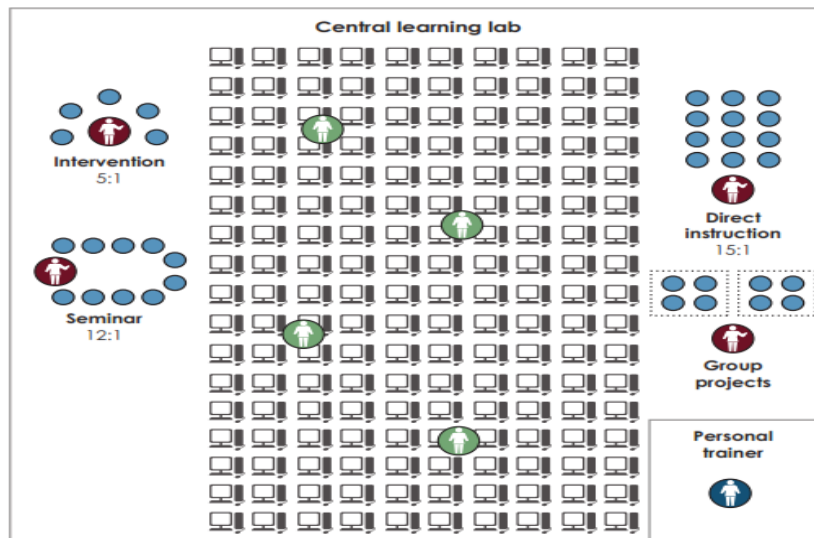


Figure 1.6 Individual Rotation Model Types

2. Flex Model

With this approach, the material is delivered online. Although teachers are in the room to provide support if needed, learning is essentially self-guided, as students independently learn and practice new concepts in a digital environment (Eleni, C., Eliza, P., Georgia, G., (2016), Similar to individual rotation models, this flexible model features students working on unique schedules that rotate between modalities, one of which is online learning, for example, by combining study rooms, learning laboratories, small groups, and social areas (Jessica, K, B, Brittan, H., Lucas, W., 2014).

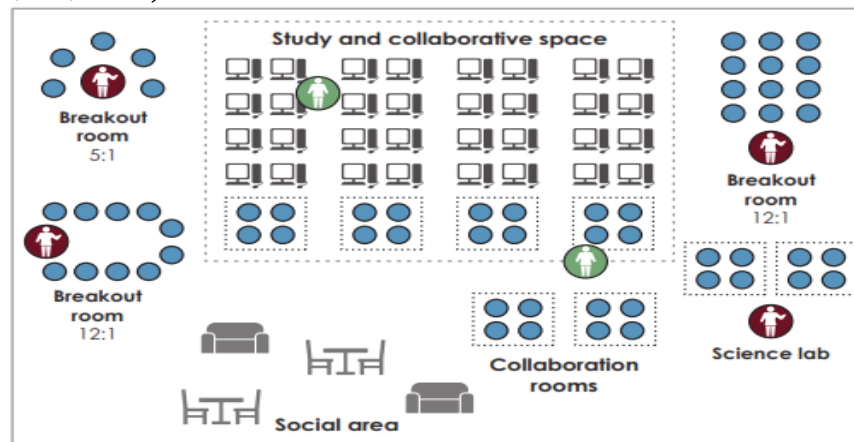


Figure 1.7 Flex Model Type

3. Self-Blend

Self Blend is a combination of personal teaching with online learning. This model is popular in high school; the self-blend model allows students to take classes outside of what is already offered in their school. While these people will attend the school environment, they also choose to supplement their learning through online courses provided remotely. For this mixed learning method to succeed, students must be highly motivated. Self-blend is ideal for students who want to take additional classes (Eleni, C., Eliza, P., Georgia, G., 2016).

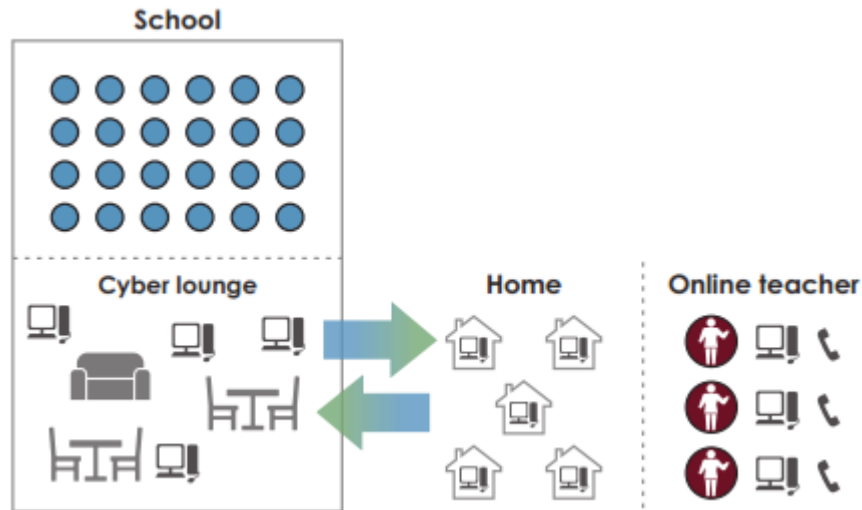


Figure 1.8 Self-Blend Type

4. Enriched – Virtual Model

This model shows students who need face-to-face learning with the teacher, and then they have the opportunity to complete the remaining subject matter remotely from the teacher. Many virtual programs are online and then develop mixed programs to support the student face-to-face learning experience in the classroom (Eleni, C., Eliza, P., Georgia, G., 2016).

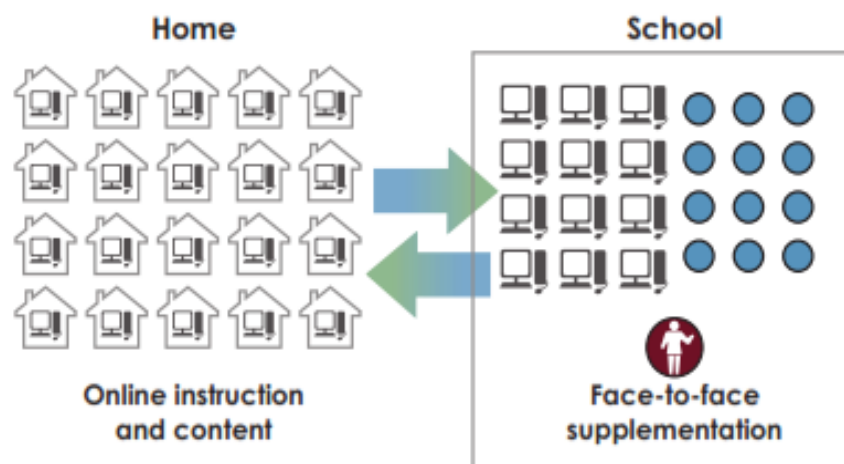


Figure 1.9 Enriched Type – Virtual Model

Development Of Blended Learning Models

There are several developments of internet-based teaching systems, according to (Rusman, 2011), among others:

1. Model Web Course

Use of the internet for educational purposes, where students and educators are entirely isolated and do not require face-to-face contact. All teaching materials, discussions, consultations, tasks, exercises, exams, and other learning activities are fully delivered over the internet.

2. Model Web Centric Course

Some of the material is delivered over the internet and some through complementary face-to-face functions. In this model, educators can guide students to learn lesson materials through the web they create. Students are also instructed to search for other sources of the relevant site. Face-to-face, students and educators are more likely to discuss findings from the material they have learned over the internet.

3. Model Web Enhanced Course

The use of the internet to support the improvement of learning quality is carried out in the classroom. Therefore, in this case, the role of educators is crucial to master the techniques of finding information on the internet, presenting exciting and exciting material through the web, serving guidance and communication over the internet, and other necessary skills.

ICT Usage Rate In Learning

According to Rusman (2011), there are several levels of ICT use in the study of, among others:

1. Level-1 Information: At this stage, learning materials are not presented much through ICT, but are limited to informative materials to support the learning process and tend to be administrative and learning rules.
2. Level-2 Supplemental: At this level it has begun to include lecture/learning materials. However, its nature is still limited, not yet describing the content of the learning as a whole; the material presented is still the main one.
3. Level-3 Essential: At this level, almost all learning materials are provided on the web. Teacher learning activities will not run smoothly without using web facilities.
4. Level-4 Communal: At this level, combine face-to-face patterns in a class or use the online web. The presentation of learning materials is presented directly in the classroom and submitted online.
5. Level-5 Immersive: At this level, virtual education is carried out. All learning materials are online.

Advantages of Blended Learning Models

MBL emerged as the answer to the weaknesses of face-to-face learning and online learning. But each of these learnings also has its advantages. The main advantage of face-to-face lectures is the direct interaction between educators and students and other students. These interactions create stronger feelings related to structure/lecturers. The downside of face-to-face learning is that the learning process is limited by space and time so that learning is felt less maximally by educators.

Advantages of web-based online learning, according to Rusman (2011:271-275), are: (1). Allow everyone to learn anything without being limited by space and time, as access is available anytime, anywhere in the world; (2). The operational cost of each student to participate in learning activities becomes more affordable; (3). Supervision of student development becomes easier; (4). Web-based learning design enables personalized learning activities; (5). Learning materials can be updated more easily.

However, web-based learning also has drawbacks: (1) The success of web-based learning depends on learning ability and motivation; (2) access to learning using the web is often a problem for students; (3) students are quick to feel bored and saturated if they do not access information due to lack of adequate equipment and adequate bandwidth; (4) guidance is required for students to find relevant information, as the information contained on the web varies greatly; (5) with web-based learning, learning is interrupted if there are limitations to communication facilities; and (6) One of the most significant drawbacks of online learning is the lack of direct interaction between educators, learners, and fellow learners.

MBL is learning that combines the advantages of face-to-face lectures and the excellence of online learning. MBL can create a positive learning environment for interaction between fellow students and students with their educators without being limited by space and time. Dewey (1938) and Moore in Comey (2009:9), argued that interaction between students and interactions between students and teachers was a crucial factor in the student learning process and was essential in creating a practical learning experience. According to Moore in Comey (2009: 9-10), there are three types of interactions, namely the content-learner interactions, the interactions of learner instructors, and the interactions of students, and the interface interactions of students. Graham (2005:5) describes the four critical dimension interactions between face-to-face classes and online classes, as seen in Figure 1. below.

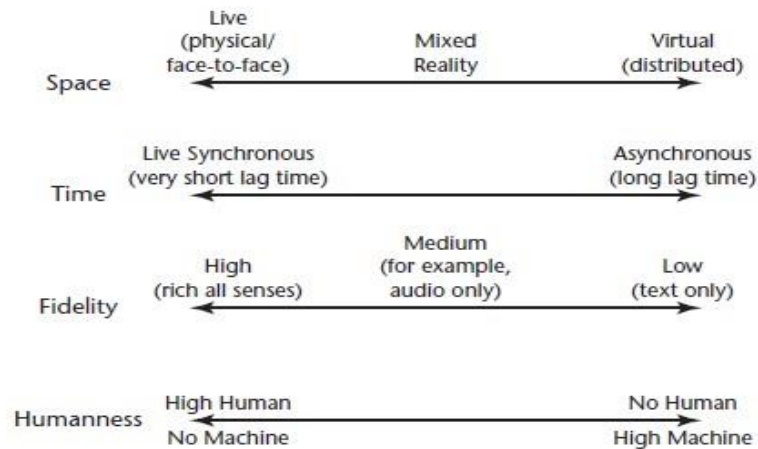


Figure 1.10. An important four-dimensional interaction continuum that occurs in face-to-face and online (virtual) classroom environments.

A lot of interaction happens in MBL. Interactions can occur in teaching 'in unison' (at the same time) or 'Asynchronous' (at different times). In MBL, teaching materials are prepared by educators to be accessible to students online through media that has text, graphics, animation, simulation, audio, and video. Educators also provide facilities for 'Discussion group' so that there

are interactions between students, students, and educators anytime and anywhere verbally or in writing.

Eggen & Kauchak (2012: 57-58) states that "the more students/students practice using the language, the more understanding they have. Because if the teacher or lecturer speaks or explains, the student may not understand, but if the student says so, they will most likely "understand." As Silberman says (2006:23), "people tend to forget what they hear, but what I teach others, I master." Like the cone of learning experience introduced by Edgar Dale, as seen in figure 2.

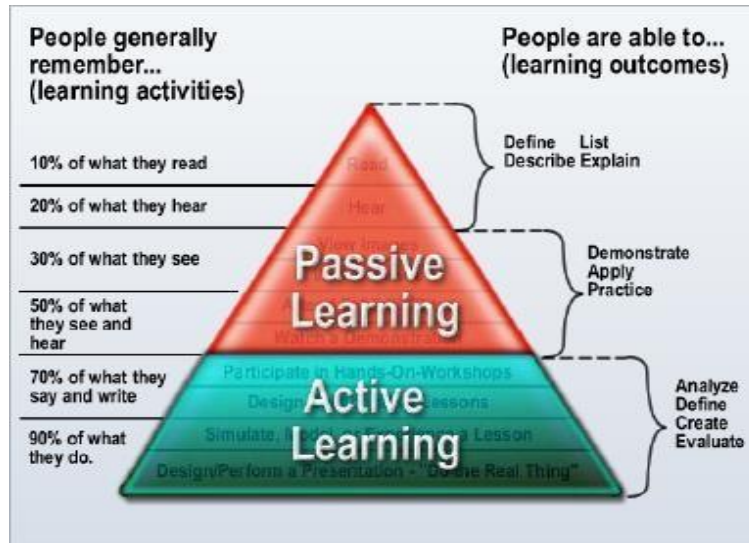


Figure 1.11 Cone learning experience from Edgar Dale.

The level of learner experience in Figure 1.11 shows that the public remembers: (a). 10% of what they read; (b). 20% of what they hear; (c). 30% of what they see; (d). 50% of what they see and hear 70% of what they write and say; and (e). 90% of what they say is what they do. The level that I see and hear is still classified as passive learning, whereas I say, and I write, including active learning.

Learning interaction is an essential factor in learning. Interactions in MBL, including active learning and communication, can occur through oral and written. The results of research in America show that MBL is very useful; compared to other studies, MBL is 30% better, 40% shorter, and 30% cheaper (Wawan Wardiana in Rusman et al., 2011: 249). Comey (2009: iv) also tested how students' perceptions of the classroom environment differed between face-to-face, online, and mixed methods; the results showed that by combining elements of face-to-face lectures and online lectures, mixed methods could create a positive learning environment, able to provide some ease of online courses without eliminating the face-to-face contact that many students want. Hybrid classes also provide a better atmosphere than face-to-face and online courses, resulting in higher student participation rates and stronger feelings of connecting with instructors/lecturers.

So that MBL can provide better interaction between students and students with lecturers. Interactions can occur through many opportunities, namely face-to-face classes and online classes. Students who may be embarrassed to speak or ask questions in class face-to-face can utilize online communication to interact with lecturers or friends anytime and anywhere. It

provides an overview of the importance of social interaction and spoken language and writing in encouraging learning.

21st Century Learning

The rapid flow of globalization and the development of ICT today demands a change in the attitude and mindset of teachers/lecturers. Teachers/lecturers' role is now increasingly competitive with the provision of various communication tools, internet with social media, and television. The internet and tv are alternative learning sources. But in reality, the internet and television have shifted the role of teachers/lecturers as science presenters. The Internet in ICT is a vast resource for learning. The internet has great potential and benefits if it can be appropriately optimized. The internet can be a means to add knowledge and insight. The internet is also a means of fast and cheap communication through various social networking sites such as Twitter and Facebook. If teachers/lecturers do not update themselves about the development of ICT, then they can compete with social media.

Based on various scientific studies and studies, the utilization of technology in education, especially ICT, can increase students' creativity and motivation. So educators need to use ICT in learning to get its positive benefits in education and not just the negative impact.

Besides, Novalinda (2020), in the dissemination of curriculum 2013, explained about "Indonesia's Challenges in the 21st Century", stating that there are 6 Main Drivers of Educational Technology to be considered, namely:

1. Mobile Learning, people hope to work and learn whenever and wherever they want.
2. Cloud Computing, we want the information to be accessible on any device.
3. Collaborative Learning. The world is becoming more collaborative, driving change through structured student projects.
4. Mentoring. Because information is everywhere, the quality of mentoring will make a difference.
5. Hybrid Learning. Hybrid Learning Models (Face-to-Face + Online), or mixed learning models can leverage students' online skills that have been developed independently of the academic system
6. Student-Centered, the shift from teacher-centered education to student-centered and engaging them by connecting the curriculum with real-life students.

Furthermore, Fajra (2020) also stated that there are 5 Challenges of Higher Education, namely:

1. A new educational model that brings unprecedented competition from traditional models.
2. New forms of publication and research that have not been well understood by decision-makers.
3. We are still a long way from seeing digital media literacy as the norm expected by academic professionals.
4. Experimentation with the application of innovative technologies is often considered an external role of a researcher.
5. In the Open Source world, libraries are under pressure to develop new ways to support scholarships.

The six main drivers of the use of education technology and the five higher education challenges presented by Kasali are related to 3 literacy, namely information literacy, media, and ICT. All three kinds of literature are part of 21st-century skills. The Novalinda (2020) and

Minister of Education Muhammad Nuh (2013) stated that the learning environment for the achievement of 21st-century competencies should:

1. Create learning exercises with the support of human resources and infrastructure.
2. Enable educators to collaborate, share experiences, and integrate them into the classroom.
3. Allows students to learn that is relevant to the context of the world.
4. Supports the expansion of community engagement in learning, both in-person and online.

Similarly, Herawati (2011: 4) also suggested developing 21st-century teacher competencies related to technology, pedagogy, learning content learned or Technological, Pedagogical, and Content Knowledge (TPACK). Teachers/lecturers need to continuously improve their knowledge and skills in students' and students' learning in TPACK thinking for student and student learning to be effective. Therefore, teachers/lecturers need to continue to study throughout life to increase their devotion to the students and students who are given to them to learn.

The implementation of MBL is perfect for facing the 21st Century Indonesian Challenge presented by Kasali with five Higher Education challenges and 6 Main Drivers of Educational Technology. MBL is also preparing the learning environment to achieve 21st-century competencies as conveyed by the Novalinda and Minister of Education Muhammad Nuh.

MBL is very appropriate if applied to higher education institutions. Similarly, Herath, Azman et al (2014) a public college as a higher education institution with the mission of producing outstanding educators in the 21st-century prospective outstanding educators is an educator who can carry out learning and educational tasks characterized by the ability to carry out active, innovative, and encouraging or functional learning tasks in schools, should be prepared through a quality education system. The educational process of prospective educators in higher education institutions should be designed and developed based on active learning principles in higher education or active learning students. The learning process is directed at enabling students, not in a physical sense but overall learning behavior. These activities can be realized by providing opportunities to express ideas, seek information from various sources, and carry out tasks that apply the concepts studied.

Facing these challenges, universities as producers of prospective educators/teachers need to equip teachers and prospective teachers to use technology, especially ICT, because of future teachers' challenges related to ICT. Teachers must have pedagogical skills, mastery of technology, and materials in the learning process. Therefore, students at higher education need to familiarize students with ICT. Director of Dictatorship, Prof. Dr. Dede Rosyada (Diktis News: 2014), also stated that the conventional learning system (faculty of teaching) conducted is thick with instructional atmosphere and less in line with the rapid dynamics of the development of science and technology. In addition to the conventional learning system, it turns out that PTAI graduates still feel they have not mastered the latest science and technology. In answering the above problems, e-learning-based learning is needed to improve the quality of learning in PTAI.

In response, Director of Dictatorship Riduan Zain (Dictating News: 2014) said that the application of e-learning in higher education is intended as an educational innovation that always accommodates social change, in this case, the utilization of IT, not just IT as technology but IT as a medium of e-learning learning. Students' favorites on IT are inevitable, but how educators accommodate those favorites into the course so that students will love it.

The explanation above, it is clear that the challenges of prospective teachers are related to ICT. As Eggen and Kauchak pointed out (2012: 27-28), 21st century or digital century school

standards for teachers and students relate to the application of technology in learning. Thus, teachers/lecturers should be able to prepare their students to live in the digital age, one of which is by using his knowledge of the subject matter, learning, and technology to facilitate the learning experience of advanced students, creativity, and innovation in face-to-face and virtual situations through the application of MBL in learning.

CONCLUSION

MBL is one of the latest educational issues in globalization and technology, which combines traditional face-to-face learning and online learning (e-learning). MBL is one of the new ways to improve the learning process of teaching. The learning that is present at all times is the potential, opportunity, and challenge in learning. The implementation of MBL is perfect for facing Indonesia's challenges in the 21st century and preparing the learning environment to achieve 21st-century competencies presented by the Novalinda and Minister of Education Nadiem Makarim. MBL is also very appropriate when applied to higher education due to the challenges of developing the competence of 21st-century teachers related to technology, pedagogy, and learning of learned content or Technological, Pedagogical, and Content Knowledge (TPACK).

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