Blended Learning

Bringing Learning Theories to Create Educational Impact through Blended Learning Course

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Introduction

Surapong Lertthammakiat, MD

★ 2021 Outstanding Awards: Online Course Development and Delivery Category:

Full Online Course

★ 2022 Learning Innovation for Online courses Awards: Online Instruction Techniques Category:

Engagement Strategies for Online Teaching

Objective of This Workshop

1. Understand the concept and benefits of blended learning in medical education

2. Identify the key components and effective practices of blended learning

3. Develop practical strategies to design and implement blended learning courses

Content Outline

1. **Blended learning (BL) and its benefit**

2. Consideration for selection of online learning content

3. Key components to create effective practices of BL

4. Learning theories related to online learning

5. Developing strategies for BL courses

6. Learning management systems

7. Important checklist for evaluation of online learning

Definition of Learning

Blended Learning (BL)
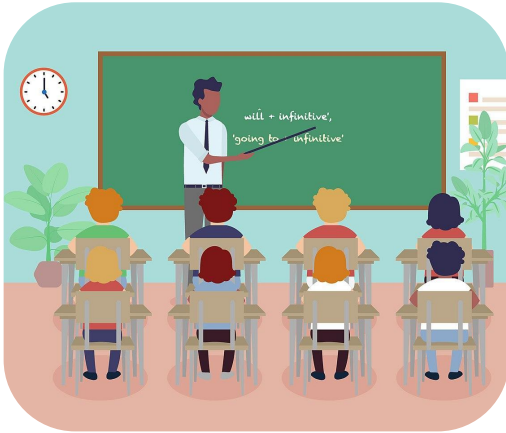
Onsite Learning
(Face-to-Face Learning)

Bichronous Online Learning

Synchronous
Online Learning
(Face-to-Face Online Learning)

Asynchronous
Online Learning

Martin F, Polly D, Ritzhaupt A. Bichronous online learning: blending asynchronous and synchronous online learning. [Internet]. EDUCAUSE Review. [cited 2021 September 7]

Definition of Blended Learning (BL)

Proportion of Content Delivered Online	Type of Course	Typical Description
0%	Traditional	Course with no online technology used —content is delivered in writing or orally.
1 to 29%	Web Facilitated	Course, which uses Web-based technology to facilitate what is essentially a face-to-face course. Uses a course management system (CMS) or Web pages to post the syllabus and assignments, for example.
30 to 79%	Blended	Course that blends online and face-to-face delivery. Substantial proportion of the content is delivered online, typically uses online discussions, and typically has some face-to face meetings.
80+ %	Online	A course where most or all of the content is delivered online. Typically have no face-to-face meetings.

Allen, I. E., Seaman, J., & Garrett, R. (2007). Blending in: The extent and promise of blended education in the United States. Needham, MA: The Sloan Consortium.

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Which of the following can be taught using BL?

- ❏ Interactive lecture
- ❏ Problem-based learning
- ❏ Team-based learning
- ❏ Flipped classroom
- ❏ Simulation-based learning
- ❏ Project-based learning

Consideration for Selection of Online Learning Content

1. Transmissive Pedagogy

2. Dialogic Pedagogy

3. Hands-on and Psychomotor

4. Affordable Analysis

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How can we prepare the learning session through different learning experiences using BL in the topics of "Teaching BL in Medical Education"?

Group 1 & 2 Flipped classroom

Group 3 & 4 Collaborative learning

Group 5 & 6 Personalized learning

Guide
1. What are the key components or effective practices used in that learning experience?
2. Which task/topics should be done online and which one should be done onsite?
3. How effective do you think this approach are in achieving the learning goals?

Topics of Blended Learning

1. What is BL?

2. Why using BL in medical education

3. Which topics should be taught face-to-face/asynchronous online learning?

4. Learning theories related to online learning

5. How to create effective BL

6. Factors related to the establishment of effective BL in the curriculum

Key Components to Create Effective Practices of BL

1. Active Learning

2. Collaboration

3. Feedback

4. Assessment

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Learning Theories related to Online Learning

1. Adult learning theory (Knowles' theory of andragogy)

2. Moore's framework to foster student engagement

Adult Learning Theory
(Knowles' Theory of Andragogy)

1. Need for knowledge
2. Internal motivation
3. Readiness to learning
4. Prior experience
5. Self-direction
6. Orientation to learning

Moore's Framework to Foster Student Engagement

1. Learner-to-Content Interaction

2. Learner-to-Instructor Interaction

3. Learner-to-Learner Interaction

How to Engage Undergraduate Students in BL

1. Purpose and acceptability: topic coverage by e-learning (basic knowledge and tutorials)
2. Structure, focus, and consolidation: consistent signposting
3. Preparation and workload
4. Engagement with E-learning component by self-tracking

Morton CE, et al. BMC Med Educ. 2016; 16: 195.

RAID 208 Hematology and Basic Oncology

หลักสูตรแพทยศาสตรบัณฑิต คณะแพทยศาสตร์โรงพยาบาลรามาธิบดีปีการศึกษา 2564

มหาวิทยาลัยมหิดล
คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี

สัปดาห์ที่ 1	สัปดาห์ที่ 2	สัปดาห์ที่ 3	สัปดาห์ที่ 4
Red blood cell (RBC)	White blood cell	Hemostasis	Oncology

RBC Topics

1. Hematopoiesis & red cell physiology
2. Hematology terms
3. Diagnostic approach to anemia
4. Nutritional anemia
5. Peripheral blood smear
6. Diagnostic approach to hemolysis
7. Thalassemia
8. Hemolysis investigation
9. Difficult anemia

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Faculty of Medicine Ramathibodi Hospital

Hematology and Basic Oncology RAID 208

W1/4

Week 1	Monday 3 Oct 22		Tuesday 4 Oct 22		Wednesday 5 Oct 22		Thursday 6 Oct 22		Friday 7 Oct 22	
	I	II	I	II	I	II	I	II	I	II
08.30-09.00										
09.00-09.30	Orientation RAID 208 (อ.อาทิตย์ MED/อ.สุรพงศ์ PED) ห้อง Auditorium/ Webex		Lecture 6 Diagnostic approach to hemolysis (อ.ลิขธาคม MED) ห้อง Auditorium/ Webex		Lecture 9 Hemolysis investigation (อ.สุรพงศ์ PED) E-learning		TBL1 Thalassemia (Hemato team) Onsite		RAGE 201 L5: Research Methodology (Comparison and selection) (อ.พิมลรัตน์ PM) ห้อง 2C2-01	
09.30-10.00	Lecture 1 Overview of clinical hematology (อ.อาทิตย์ MED) ห้อง Auditorium/ Webex									
10.00-10.30	Lecture 2 Hematopoiesis & red cell physiology (อ.สุรพงศ์ PED) ห้อง Auditorium/ Webex		Lecture 7 Thalassemia (อ.สุรพงศ์ PED) E-learning		Assigned Reading Thalassemia diagnosis (อ.สุรพงศ์ PED)					
10.30-11.00										
11.00-11.30	Lecture 3 Hematology terms (อ.สุรพงศ์ PED) E-learning				Assigned Video How to use a microscope/ Making peripheral blood smear/ How PBS look like under microscope (อ.สุรพงศ์ PED) E-learning				RAGE 201 L6: Scientific article analysis I: introduction to scientific literature (อ.พร้อมสุข PS) ห้อง 2C2-01	
11.30-12.00										
12.00-13.30 LUNCH										
13.30-14.00	Lecture 4 Diagnostic approach to anemia (อ.สุรพงศ์ PED) ห้อง Auditorium/ Webex		Lecture 8 Peripheral blood smear (อ.สุรพงศ์ PED) E-learning		Lab 1 Peripheral blood smear and RBC morphology (Hemato team) Webex (Lab talk) 13.00-13.15/ ห้อง MDL onsite group 1 13.15-14.45 & onstie group 2 14.45-16.15/ E-learning assignment		Lecture 10 Difficult anemia (อ.สุรพงศ์ PED) E-learning			
14.00-14.30										
14.30-15.00	Lecture 5 Nutritional anemia (อ.สุรพงศ์ PED) E-learning		Assigned Reading RBC indices (อ.สุรพงศ์ PED)				Formative Evaluation 1 RBC E-learning			
15.00-15.30										
15.30-16.00										
16.00-16.30										

RAID 208 Hematology and Basic Oncology

Student Engagement following Moore's Framework
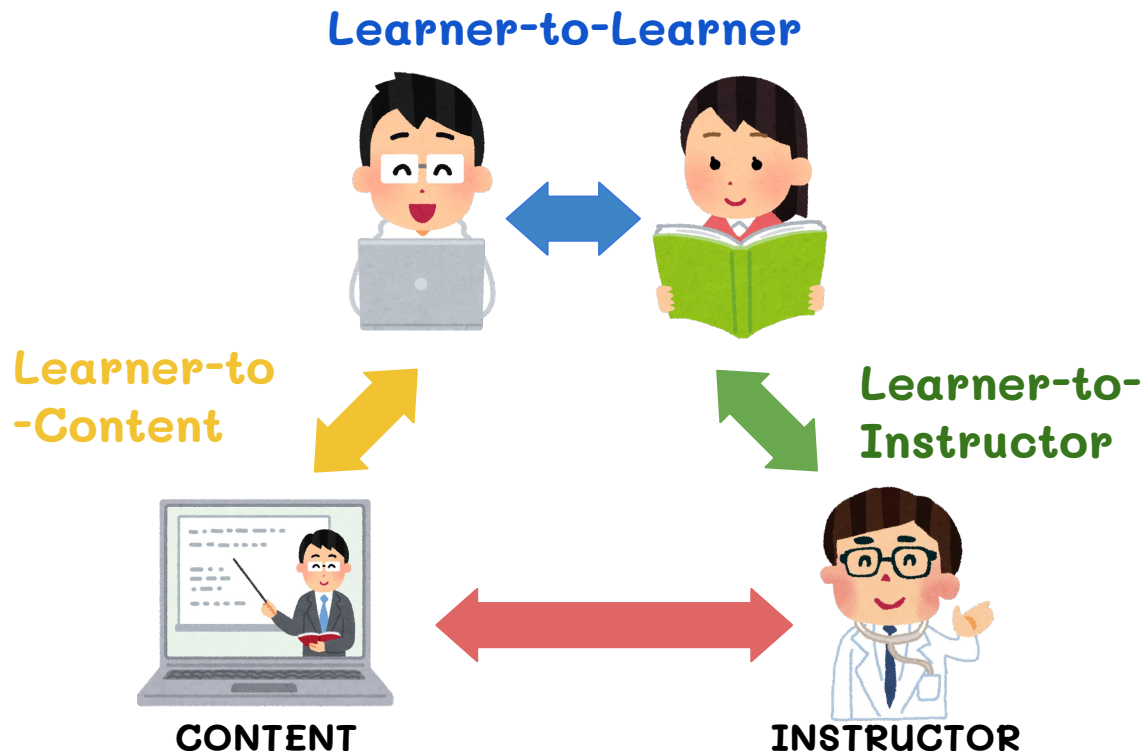
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6. Learning management systems

7. Important checklist for evaluation of online learning

Developing Strategies
for BL Courses
in Doctor of Medicine Program

You are a course director of a 4-week course teaching 200 medical students introductory content before entering clinical years

How could you manage this module in term of using effective BL

Guide
1. Learner needs and preferences
2. Learning objectives
3. Instructional strategies
4. Face-to-face and asynchronous online components
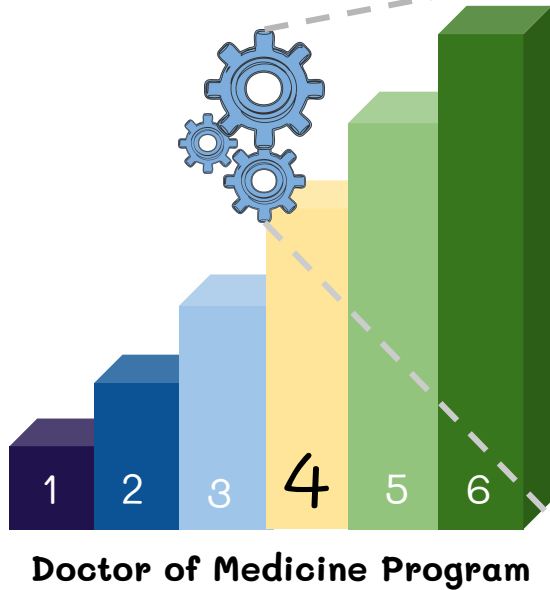5. Assessment and evaluation

How can I Develop and Implement BL Curriculum?

1. Apply the Kern cycle for curriculum development
2. Apply an instructional framework for the design
3. Train the faculty on BL and build a team
4. Involve the targeted group
5. Clarify incentives for educators and legal aspects
6. Build on a stable and modern technical infrastructure
7. Provide a common thread
8. Combine and align different teaching and assessment methods
9. Integrate open educational resources
10. Make full use of evaluation and feedback opportunities

Hege I, et al. GMS J for Medical Educ. 2020; 37.

RAID 411 Introduction to Clinical Clerkship

4-week rotation (April 24th - May 19th, 2023) **Online content 45%**

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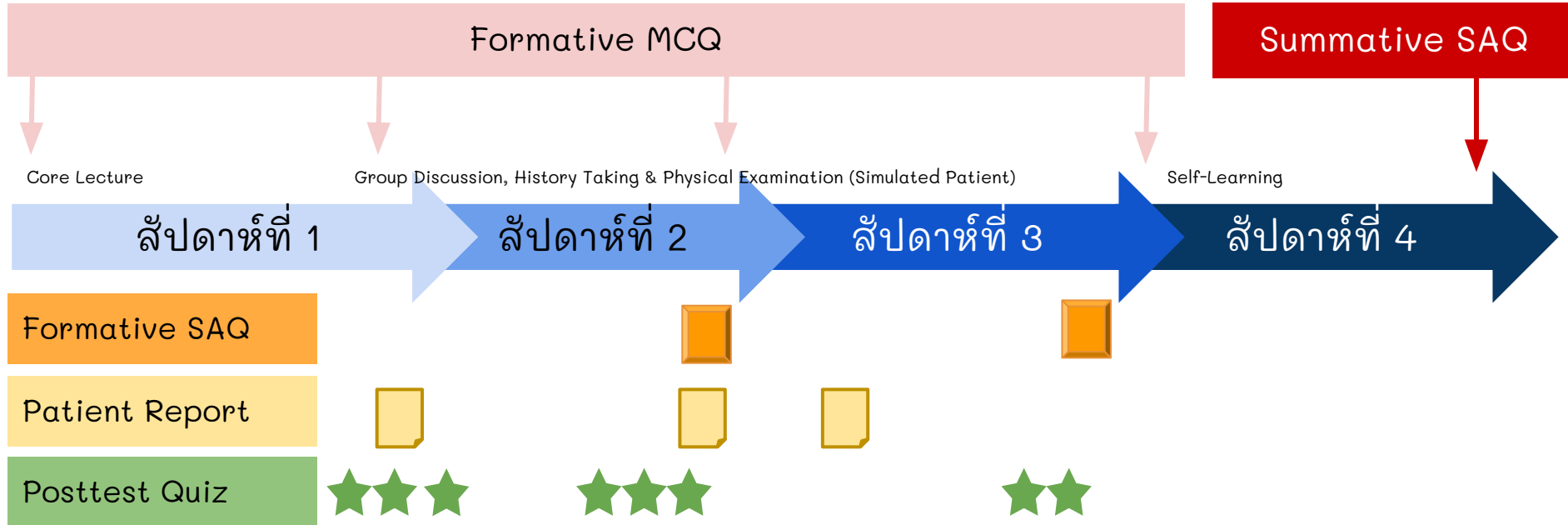Faculty of Medicine Ramathibodi Hospital

Week	1	2	3	4	Digital Tools
11 Synchronous Online Topics	5	3	2	1	Recorded Webex, upload in Moodle
8 Asynchronous Online Topics	3	3	2	-	Pre-recorded VDO, posttest quiz
2 Online Group Discussion		1	1		Breakout, record, upload in Moodle
6 Onsite Group Discussion	2	1	2	1	Onsite
1 Review Physical Examination	1	-	-	-	-
4 History Taking & Physical Examination	1	1	1	1	Evaluate in REXX application
4 Basic Procedural Skill	1	1	1	1	Evaluate in REXX application
4 Formative MCQ	2	1	-	1	Quiz in Moodle
2 Formative SAQ	-	1	1	-	Assignment in Moodle
1 Summative SAQ	-	-	-	1	Exam in C-quiz

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Learning Management System (LMS)

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1) **Ability to upload and download electronic materials**

- Upload Learning Materials
- Review the Basic Knowledge before Onsite Learning

2) **Making various assessments**

- Create Quiz
- Allow Multiple Attempt until Passing Grade
- Stratified Random Question from Question Bank
- Provide Certificate when Conditions are Met
- Evaluate the Provided Activity

3) **Improvement of student-professor interaction**

- Forum Discussion
- Individual feedback through assignment

Learning Management System (LMS)

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4) Promote self-directed learning

- Navigate Students to Complete Self-Directed Learning Topics
- Restrict Access of the Activity until the Previous Activity is Done
- Show the Remaining Incomplete Task
- Write Self-Reflection and Future Development Plan

5) Provide learning analytics

- Track Learning Progress of Each Students
- Collect logs for learning analytics

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7. **Important checklist for evaluation of online learning**

3 Key Components of BL Course

Organization Capacity

- Governance
- Resources
- Bylaw

Educational Effectiveness

- Educational program
- Course design
- Course delivery
- Student assessment
- Evaluation

Human Resources

- Faculty
- Students
- Administration

Important Checklist of "Organization Capacity" for Evaluation of Online Learning

Governance

- Designated team for online learning implementation and evaluation
- Standard operating procedures document
- Workload calculations/privileges given to online teachers
- What percentage of the curriculum is taught online?

Resources

- Devices/internet access
- Learning management system
- Trained technical support teams

Bylaws

- Institutional mission and vision included online learning activities
- Policy and strategies documented for online learning course
- Training plan for personnel
- Online library/learning resources

Wasfy NF, et al. BMC Med Educ. 2021; 21: 339.

Important Checklist of "Educational Effectiveness" for Evaluation of Online Learning

Educational program

- Approved, updated and well-constructed online education plan
- Alignment of online teaching plan with program learning outcomes
- Clear identification of the required resources for the program

Wasfy NF, et al. BMC Med Educ. 2021; 21: 339.

Important Checklist of "Educational Effectiveness" for Evaluation of Online Learning

Course design

- Clear intended learning outcomes
- What is the percentage of online learning activities?
- What is the ratio between face-to-face to online assessment methods?
- What is the ratio between synchronous and asynchronous online learning activities?
- Faculty guide that shows how tools are applied
- Instructional methods and digital tools to support student engagement and suit all learning styles

Course delivery

- Evaluation plan developed, revised, and approved by team and relevant stakeholders
- User friendly
- Technology requirement document disseminated and used by faculty
- Minimal technology requirements clearly stated and instructions for use provided in a document
- Schedules are present and announced

Wasfy NF, et al. BMC Med Educ. 2021; 21: 339.

Important Checklist of "Educational Effectiveness" for Evaluation of Online Learning

Student assessment

- Online assessment methods are clear, fair, and acceptable for all students
- Formative assessment used at proper intervals
- Students receive structured feedback after each formative assessment
- Multiple assessment methods are used to measure cognition, skills, and attitude
- Assessment schedules are clear, applicable, and fair for all students and announced on the websites

Evaluation

- Documented continuous monitoring and evaluation for the online learning materials/process by internal reviewers to collect and analyze data for continuous improvement
- Documented periodic evaluation by external reviewers to validate the internal evaluation process and assess the goal achievement
- Meetings are held with stakeholders regularly
- Evaluation results are utilized for further corrective actions and planning

Wasfy NF, et al. BMC Med Educ. 2021; 21: 339.

Important Checklist of "Human Resources" for Evaluation of Online Learning

Faculty

- Wide variety of professional development activities related to skills needed for online education
- Technical checklist for technical support staff
- Faculty are familiar with the different modalities of LMS or online platforms

Students

- Orientation session conducted for students regarding the online course
- Learning materials and resources are available and accessible during orientation
- Guidelines for student-teacher and student-student communication means
- Equity and accessible to technology are ensured to all students with available technical support team
- Timely and constructive feedback to students

Administration

- Administrator's training plan
- The administration is monitoring the implementation of online activities with frequent evaluation and actions done for any challenges encountered

Wasfy NF, et al. BMC Med Educ. 2021; 21: 339.

Summary of Content

1. **Blended learning (BL)**: Online Content 30-79%
2. **Effective practices of BL**: Engagement in Online Learning
3. **Online engagement**: Interaction and self-direction with task orientation
4. **Developing BL courses**: Instructional design using various features of learning management system
5. **Consideration of developing BL**: Workload and technological support