

# **DEVELOPMENT OF LEARNING MODELS IN THE EDUCATIONAL ERA 4.0**

## **(DEVELOPMENT OF BLENDED LEARNING USING TRELLO SOFTWARE AND GOOGLE CLASSROOM)**

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**Abstract:** Entering the era of education 4.0 the implementation of blended learning in learning has increased. This implementation aims to offer time and place flexibility in learning. In addition, blended learning can also accommodate diverse student characteristics. Often with the development of various learning platforms and software, the use of blended learning must be increasingly innovative. Blended learning can be completely developed in different ways, and adjusted to the characteristics of students. One development is to use software that can support learning. This study was conducted in terms of research and development that aims to develop a blended learning model by utilizing the Trello and Google Classroom software in Library Management courses in tertiary institutions. This model can help students understand the basic concepts in library management and practice it directly. This model also allows students to conduct experiments in a shorter time and encourage them to explore library management activities. The development of blended learning is done by combining face-to-face learning and learning in online networks through software to optimize the benefits of both methods. The research process is divided into 2 phases: 1) the development of blended learning learning by utilizing Trello software and Google Classroom, and 2) the results of the development of blended learning which are analyzed from the results of evaluating the achievements of the courses. The research sample was 2 classes of Library Management courses chosen by purposive sampling technique. The results showed that Trello Software and Google Classroom can be used actively in lectures. Trello is used as a medium of communication, control, and project management practical activities carried out by students in various libraries. While Google Classroom is used in activities that require more complex information and instructions and as a means to collect assignments online. The results of the development of blended learning can be seen from the results of evaluating the achievement of courses which showed 94% of students graduated at CPMK 1, 78% of students graduated at CPMK 2, and 83% of students graduated at CPMK 3. The total graduation for the combined three CPMK was 86%.

*Keywords:* blended learning, Google Classroom, Trello

## **Introduction**

Preparing graduates who have strong and capable abilities in responding to the challenges of the times is a necessity for every educational institution. This imperative is further strengthened by the emergence of every Strata-11 tertiary institution to prepare a curriculum based on the Indonesian National Qualification Framework (KKNI).<sup>1</sup> Specifically, the competencies expected from the S-1 level are, among others, being able to utilize IPTEKS in their area of expertise and being able to adapt to the situation at hand in solving problems. That's why education must reflect the process of humanizing humans in the sense of actualizing all of their potential into abilities that can be utilized in everyday life in the wider community. Higher education curriculum applicable in Indonesia has led to this. The Indonesian National Qualifications Framework curriculum (KKNI) appears with a spirit of equipping competencies with its students and the spirit of rapid technological development. That is, students have the competencies needed in the world of work with the approach of using technology in the learning process.

The use of technology in the learning process is growing rapidly along with the entry of the era of education 4.0. Various learning models are developed by utilizing technology. Online classes and distance learning become one of the development models of learning that is quite popular. This learning model can overcome the problem of limited space and time in learning. But in practice, communication between lecturers and students in face-to-face learning is also important in transferring educational values. These values can be transferred through direct interaction between lecturers and students. For example by displaying the example, discipline, empathy, and other things that can be seen directly. That is why another learning model is developed, namely blended learning. Blended learning generally adopts traditional education along with online learning

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<sup>1</sup> See Law Number 12 of 2012 concerning Higher Education, Article 29 concerning graduate competence is determined by referring to KKNI and Presidential Regulation No. 8 of 2012 concerning the Indonesian National Qualification Framework (KKNI).

technology. This aims to facilitate students in accessing education<sup>2</sup> and increasing their participation. A flexible learning model allows students to access knowledge in an unlimited time and place.<sup>3</sup> This has a greater chance of meeting the different needs of each student. As an effective strategy in combining the best methods of face-to-face and online learning, blended learning has great potential for managing differences in learning<sup>4</sup>.

Research on the development of learning models using blended learning has been widely carried out. Coyne develops blended learning by making simulation videos on nursing practice that allow students to see best practices and provide relevant links between theory and practice. Simulation videos are designed to provide a clearly visible relationship between theoretical and clinical content. This can make a positive contribution to students because it has succeeded in increasing the self-assessment of nursing students about their knowledge. Learner preferences for interactive learning styles support the development of mixed learning environments in the future and make blended learning models an effective educational method.<sup>5</sup> Research and development that aims to develop a blended learning model is carried out by Klentien on high school students. Blended learning is project based learning through virtual science laboratories developed in science classes. The results showed that there were five modules used in the learning model, namely 1) Student Modules, 2) Instructor Modules, 3) Mixed Learning Modules

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<sup>2</sup> Charles R. Graham, Wendy Woodfield, and J. Buckley Harrison, “A Framework for Institutional Adoption and Implementation of Blended Learning in Higher Education,” *The Internet and Higher Education* 18 (July 1, 2013): 4–14, doi:10.1016/J.IHEDUC.2012.09.003.

<sup>3</sup> Thomas Wanner and Edward Palmer, “Personalising Learning: Exploring Student and Teacher Perceptions about Flexible Learning and Assessment in a Flipped University Course,” *Computers & Education* 88 (October 1, 2015): 354–69, doi:10.1016/J.COMPEDU.2015.07.008.

<sup>4</sup> Ruth Boelens, Michiel Voet, and Bram De Wever, “The Design of Blended Learning in Response to Student Diversity in Higher Education: Instructors’ Views and Use of Differentiated Instruction in Blended Learning,” *Computers & Education* 120 (May 1, 2018): 197–212, doi:10.1016/J.COMPEDU.2018.02.009.

<sup>5</sup> Elisabeth Coyne et al., “Simulation Videos Presented in a Blended Learning Platform to Improve Australian Nursing Students’ Knowledge of Family Assessment,” *Nurse Education Today* 66 (July 1, 2018): 96–102, doi:10.1016/J.NEDT.2018.04.012.

of Project Based Learning, 4) Virtual Laboratory Modules, and 5) Assessment Modules. Experts who assess teaching models show that the teaching model developed is very appropriate, because it can improve analytical thinking skills and evaluate the ability to do science projects for high school students.<sup>6</sup> Other research is testing blended learning in the learning process. McChutcheon tested whether undergraduate nursing students who received clinical coaching skills training through a blended learning approach would result in higher scores in terms of motivation and attitude. The result is that blended learning provides additional pedagogical value when compared to online learning in terms of teaching the clinical supervision skills of undergraduate nurses. The overall conclusion reached by this study is that mixed learning does have added value when compared to online learning in terms of teaching clinical undergraduate nursing nursing students as measured by their motivation and attitude towards learning clinical supervision, student satisfaction with learning.<sup>7</sup>

Various blended learning development studies provide ideas for researchers to develop a blended learning model in the Library Management course. The hope, learning that takes place does not repeat the learning stagnation in the previous year which spends more time on activities in the classroom. The development of the lecture process is carried out to equip students to gain real experience. Innovation on the implementation of the learning model must be more effective and meaningful. Effective in the sense of achieving the learning objectives must be more complex covering cognitive, psychomotor, and affective aspects, as well as meaningful, which means there is a broader value of giving experiences to students to see phenomena concretely. Learning development is done by utilizing the library as a real space and part of the learning laboratory. This blended learning development research was conducted by combining face-to-face learning with practice in various

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<sup>6</sup> Unchana Klentien and Wannachai Wannasawade, "Development of Blended Learning Model with Virtual Science Laboratory for Secondary Students," *Procedia - Social and Behavioral Sciences* 217 (February 5, 2016): 706–11, doi:10.1016/J.SBSPRO.2016.02.126.

<sup>7</sup> Karen McCutcheon, Peter O'Halloran, and Maria Lohan, "Online Learning versus Blended Learning of Clinical Supervisee Skills with Pre-Registration Nursing Students: A Randomised Controlled Trial," *International Journal of Nursing Studies* 82 (June 1, 2018): 30–39, doi:10.1016/J.IJNURSTU.2018.02.005.

libraries. The library as a source of learning will become an open space for students to explore, discover, analyze, conclude, and reflect on their results regarding the facts of the learning process that occurs in various libraries today.

However, the challenge of this lecture is that researchers cannot monitor every detail of practical activities in the library for several reasons. For example, such as student groups scattered in various libraries in the city and outside the city, causing researchers difficulty to monitor and come directly to the practice location. Therefore researchers conducted research and development of blended learning models by utilizing Trello software and Google Classroom. The software is used to monitor student performance in classrooms and practice sites without having to face-to-face and help students to be disciplined in carrying out each task. In addition this research will also look at how the results of the development of blended learning utilizing Trello software and Google Classroom.

## Theoretical Framework

Theories and software used in research and development of blended learning models will be discussed first in this section. Its function is that the reader can know the basic concepts related to the theory and know the function of the software in general.

### A. Blended Learning

Blended learning can be considered as a broad spectrum of possible combinations between face-to-face education and online education.<sup>8</sup> This learning is built on the convenience of online learning, without losing face-to-face contact. In blended learning, classrooms and integrated distance learning (spaces) and synchronous meetings are interspersed with learning activities that are out of sync (time) through technology.<sup>9</sup> The development of variations in learning can be adapted to the context of the educational environment and the time of

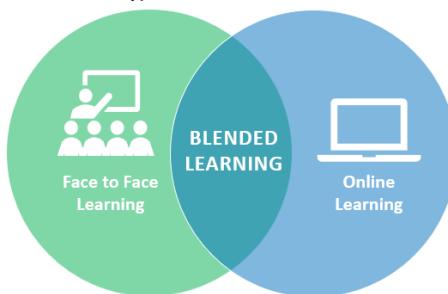
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<sup>8</sup> Andrew M. Blaine, "Interaction and Presence in the Virtual Classroom: An Analysis of the Perceptions of Students and Teachers in Online and Blended Advanced Placement Courses," *Computers & Education* 132 (April 1, 2019): 31–43, doi:10.1016/J.COMPEDU.2019.01.004.

<sup>9</sup> Céline Cocquyt et al., "Examining the Role of Learning Support in Blended Learning for Adults' Social Inclusion and Social Capital," *Computers & Education* 142 (December 1, 2019): 103610, doi:10.1016/J.COMPEDU.2019.103610.

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implementation of learning. Blended learning is considered more effective than traditional classrooms in facilitating transformative learning. In the implementation of learning, students can effectively monitor self-regulated learning and the instructor can provide fast feedback or support as needed. The online platform used in blended learning also provides more effective facilities, for example by increasing various learning and assessment activities.



Picture 1. Illustration of blended learning

Source : graniteschool.org

Blended learning has several advantages, especially in aspects of developing student competencies.<sup>10</sup> This learning model offers several new opportunities to optimize learning. However, good time management and self-regulation are important components for achieving learning success. Some of the advantages of blended learning include:

1. Easy to adapt to the needs of students because the program is flexible
2. Can develop students' creativity and critical thinking skills
3. Enabling students to be independent and control their own learning
4. Reducing the workload of teachers or lecturers
5. Makes it possible to establish structured communication

When viewed from the effectiveness of learning, blended learning with less face-to-face time is as effective as face-to-face learning. This is

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<sup>10</sup> Anna Buran and Arina Evseeva, "Prospects of Blended Learning Implementation at Technical University," *Procedia - Social and Behavioral Sciences* 206 (October 17, 2015): 177–82, doi:10.1016/J.SBSPRO.2015.10.049.

shown from the learning outcomes of students who take part in blended learning are rated significantly higher than students in traditional classes.<sup>11</sup>

Some challenges in the use of blended learning in learning come from students themselves and the technology used<sup>12</sup>, and the tendency of academics such as teachers or lecturers<sup>13</sup>. Some of these challenges include:

1. Challenges of student self-regulation related to how to organize their own learning activities. Blended learning allows students to use their learning time for other activities. The flexibility and autonomy of learning given to students opens opportunities to postpone.
2. Technology literacy and competency challenges of each educator and student are different. To realize the successful implementation of blended learning, it requires skills from each educator and students to master the technology used in learning.
3. The challenge of isolating students because of their hesitation to participate / be involved in online communities. Doubts can arise if students do not have preparations such as reading material and doing assignments before class begins.
4. Challenges in the adequacy of technology that can be accessed by students, both hardware and software.
5. The challenges of technological complexity make students spend more time learning how to use the technology.

#### B. Trello

Trello is a project management software that adapts the Kanban Method. Kanban which in Japanese means "visual record or signal" has

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<sup>11</sup> David C.D. van Alten et al., "Effects of Flipping the Classroom on Learning Outcomes and Satisfaction: A Meta-Analysis," *Educational Research Review* 28 (November 1, 2019): 100281, doi:10.1016/J.EDUREV.2019.05.003.

<sup>12</sup> Rasheed Abubakar Rasheed, Amirrudin Kamsin, and Nor Aniza Abdullah, "Challenges in the Online Component of Blended Learning: A Systematic Review," *Computers & Education* 144 (January 1, 2020): 103701, doi:10.1016/J.COMPEDU.2019.103701.

<sup>13</sup> Vladlena Benson and Ailsa Kolsaker, "Instructor Approaches to Blended Learning: A Tale of Two Business Schools," *The International Journal of Management Education* 13, no. 3 (November 1, 2015): 316–25, doi:10.1016/J.IJME.2015.10.001.

two main functions, namely as a control of production and as a means of increasing production.<sup>14</sup> The method utilizes visual signals in the form of colorful cards that indicate various information about the job: what to do, when and how. That's why kanban is also called visual management. The Kanban method can also be interpreted as a production order card that functions to control inventory, the form of a kanban is a kind of "rectangular vinyl card" that is inserted into a transparent plastic bag and placed on a pallet where component parts or material components are.<sup>15</sup> This understanding arises because the method is widely used in large production activities. One company that developed this method to improve the efficiency of its company is Toyota through the Toyota Production System. The Kanban system was recognized as a fruit of science in early 2005, and in 2007 a Kanban community was created, led by David J. Anderson, Jim Benson, Corey Ladas, and several others..<sup>16</sup>

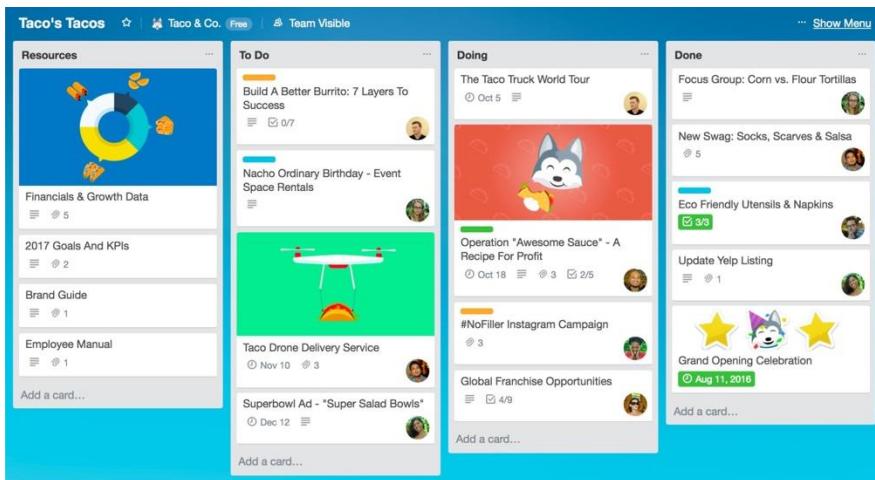
The Kanban method was adapted by Trello to simplify the communication process so that it becomes an effective alternative in improving communication because it utilizes the power of visual information. Terllo as a collaboration application is used to complete a project together. Trello's initial idea emerged in 2010, with the first prototype named Trellis, which was launched in early 2011. Furthermore, Trello continued to develop its products for Android and iOS. In 2015 Trello became known internationally and in 2017 was acquired by Atlassian. The Trello application can be said to be a form of the modern kanban method because it adapts the same work system but its packaging in digital form. This application consists of a board, list, card, and label that allows its users to make assignments that can be accessed by people who are invited to the task.

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<sup>14</sup> Indonesia Productivity and Quality Institute, "Pengertian Konsep Dan Metode Kanban," n.d., <https://ipqi.org/>.

<sup>15</sup> Yasuhiro Monden, *Sistem Produksi Toyota Edisi 1 & 2* (Jakarta: Pustaka Binaman Pressindo, 1995).

<sup>16</sup> Shift Indonesia, "Permudah Aliran Informasi Dengan Kanban," n.d., <http://shiftindonesia.com/>.



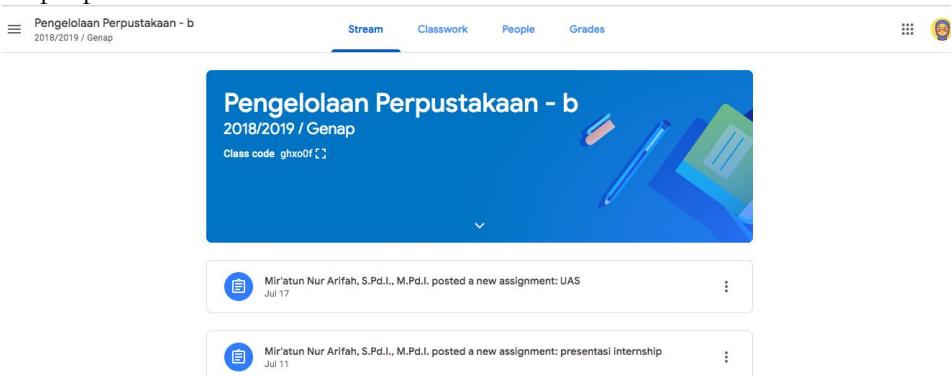
Picture 2. Trello display  
Source : terlo.com

### C. Google Classroom

The second software used in the development of this learning is Google Classroom. Google Classroom is a mixed learning porch for the scope of education that can facilitate teachers in making, sharing and classifying any paperless assignments. The software has been introduced as a feature of Google Apps for Education as a free productivity tool which includes email, documents and storage. Classroom is designed to facilitate teachers in saving time, managing classes, and improving communication with students both inside and outside of school. Google Classroom can be used by four types of users, namely instructors, students, guardians, and administrators. Teachers can use Classroom to create and manage classes, assignments, grades and provide real-time input. Students can monitor material and class assignments, share materials and interact in the class stream or via email, send assignments and get input and grades directly. For guardians, Classroom can be used to get email summaries related to student assignments that include information about assignments that are not done, subsequent assignments and class activities. Whereas administrators can create, view or delete classes in their domain, add or remove students and instructors from the class and view assignments in all classes in their domain.

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Based on the official website from Google, Google Classroom provides several benefits such as: 1) Classes can be prepared easily; instructors can prepare classes and invite students and teaching assistants. Then in the class stream, they can share information such as assignments, announcements and questions; 2) Save time and paper; teachers can create classes, assign assignments, communicate and do management, all in one place; 3) Better management; learners can see assignments on the assignment page, in the class stream or on the class calendar. All material is automatically stored in the Google Drive folder; 4) Improving communication and input; the teacher can make assignments, send announcements and start class discussions directly. Students can share material with each other and interact in class flow via email. Teachers can also quickly see who has and hasn't completed an assignment, and immediately provides real-time grades and input; 5) Can be used with other applications used; for example Google Documents, Calendar, Gmail, Drive and Forms; 6) Safe and affordable; classes are provided free of charge. Classes do not contain advertisements and never use student content or data for advertising purposes.



Picture 3. Google Classroom display  
Source : classroom.google.com

## Method

This research is included in research and development that develops a blended learning model in lectures in tertiary institutions. The subject

chosen in developing this learning model is the Library Management course. The Library Management course is a new course offered as one of the elective courses starting in the 2017/2018 academic year. This course does not exist before or is not the result of conversion from another course. This course carries the spirit of KKNI which requires students to have skills in addition to mastery of concepts and theories. In addition, the demands of educational institutions cooperating with the Islamic Education Study Program Department of Islamic Studies, Faculty of Islamic Studies (PAI JSI FIAI) expect students to have other competencies besides teaching that can be utilized in the development of schools / madrasas. Therefore, this course is offered in the PAI Study Program as one of the elective courses. The development of this subject matter is important because PAI graduates are required not only to teach in class, but also to become a means of learning resources or to become a librarian (managing libraries or learning resources) at a minimum on their students.

The development of blended learning in Library Management courses is carried out by combining classroom learning and practice in the library. The development of this learning model builds a mixed learning environment consisting of three parts: task-based online learning, peer-based learning groups, and traditional classroom-based face-to-face learning.<sup>17</sup> Classroom learning helps develop students' cognitive abilities in understanding basic concepts and theories in library management. Whereas practical learning in the library helps develop students' affective and psychomotor abilities in managing the library. This means that by combining the two forms of learning will develop the ability of students as a whole, both from the cognitive, affective, and psychomotor aspects. The advantage of developing this learning model is that there is flexibility in learning, but it does not lose the social interaction that they normally encounter in a face-to-face environment.<sup>18</sup> The Trello software and Google

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<sup>17</sup> Chunlin Yao, "An Investigation of Adult Learners' Viewpoints to a Blended Learning Environment in Promoting Sustainable Development in China," *Journal of Cleaner Production* 220 (May 20, 2019): 134–43, doi:10.1016/J.JCLEPRO.2019.01.290.

<sup>18</sup> Ruth Boelens, Bram De Wever, and Michiel Voet, "Four Key Challenges to the Design of Blended Learning: A Systematic Literature Review," *Educational Research Review* 22 (November 1, 2017): 1–18, doi:10.1016/J.EDUREV.2017.06.001.

Classroom are used actively in lectures to support the organization of lectures and to make learning effective.

Using a sample of 2 classes on Library Management courses taken by 109 students, this research and learning development was carried out in 3 steps.

1. First steps
  - a. Develop a blended learning development plan that is appropriate to the characteristics of lectures and the availability of supporting resources at the study site. The learning development plan is written in the lecture document, including the preparation of the syllabus, semester learning plan (RPS), assignment sheet, and assessment rubik. In addition, the lecturer activates the Trello and Google Classroom software as a preliminary preparation for learning
  - b. Propose a learning model design to the Director of Academic Development
2. Second steps
  - a. The design of the blended learning model approved by the Director of Academic Development is socialized to students at the first meeting so that they understand the lecture model that will be followed for one semester
  - b. Implementation of the development of blended learning in learning by utilizing Trello and Google Classroom software
  - c. Evaluating learning based on the assessment rubric
3. Third steps
  - a. Present the results of the implementation and evaluation of the development of blended learning to the Director of Academic Development
  - b. Make a follow-up to the development of blended learning

## **Discussion**

This study presents a framework based on four major challenges for blended learning design: combining flexibility, stimulating interaction, facilitating student learning processes, and fostering an effective learning climate.<sup>19</sup> The course of the Library Management is packaged in the form of Blended Learning by utilizing the Trello and Google Classroom

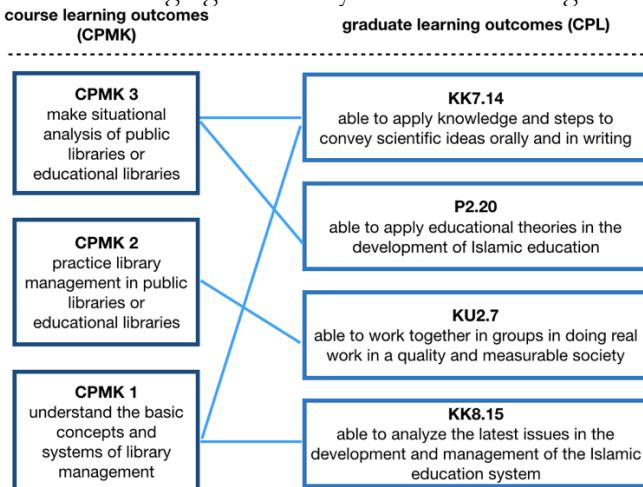
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<sup>19</sup> Ibid.

software. This software is used in an integrated manner from the design process to the evaluation of lectures.

#### A. Development of Learning Models

The lecture process is based on the course learning outcomes (CPMK). CPMK is formulated based on graduate profiles and graduate learning outcomes of Islamic Religious Education study programs. This CPMK requires skills in managing the library besides mastering the material.

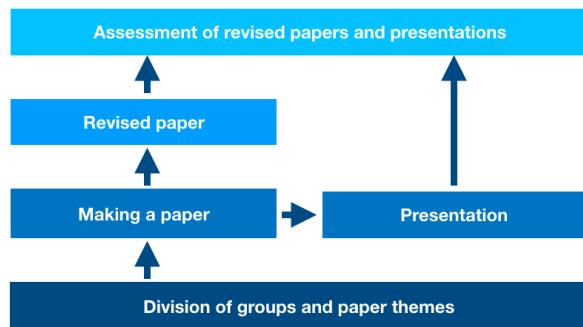


Gambar 4

Peta capaian pembelajaran mata kuliah dalam memenuhi peta capaian pembelajaran lulusan

Based on the mapping of course learning outcomes to the graduate learning outcomes, the implementation of the lecture process developed using the blended learning model is carried out in 2 stages.

#### 1. Lecture Stage 1



Picture 5  
Scheme lecture stage 1

The learning process is carried out classically based on student centered learning. The material discussed is the basic concepts and management of library management. This learning is carried out with student paper-making activities, presentations, and discussions. The aim is to meet CPMK 1 which is more dominant in developing cognitive domains. Lecture stage 1 utilizes Google Classroom for activities to provide lecture information and assignment collection. At the beginning of the lecture, the lecturer presents the lecture design, explains the general description of the lecture material, and gives the assignment to make a paper. Papers that have been made, collected through Google Classroom, and began to be presented at the next meeting.

tugas cpnk 1  
8 47  
Turned in Assigned  
All

Student	Assignment	Status
KHAI'RUL AMRI	MAKALAH KELAMPO...	Turned in
TIARA ARTHA PITALOKA	tugas pengelolaan per...	Turned in
LAILY NUR HIDAYATI	PERPUSTAKAAN KEL ...	Turned in
AMANAH NUR ISTIQOMAH	PENGELOLAAN PERP...	Turned in
ERLLAYUSI NURAFIFAH	Makalah Pengelolaan ...	Turned in
ANISSA NURAINI	PENGELOLAAN PERP...	Turned in
NAILI SAADAH	PENGELOLA PERPUS...	Turned in
ATIK SYAKIROH	No attachments	Turned in

Picture 6

Collection of student papers through Google Classroom

At the next meeting until the seventh meeting, lecture activities are carried out with student presentations in groups. The student in charge of the presentation, delivered his presentation in front of the class and guided the course of the lecture. Presentation activities are carried out in 4 stages. The first stage is the presentation of the material, then the second stage is ice breaking which functions to break the mood and improve the concentration and enthusiasm of students in learning, the third stage is question and answer, the fourth stage is reinforcement by lecturers. In carrying out presentations, students create presentation files that can be in the form of power points or the like that can support the implementation of presentations in class. Papers that have been collected by students through Google Classroom will also be checked for plagiarism using Turnitin. Papers whose plagiarism check results are still above 40% must be revised. Whereas papers whose plagiarism results below 40% are permitted to be revised.

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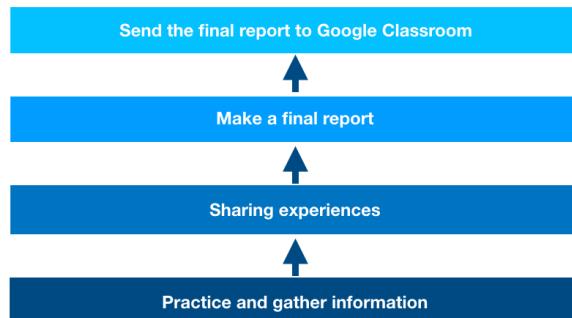
**Makalah (CPMK 1)**

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<input type="checkbox"/> Ena Manal Ahmad	Pengelolaan Sarana dan Prasarana Perpust...	49% <span style="color: yellow;">█</span>	--	--	<a href="#">File</a>	1111032081		
<input type="checkbox"/> Yulina Faoziah	Kondisi Psikologis Pemakai Perpustakaan	51% <span style="color: orange;">█</span>	--	--	<a href="#">File</a>	1111028339		

Picture 7  
The results of plagiarism check of student papers using Turnitin

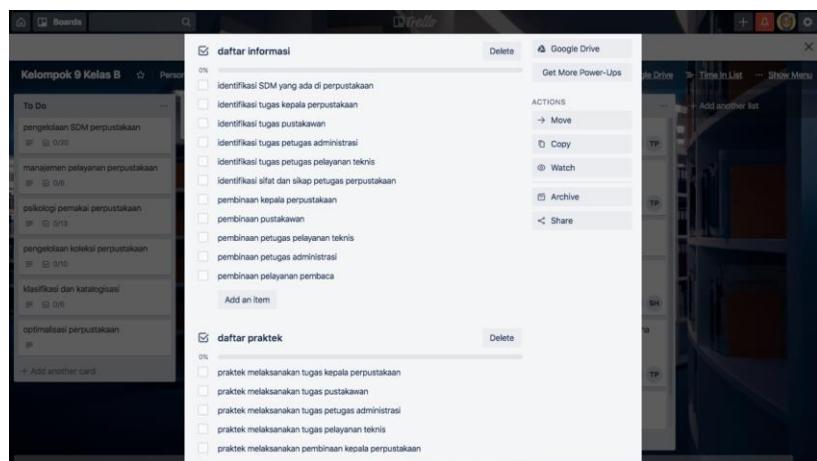
## 2. Lecture Stage 2



Picture 8  
Scheme lecture stage 2

Stage 2 lectures are carried out by practicing in various libraries to meet CPMK 2. Practical activities are carried out with a duration of 340 minutes per week. This is in accordance with the academic provisions related to the burden of teaching in practical activities. During the implementation of practical activities, students report their activities through Trello. This software makes it easy for

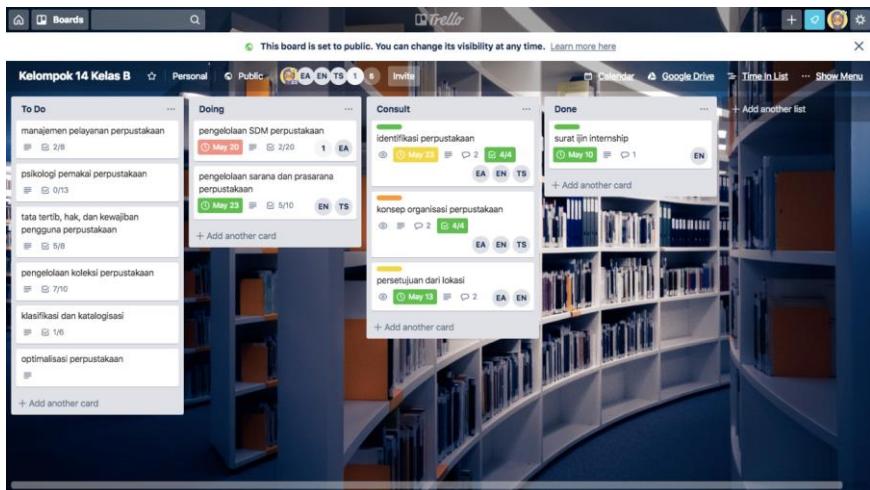
lecturers to monitor student performance in the field without having to face-to-face and help students to be disciplined in carrying out any given task. This software can be accessed easily via a laptop or smartphone. This reflects the learning process that utilizes technology as a learning aid. That is, the use of Trello and Google Classroom in learning is in harmony with the spirit of the KKNI curriculum.



Picture 9  
Example task list created in Trello

Stage 2 lectures conducted at 8-14 meetings took the form of field practice in various libraries that had been determined by each group. Each group consists of 3-4 students who are determined independently. After the group is formed, the lecturer will send a link to join the group board on Trello via email. When carrying out practical activities, lecturers monitor student activities through Trello. Each group has 1 board that lists information and tasks that must be done during practice. Students are required to update their activities and information every time they visit the library. In the display board of each group there are 4 column lists with cards inside.

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Picture 10  
Display board of one of the groups in the Trello software

The first list column with the title "To Do" contains a list of cards that contain practical assignments that must be done and information that must be obtained by students during practical activities. The cards in the "To Do" list are made by the lecturer before the second lecture is held. Students are not permitted to add or subtract existing cards. Activities that are allowed to be done by students are moving cards from one list column to another list column. The use of Trello in practical activities is carried out by moving the card from column list one to the next list column according to the progress achieved during the internship activities. Cards from the "To Do" column that contain assignments that are being carried out by students are moved to the "Doing" list column. In this activity students not only check (check list) the tasks they have done on the card, but also provide evidence of the implementation of the activity by providing a description of the implementation of the activity and attachments in the form of photos or documents. Students in one group can share assignments with their members or can choose their assignments on the cards to be completed first. Each group member can monitor each other's activities in the group in the

"Activity" section of each card. This makes it easier for groups to coordinate and share tasks. Then the card containing the completed tasks is moved by the student to the "Consult" list column. Cards that are included in the "Consult" list column will be reviewed and given input by the lecturer regarding what activities and information students need to complete. The last stage, the tasks that have been given input or approval by the lecturer are moved to the "Done" list column by the lecturer. So that in using this application, it needs an active role from students and lecturers in card completion.

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The screenshot shows a Trello card interface. At the top, there is a header with a progress bar at 0%, an 'Add an item' button, and a 'Comment' section titled 'Add Comment' with a placeholder 'Write a comment...'. Below this is a 'Save' button.

The main content area is titled 'Activity' and shows a single comment from user '17422015@student.ui.ac.id' posted 8 minutes ago. The comment text is:

Bismillah  
Assalaamu'alaikum Warahmatullahi Wabarakatuh  
Alhamdulillah kelompok 13 sudah mengurus terkait surat izin dan perizinan untuk magang.  
In Syaa Allah kami akan melakukan internship di Perpustakaan Sekolah MAN 4 SLEMAN.  
Adapun untuk jadwal magang kami, yaitu In Syaa Allah akan dilakukan pada setiap hari Selasa, Kamis, dan Jum'at pagi. Waktu tersebut dipilih, karena merupakan waktu yang luang bagi kami dari jam kuliah.  
In Syaa Allah besok kami akan memulai magang di Perpustakaan Sekolah MAN 4 SLEMAN.  
Demikian  
Wassalamu'alaikum Warahmatullahi Wabarakatuh

Below the comment, there are reply and delete options. The card has a 'Hide Details' button.

Following this, there are several replies from user 'Silvi Sarwendah Wulandari' (SW) dated May 14:

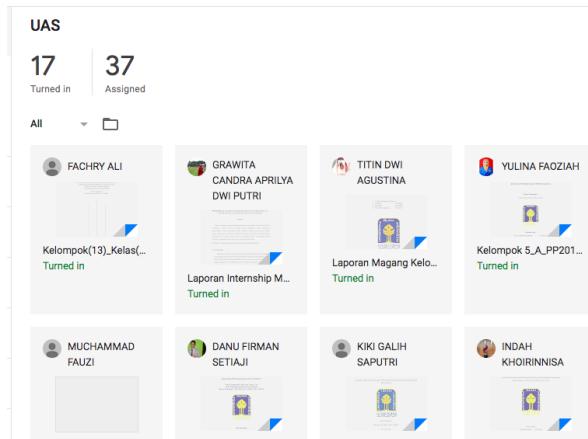
- Reply to the initial comment: '@miratunnurarifah22 belum bu, insyaAllah besok kita antar'
- Reply to the first reply: 'apakah surat sudah diantar? jika sudah, card bisa dipindahkan ke list berikutnya'
- Reply to the second reply: 'Perpustakaan yang menjadi tujuan kita ialah di perpustakaan masjid gede Kauman Yogyakarta'
- Moved the card from 'To Do' to 'Doing': 'moved this card from To Do to Doing'
- Completed the task: 'completed Ambil surat di akademik on this card'

Picture 11

### Examples of student and lecturer activities in the Trello application

After completing the assignments in Trello for the specified duration of practice, students share or share experiences in class. This activity was held at the end of the lecture, the 14th meeting. Representatives of several groups of students made presentations in class related to experiences gained during practical activities. Through this forum, students are expected to gain new knowledge related to library practices or management from other groups who practice in different types of libraries. These activities during the practical activities monitored through the Trello application are used as assessments for CPMK 2.

Activities in lectures that are used as CPMK 3 assessment are compiling the final report based on the practical activities that have been carried out. Students who actively update their activities in the Trello application will find it easier to compile reports because every activity and data they get is stored in the application. The final report is collected by uploading it to Google Classroom by group representatives. Guidelines for preparing the final report have been determined by the lecturer and distributed in Classroom. Students compile the final report based on predetermined guidelines.



Picture 12

Collection of final practice reports through Google Classroom

After completing the practice, students are required to prepare a report based on the practice that has been done. Information related to the technical preparation of the report and the collection of reports is done by utilizing Google Classroom.

## B. Learning Development Outcomes

The results of developing a blended learning model that utilizes Trello software and Google Classroom can be seen from the results of the learning evaluation. Realization of the implementation of the assessment / assignment carried out to measure learning outcomes in accordance with the evaluation design that has been prepared at the beginning of learning. The assessment / assignment is carried out 3 times in accordance with the total CPMK to be measured.

### 1. Evaluation of CPMK 1

Evaluation of CPMK 1 is done by assessing the papers that have been prepared by students and their performance during class presentations. The assessment criteria are adjusted to the assessment rubik that has been prepared.

no	assessment of CPMK 1	assessment component			
1	papers	writing technique	theoretical analysis	argumentation	anti plagiarism
2	presentation	presentation slides	Presentation		

Table 1  
Assessment criteria in CPMK 1

The results of the CPMK 1 evaluation assessed based on the above criteria are as follows:

No.	Numberic Score	Alphabetic Score	Number of Students
1.	0	E	4
2.	60	C	1
3.	70	B	12
4.	73	B+	16
5.	75	A/B	16
6.	78	A-	46
7.	80	A	14

<b>Total</b>	<b>109</b>
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Table 2  
CPMK 1 assessment results

The data shows that as many as 103 students out of a total of 109 students have met CPMK 1. If calculated as a percentage, then 94% of students have graduated and fulfilled the achievements of the first course of study and the other 6% have not graduated because they get grades below the completeness of the minimum courses which have been set.

## 2. Evaluation of CPMK 2

Evaluation of CPMK 2 is done by assessing the activeness of students in conducting internship activities and the fulfillment of tasks on the card that are monitored through the Trello application. The assessment criteria are adjusted to the assessment rubik that has been prepared. Some of the assessment criteria used in assessing CPMK 2 can be seen in the table below:

no	assessment of CPMK 2	assessment component				
1	practice	consistency of presence in the library	content uploaded in Trello	contribution of work during practice	contribution of ideas during practice	Communication (online and offline)

Table 3

Assessment criteria in CPMK 2

The results of the CPMK 2 evaluation assessed based on the above criteria are as follows:

No.	Numeric Score	Alphabetic Score	Number of Students
1.	0	E	10
2.	68	C	12
3.	70	B	5
4.	73	B+	14
5.	75	A/B	16
7.	78	A-	18
8.	80	A	15
9.	83	A	19
<b>Total</b>			<b>109</b>

Table 4  
CPMK 2 assessment results

The data shows that as many as 86 students out of a total of 109 students have met CPMK 2. If calculated as a percentage, 78% of students have graduated and fulfilled the second course learning outcomes and another 22% have not graduated because they get grades below the minimum completeness of courses which have been set.

### 3. Evaluation of CPMK 2

Evaluation of CPMK 3 is done by assessing the final report made based on a list of practices and information obtained by students when doing internship. The assessment criteria are adjusted to the assessment rubik that has been prepared. Some of the assessment criteria used in assessing CPMK 3 can be seen in the table below:

no	assessment of CPMK 3	assessment component			
		writing technique	writing flow	argumentation	Analysis
1	practice report				

Table 5

Assessment criteria in CPMK 3

The results of the CPMK 3 evaluation assessed based on the above criteria are as follows:

No.	Numeric Score	Alphabetic Score	Number of Students
1.	0	E	14
2.	60	C	4
3.	70	B	13
4.	75	B+	13
5.	80	A	46
6.	83	A	6
7.	85	A	13
<b>Total</b>			<b>109</b>

Table 6

CPMK 3 assessment results

The data shows that as many as 91 students out of a total of 109 students have met CPMK 3. If calculated as a percentage, then 83% of students have graduated and fulfilled the third course learning outcomes and the other 17% have not graduated because they get grades below the minimum completeness of courses which have been set.

Provisions for graduation of this course are in accordance with the Academic Study Program of PAI, namely students are declared to have passed if they get a minimum grade of B-. The final score is obtained by combining the assessment components of 3 CPMK. Students who fail this course can take remission if they have graduated at least 1 CPMK. While students who do not achieve graduation in the whole CPMK are advised to repeat. The combined evaluation results of 3 CPMK courses are as follows:

No.	Numeric Score	Alphabetic Score	Number of Students
1.	0.00	E	10
2.	40.00	D	0
3.	45.00	D+	0
4.	50.00	C/D	3
5.	55.00	C-	0
6.	60.00	C	0
7.	62.50	C+	0
8.	65.00	B/C	2
9.	67.50	B-	2
10.	70.00	B	5
11.	72.50	B+	10
12.	75.00	A/B	30
13.	77.50	A-	29
14.	80.00	A	18
<b>Total</b>			<b>109</b>

Table 7

The results of a combined assessment of 3 CPMK

The data shows that as many as 94 students out of a total of 109 students have graduated on the combined 3 CPMK assessment. If calculated as a percentage, then 86% of students have graduated and fulfilled the three course learning outcomes. While the other 14% have not graduated because they get a value below the completeness of the minimum courses that have been set. At the end of the lecture 13 students are advised to repeat this course in the next semester.

## Conclusions

The conclusions of the research and development of this blended learning model are: first, Trello Software and Google Classroom are used as a medium of communication, control, and project management of

lecture activities carried out in the form of face-to-face or practical activities in the library. Through Trello software, students can coordinate and share assignments with teammates. Between students in a group can also find out what activities have been and are being carried out by colleagues. As for lecturers, the Trello software is used as a means to control student activities during practical activities and is used as an aspect of activity assessment in lectures. The two softwares used make it easier for lecturers to develop a blended learning model to monitor student performance in the classroom and in the practice without having to face-to-face. In addition, both software also functions to help students to be disciplined in carrying out each task given.

Second, the results of the development of blended learning can be seen from the results of evaluating the learning outcomes of the course. Evaluations on each CPMK show that the implementation of the development of blended learning using Trello software and Google Classroom helps at least 78% of students pass each CPMK. While on the results of the combined evaluation of the three CPMKs, this learning model was able to help 86% of students in achieving learning outcomes of courses in library management lectures.

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