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Blended Learning for Improving Communication Idea and Information Competency for Phrada Bos's Students

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Abstract

The objectives of this paper were to develop the blended learning for improving communication idea and information skill for Phrada Bos's students. Starting from analysis, design, development, implement and evaluation of blended learning, identification of population and sample, implementation of blended learning for improving communication idea and information skill for Phrada Bos;s studntss who study in BL program, and then collect data, analysis and conclusion. The result found that the post-test of communication idea and information skill was good level with average score 70.73 (S.D. = 5.39), the efficiency of blended learning in project course was 82.84/80.15 that were above 80/80 established criteria, the advanced abilities after learning of students who learned from blended learning in project course increased more than before learning, a knowledge and abilities of students were improved, the amount of the students learning achievement was 100% and almost project workpieces can meet industrial requirements.

Keywords: *Blended learning; Communication idea and information; Competency; Student.*

Introduction

Teaching and learning management for the technical and vocational diploma program in Thailand which are industrial subject, commercial subject, agriculture subject, home economics subject and fine arts subject. The program is consisted of basic courses, specific courses, elective courses, experience training and project courses (Office of the Vocational Education Commission, 2023). The project course is selected and taken by students which was done in the form of group work, for completion of the program. However, the communication idea and information of students are not complete according to the competency standard (Office of the Education Council, 2017) and these projects may not meet the needs for solving working problems in the actual industrial context since many teachers often taught in traditional way. Therefore, this will affect vocational education quality and student's knowledge and skills for working in the future work. Thus, both educational and industrial sectors have cooperation for improving the project course to solve problems in the workplace. Phradabos school is operated by Phradabos foundation that is Royal project under the Royal initiative of King Rama 9, was established in 1966. The first aim of Phradabos school is help educational

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disadvantaged person, poor, unemployed and not enough basic knowledge to study at vocational institute but those people are interest in learning and have earnest perseverance, and the second aim is to give the opportunity in the professional and moral training for them are able to persuade a career, develop their own position, help family social and country. At present many students are border tribes, orphans, youth who were treated of drug cessation, released from prison. Phradabos school education is informal education that train in auto mechanic, electronic technician, electrician, sufficiency agriculture technician, maintenance technician, construction and carpenter, welder and nursing home (Phradabos, 2019). Phradabos foundation estabblshed Lukphradabos school in 1998 for transfer agriculture technology and renewable energy knowledge and established Southern Border Provinces Phradabos School in 2010 which was second school for help of youth of three southern border provinces who were affected by terrorism, for train in auto mechanic, motorcycle mechanic and agriculture machinery technician. In Present Phradabos school has implemented the dual vocational training project at diploma level which cooperates with Nakornluang Polytechnic College (NPC), Donmuang Technical College (DMTC), Dusit Technical College (DTC), Samutprakan Polytechnic College and Kanchanaphisek Nongchok Industrial and Community Education College (KNICE) but student's learning achievement is low and not meet the requirements of industry. Based on the importance and previous studies about teaching and learning in project subject, the researcher has decided to develop the blended learning in project courses for improving communication idea and information skill and actual work in the workplace. One research question has been addressed: Can BL use in the project? Blended learning in a project course for actual work in the workplace consist of BL-Questioning-MIAP-PBL model, lesson plan, chalk board layout, question list, teaching aids, exercises and keys, examination, assessment form of Vocational Education Commission and evaluation form. The main objectives of this research were as follows:

1. Develop the blended learning in vocational diploma program improving communication idea and information skill and actual work in the workplace.

2. Assess the communication idea and information skill of students.

3. Evaluate the efficiency of learning of the blended learning in vocational diploma program for actual work in the workplace.

4. Analyze advanced abilities of students.

5. Evaluate the industrial requirements for project workpieces of students.

6. Evaluate student's achievement.

Literature Review

2.1 Blended Learning

In the present, the blended learning: BL has been widely applied in learning and teaching. BL still consist of both teacher and student. Online technology was applied with BL which can help organize learning and teaching to be flexible in term of time, place and path. The classroom practices are combined with computer mediated activities regarding content and delivery. BL is an approach to education that combined online educational materials and opportunities for interaction online with physical place-based classroom methods. BL is also used in professional development and training settings. Since blended learning is highly context dependent, a universal conception of it difficult. BL was a mixture of online an in-person delivery where online portion effectively replace some of the face-to-face time rather than supplementing (Wikipedia, 2024).

2.2 Communication Idea and Information Competency

The problem solving skill is a complex skill that is one of key skills that are used in UK, Scottland and countries in United Kingdom, The national qualification framework (NVQs) was divided in 7 levels in UK which the competency in NVQs comprise of basic skill, common skill and key skill (NHBC, 2023) but basic skill of AQF in Australia was called key competencies that comprise of collecting, analysing and organsing ideals, communication ideals and information, planning and organizing activities, working with other and in teams, using mathematical ideals and techniques, solving problem and using technology (Australian Qualifications Framework, 2023). In Thailand, it was called national qualification framework (NQF) that was divided in 7 levels same UK and the competency in NQF comprise of core skill and occupational skill which both skills were consist of knowledge, psychomotor skill or ability and attitude. The core skill consists of communication, calculation, using information technology, analytic thinking and problem solving and working in teams (Thailand Professional Qualification Institute, 2023). The key skill is a range of essential generic skills that underpin success in education, employment, lifelong learning and personal development. People are practical, applied skills relevant both. People in UK will often be developed through other subjects or main programmes but many people also be studied in their own right (Department of Education and Skills, 2005). Communication idea and information skill comprise tasks that involve the different ways in which students communicate. Students need to be able to express themselves and to share ideas and information. This competency explores both verbal and written modes of communication (Ontario Ministry of Training, 2011).

2.3 Problem Based Learning

Problem based learning (PBL) has been widely applied in teaching and learning. PBL can be defined as a child-centered pedagogy in which students learn about a subject matter and skills practice through the experience of analytic thinking, systematically thinking, problem solving, critical thinking and creative thinking an open-ended problem found in trigger materials that were prepared by instructor. The problem based learning (PBL) process does not concentrate only on problem solving which one of core competencies with a defined solution, but it allows for the development of other desirable skills, attitude and attributes. This includes knowledge acquisition, enhanced group collaboration, numerical thinking, information and communication technology (ICT) and communication. The problem based learning process was developed for medical and nursing education and has since been extended in applications for other programs of learning, teaching and training (Duch, Groh & Allen, 2001). The procedure of problem based learning allows for students to develop knowledge, skills and attitude used in their future practice which should meet industrial requirements (Stephanie, 2008). It improves critical appraisal, literature retrieval and encourages ongoing learning within a team environment. The process of problem based learning consist of clarifying unfamiliar terms, problem definition, brainstorm, analyzing the problem, formulating learning issues, self-study and reporting (Spector, Merrill & Merrienbor, 2001). The problem based learning consist of driving questions or challenges, inquiry and innovation, 21th century skills, student voice and choices, feedback and revision and publicy presented product. Problem based learning (PBL) is similar to Project based learning (PjBL) which is a student-driven, “teacher-facilitated approach to learning. The teaching method in which students gain knowledge, skills and attitude by working for an extended period of time to investigate and respond to an authentic, engaging, and complex question, problem, or challenge. Both learning are applied to vocational and technical and engineering education for encouraging student’s skills for 21th century: skills for the future (Mills & Treagust, 2003).

2.4 MIAP Teaching Method

MIAP teaching method was used in learning and teaching for a long time in Department of Teacher Training in Mechanical Engineering, in Electrical Engineering and in Civil Engineering, Faculty of Technical Education, King Mongkut's University of Technology North Bangkok that well known in Thai-German. MIAP was known to be widespread in vocational and technical college of Thailand. The teaching technique is questioning which teacher must prepare question and answer list to help learning of students thus MIAP teaching method can be defined as a child-centered pedagogy (Phyoe & Suksawat, 2017). This teaching method consists of 4 steps as follows: 1) M: Motivation 2) I: Information 3) A: Application 4) P: Progression (Boonyapalanant & Koseeyaporn, 2017) thus MIAP was integrated with 7 steps of PBL and ADDIE Model for this research.

Methodology

This research was an experimental research as shown in Figure 1. The research model followed BL integrated with MIAP and questioning teaching method and 7 steps of problem based learning: PBL.

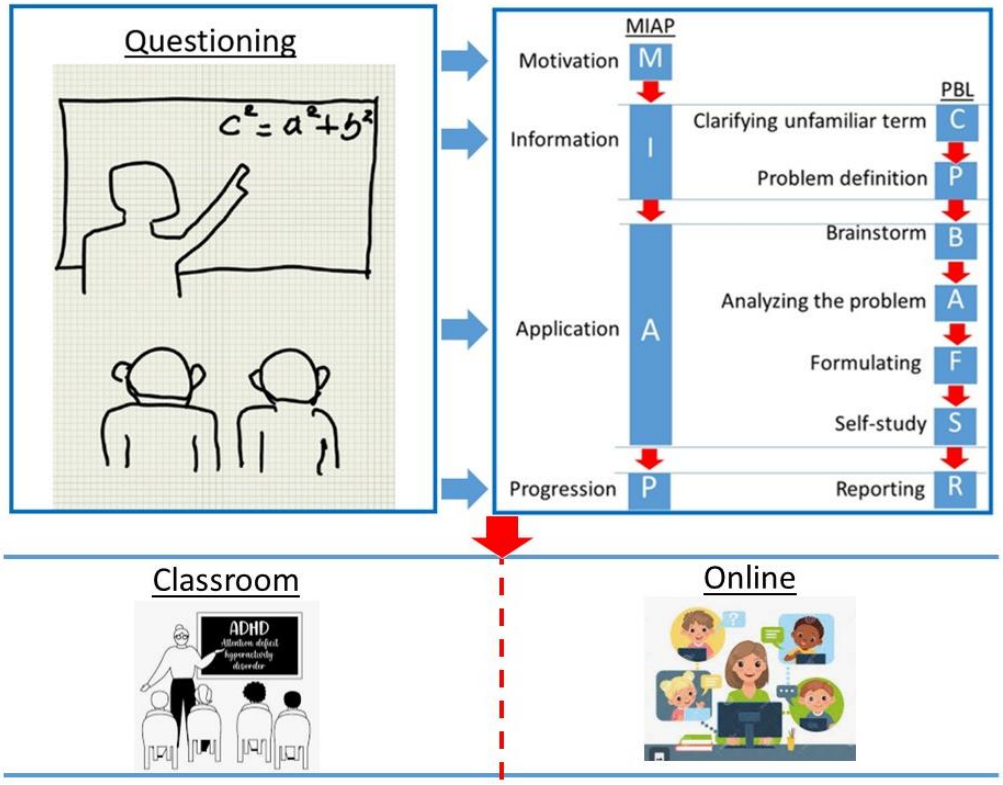

Figure 1. BL-Questioning-MIAP-PBL Model.

First, the BL program was divided two parts, first part was classroom that studied on Saturday and second part was online that studied on Sunday. The student's behavior and background, blended learning, communication idea and information skill, project course I description, problem based learning and industrial requirements for improving communication idea and information skill for Phrada Bos's students were analyzed for learning and teaching and then design and development blended learning (BL) which integrated with MIAP teaching method: 1) Motivation 2) Information 3) Application 4) Progression, questioning teaching method and 7 steps of PBL that comprise of 1) C: clarifying unfamiliar term 2) P: problem definition 3) B: brainstorm 4) A: analyzing the problem 5) F: formulating learning issues 6) S: self-study 7) R: reporting. Almost Phrada Bos students as shown in Figure 2. They were tribal, disadvantaged person, poor,

unemployed and not enough basic knowledge to study at vocational institute but those people are interest in learning and have earnest perseverance.

Figure 2. Phrada Bos Auto Mechanic Students.

Determination of Population and Sampling Group

The population were students that studying at a diploma certificate level in 2nd year of dual vocational training and worked in industry. The sampling group were The 46th Phrada Bos's student who studied at diploma certificate level in project course I were 22 registered persons, diploma in industrial technology were 9 persons, metal technology were 5 persons, Automotive Technology was 1 person, electrical technology were 6 persons and electronic was 1 person.

Competency Creation and Topic Analysis

The communication idea and information skill that was created from the both core skill of Thailand NQF and basic skill of NVQs. Topics in the course description of project course I (3104-8502) were analyzed by coral analysis technique in order to sub-topics, main elements and course expected learning outcome: CLO that consist of knowledge, skills and attitude.

Creation of Research Tools

Research tools comprise of lesson plans, chalk board layout, question list, teaching aids, exercises and keys, examination, competency assessment form, assessment form of the Vocational Education Commission that was assessed student's achievement, evaluation form which was used evaluated industrial requirements for project workpieces of students, document templates, laboratory, LINE group, Google classroom and computer room that shown in Figure 3.

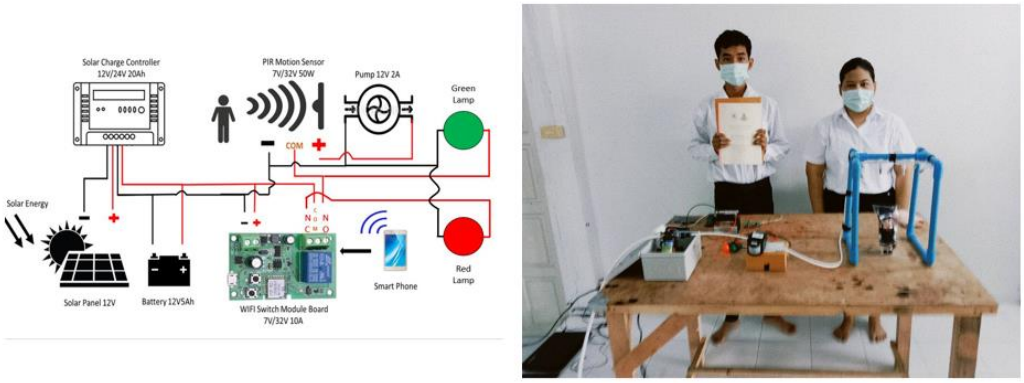

Figure 3. Online Presentation in Project Course of Phrada Bos's students.

Results

The assessment of competency of blended learning for improving communication idea and information skill for Phrada Bos's students who studied at diploma certificate level in dual vocational training (DVT) project were 22 persons. The communication idea and information competency units comprise of C2.1a, C2.1b, C2.2 and C2.3 that are assessed and presented in table 1. The results presented that the pre-test was fair level with average score 29.65 (S.D. = 4.44), the post-test was good level with average score 70.73 (S.D. = 5.39). The results revealed that blended learning for improving communication idea and information skill was good and student's communication idea and information skill were good level and increasing.

Table 1. Assessment of communication idea and information skill of students

Competency	Pre-test		Post-test	
	Average	S.D.	Average	S.D.
C2.1a*	32.55	3.67	74.05	4.04
C2.1b**	30.36	4.59	70.86	5.46
C2.2***	29.32	4.81	68.73	5.49
C2.3****	26.36	4.67	69.27	6.58
Average	29.65	4.44	70.73	5.39

*Take part in group discussion.

**Give a talk of at least four minutes.

***Read and summarise information from at least two documents about the same subject. Each document must be a minimum of 500 long.

****Write two different types of documents each one giving different information. One document must be at least 500 words long.

The efficiency result of blended based learning for improving communication idea and information skill for Phrada Bos's students compared between process efficiency (E1) and output efficiency (E2) is presented in table 2. The result of the efficiency of blended learning for improving communication idea and information skill presented that process efficiency and output efficiency E1/E2 was 82.84/80.15 that were above 80/80 established criteria. The result revealed that blended learning for improving communication idea and information skill can be used effectively in project course for diploma certificate Phrada Bos's students in the dual vocational training project.

Table 2. Efficiency of blended learning for improving communication idea and information competency for Phrada Bos's students

Evaluation	Score	Average	Efficiency
E1	40	33.14	82.84
E2	50	24.05	80.15

Table 3 and Figure 4 showed that the scores measured and evaluated learning outcome of students between before studying and after studying by assessing the statistic t-test for dependence with significance at the 0.01 level. The advanced abilities after studying of students who studied from blended learning for improving communication idea and information skill increased more than before studying. As result t-test which was significantly different at 0.01 levels. The result founded that knowledge, skills and attitude of students were improved.

Table 3. Analysis of advanced abilities

	N	ΣX	ΣD	ΣD^2	t
Pre-test	22	8.36	345	5475	41.88**
Post-test	22	24.05			

Figure 4. Project Presentation of Phrada Bos's Students.

The Phrada Bos's student who studied at diploma certificate level in blended based learning project were 22 persons, diploma in industrial technology at Donmuang Technical College (DMTC) were 9 persons and diploma in Metal Technology, Automotive Technology, Electrical Technology and Electronics at Kanchanaphisek Nongchok Industrial and Community Education College (KNICE) were 13 persons. Table 4 presented that project workpieces were good level with average score 4.26 (S.D. = 0.76). The results revealed that blended based learning for improving communication idea and information skill was good and student's learning achievement were good level. Moreover, most of the project workpieces can meet industrial requirements.

Table 4. Evaluation of project workpieces

Topics	DMTC	KNICE	Average	S.D.
Appropriated design	4.00	4.50	4.29	0.83
Drawing and specification	4.00	4.50	4.29	0.73
Production	3.83	4.13	4.00	0.78
Valuation	4.33	4.63	4.65	0.65
Presentation	4.00	4.50	4.29	0.73
Supported document	4.00	4.25	4.14	0.77
Ethic and code of conduct	4.17	4.38	4.29	0.83
Average	4.05	4.41	4.26	0.76

The result of table 5 presented that the student's learning achievement was 100% which is high since BL-Questioning-MIAP-PBL model can be used effectively in project course of dual vocational training project.

Table 5. Evaluation of student's achievement

College	Amount of students
DMTC*	
- Industrial Technology	9
KNICE**	
- Metal Technology	5
- Automotive Technology	1
- Electrical Technology	6
- Electronic	1
Total of admission	22
Achievement percentage	100%

*Donmuang Technical College, Dusit Technical College.

**Kanchanaphisek Nongchok Industrial and Community Education College.

The satisfaction of blended learning for improving communication idea and information skill for Phrada Bos's students consist of the computer room, laboratory, LINE group and Google Classroom, essential theory, progression, document template, MIAP teaching method and collage service are shown in Figure 5 and the student's projects which improving the communication idea and information skill of students and solving the working problem in actual industrial context that are shown in Figure 6. The result of the evaluation showed that blended learning for improving communication idea and information skill was good with average score 4.45 (S.D. = 0.68).

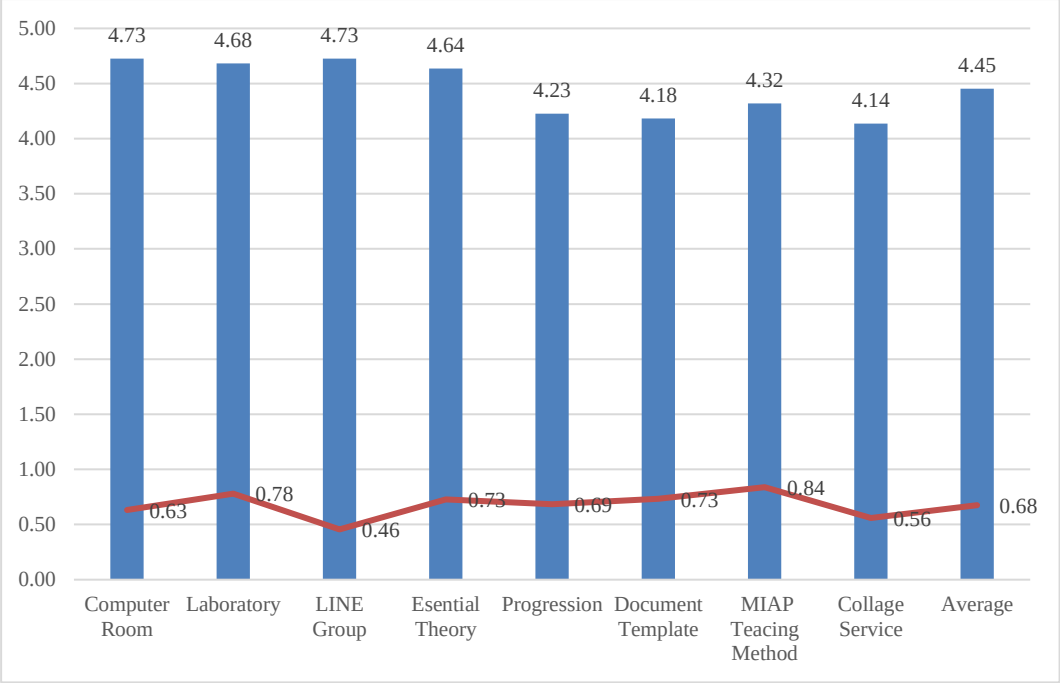

Figure 5. Satisfaction Evaluation of Blended Learning for Improving Communication Idea and Information Competency for Phrada Bos's Students.

Figure 6. Projects of Phrada Bos's Students.

Conclusions

The implemented and finished the blended learning for improving communication idea and information skill for Phrada Bos's students, the communication idea and information skill assessment presented that the pre-test was fair level with average score 29.65 (S.D. = 4.44), the post-test was good level with average score 70.73 (S.D. = 5.39), the efficiency of blended learning for improving communication idea and information skill was 82.84/80.15 that were above 80/80 established criteria. The advanced abilities after learning of students who learned from blended learning for improving communication idea and information skill increased more than before learning and abilities that met their requirements were developed by BL, the project workpieces were good level with average score 4.26 (S.D. = 0.76), Almost project workpieces can meet industrial requirement, the student learning achievement is 100% that is high since BL-Questioning-MIAP-PBL model can be used effectively in project course of dual vocational training project and the evaluation of satisfaction of problem based learning in project course was good with the average score 4.45 (S.D. = 0.68). In the conclusion from the above results, the implementation of blended learning for improving communication idea and information skill for Phrada Bos's students can be completely used to learn for

Phrada Bos's students in the dual vocational training project. For the further, next time we will implement this method to improve others core competency.

References

Australian Qualifications Framework. AQF qualifications. Available online: http://www.aqf.edu.au/framework/aqf-qualifications (accessed on 24 December 2023).

Boonyapalanant, E. & Koseeyaporn, P. Exploring the achievements of micro-teaching series on a TPAC-integrated MIAP instructional approach for vocational pre-service teacher in Thailand. In Proceedings of 5th ICTechEd, Bangkok, Thailand, 23-24 November 2017.

Department of Education and Skills. Key Skills Policy and Practice, 1th ed.; Department of Education and Skills, United Kingdom, 2005; pp. 6–7.

Duch, B.J.; Groh, S.E.; Allen, D.E. The power of problem-based learning, 1st ed.; Stylus Publisher: Winnipeg, Canada, 2001; pp. 150–196.

Mills, J.E.; Treagust, D.F. Engineering education-Is problem-based or project-based learning the answer?. AAEE 2003, 1, 1-11.

NHBC. Construction NVQs. Available online: http://www.nhbc.co.uk/buiders/products-and-services/training/nvqs (accessed on 24 December 2023).

Office of the Education Council, Ministry of Education. National Qualification Framework (Thailand NVQ) Revise Edition, 1th ed.; Office of the Education Council, Thailand, 2017; pp. 5–15.

Office of the Vocational Education Commission. Curriculum. Available online: http://www.vec.go.th/th-th/สารสนเทศสอศ/สำนักมาตรฐานการอาชีวศึกษาและวิชาชีพ/หลักสูตร.aspx (accessed on 20 December 2023).

Ontario Ministry of Training, Colleges and Universities. Curriculum Framework: Competency B. Communication Ideas and Information, 1th ed.; Ontario Ministry of Training, Colleges and Universities, Canada, 2011; pp. 1–20.

Phradabos. History. Available online: http://www.phradabos.or.th/history (accessed on 20 November 2019).

Phyoe, A.P. & Suksawat, B. Development of instructional package on engineering materials testing laboratory using MIAP learning model for Technological University of Dawei. In Proceedings of 5th ICTechEd, Bangkok, Thailand, 23-24 November 2017.

Spector, J.M.; Merrill, M.D.; Merrienbor, J.V.. Educational Communications and Technology, 1st ed.; Tayler & Francis Group: New York, USA, 2001; pp. 60–83.

Stephanie, B. Project-Based Learning for the 21th Century: Skills for Future. Routledge Tayler & Francis Group 2008, 83(2), 39-43.

Thailand Professional Qualification Institute (Public Organize). Professional Qualification and Occupational Standards. Available online: http://www.tpqi.go.th/en/qualification (accessed on 24 December 2023).

Wikipedia. Blended learning. Available online: http://www.en.wikipedia.org/wiki/Blended_lerning (accessed on 16 January 2024).