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Synchronous and asynchronous learning activities as alternative distance learning models that are oriented to outcome-based education

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ABSTRACT

The learning model for teacher professional education program is carried out online by utilizing a learning management system which is divided into synchronous and asynchronous learning activities. The combination of these two activities is expected to optimize the quality of online learning, but in practice the success of this distance learning model often encounters obstacles both internal and external factors including network constraints, devices used, time management due to busy activities, differences in competence in digital literacy and student data literacy. , as well as constraints on achieving timespend in synchronous and asynchronous activities. Obstacles that arise as obstacles in learning activities need to be evaluated and solutions sought. This study aims to analyze the learning constraints in synchronous and asynchronous activities and find alternative solutions to support the achievement of outcomes based education. The method used is a case study through qualitative analysis. The research subjects were students of the teaching profession program in mechanical engineering concentration positions. The results of the study show that synchronous activities support students learning quickly but need to be supported by a stable network, quality devices, time management and human resources with good technological literacy and digital literacy. Whereas asynchronous provides breadth in the flexibility of learning activities but requires precision and consistency so that you don't get bored easily and require activeness in learning activities. It can be concluded that the effectiveness of distance learning is by collaborating synchronous and asynchronous learning proportionally and mutually reinforcing so that the quality of online learning can be guaranteed and the goals of the teaching profession program can be achieved

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INTRODUCTION

The In-service Teacher Professional Education Program (PPG) is an educational program organized to prepare Bachelor of Education and Non-Education S-1/D-IV graduates who have the talent and interest in becoming teachers so that they fully master teacher competence in accordance with Teacher Education Standards. In-service PPG is expected to be able to answer various educational problems, such as: (1) substandard qualifications (under qualification), and (2) teachers who are less competent (low competence). In addition, teachers in the 4.0 industrial revolution era must have the ability to carry out innovative and fun learning by integrating critical thinking and problem solving, communication and collaborative skills, creativity and innovative skills, information and communication technology literacy, contextual learning skills, as well as information and media. literacy.

The In-Service PPG Program is systematically designed and applies quality principles starting from the selection, learning process, and assessment, to competency tests, so that it is hoped that it will produce professional future teachers who can produce graduates who are superior, competitive, and have character, and love homeland and at the same time, it is expected to be able to answer the educational problems currently faced by the Indonesian nation. In-service PPG is also designed to be able to equip professional teacher candidates with problem-solving, critical and creative skills, through the implementation of problem-based learning and project-based learning models and activities. The In-Service PPG Program aims to produce teachers as professional educators who fear God Almighty and have noble character, are knowledgeable, adaptive, creative, innovative and competitive with the main task of educating, teaching, guiding, directing, training, assessing and evaluating students. (Perdirjen GTK Kemendikbudristek Number 1019/B/PD.00.02/2022).

The learning model applied to the PPG Daljab category is distance learning by utilizing the Learning Management System which combines synchronous and asynchronous activities. Synchronous learning will make it easier for students to understand learning material quickly for those who have a stable network but are less able to facilitate students who want to argue or raise questions with large class capacities (Burns. M., 2011), while the asynchronous method offers more flexibility but can lead to different perceptions related to a statement given the heterogeneous character of student data literacy competencies. (Chen et al, 2021) (Fadhilah et al, 2021). In addition, online-based distance learning can be used as a strategy to strengthen technological literacy (Ratnawati, D. et al, 2022)

Looking at the input side, there are differences in backgrounds from both educational bachelor's degrees and non-educational bachelor's/d4 degrees, differences in learning styles and diversity of network affordability in each domicile of PPG Daljab participants will certainly cause polemic in distance learning activities. Network constraints, quality of devices/devices used, time management due to busy activities, differences in digital literacy competencies and student data literacy affect the quality of learning. Thus it is important to combine synchronous and asynchronous methods appropriately as a

strategy to support the achievement of the objectives of implementing the teaching profession program. The problem in this case study rests on the distance learning process which focuses on synchronous and asynchronous activities in the Learning Management System (LMS) for implementing PPG in Position. Learning activities packaged in the distance learning model of the teacher professional education program as part of a support system that supports the achievement of outcome based education in the domains of personal competence, pedagogic competence, social competence and professional competence. Synchronous and asynchronous activities are limited to the stages of implementing learning in 3 courses, namely deepening the material, developing learning tools, and practicing field experience.

METHOD

The method used in this research is a case study. Data analysis used qualitative with three stages, namely data reduction, data display, and conclusion drawing/verification. (Miles and Huberman, 2014). The data collection technique used structured interviews with 30 respondents in the PPG program mechanical engineering students in positions. The LMS system used for distance learning with synchronous and asynchronous learning activities is https://ppg.simpkb.id/home.

RESULTS AND DISCUSSION

Case findings in the implementation of in-service teacher professional education programs that focus on learning activities at LMS can be interpreted in the following mind mapping.

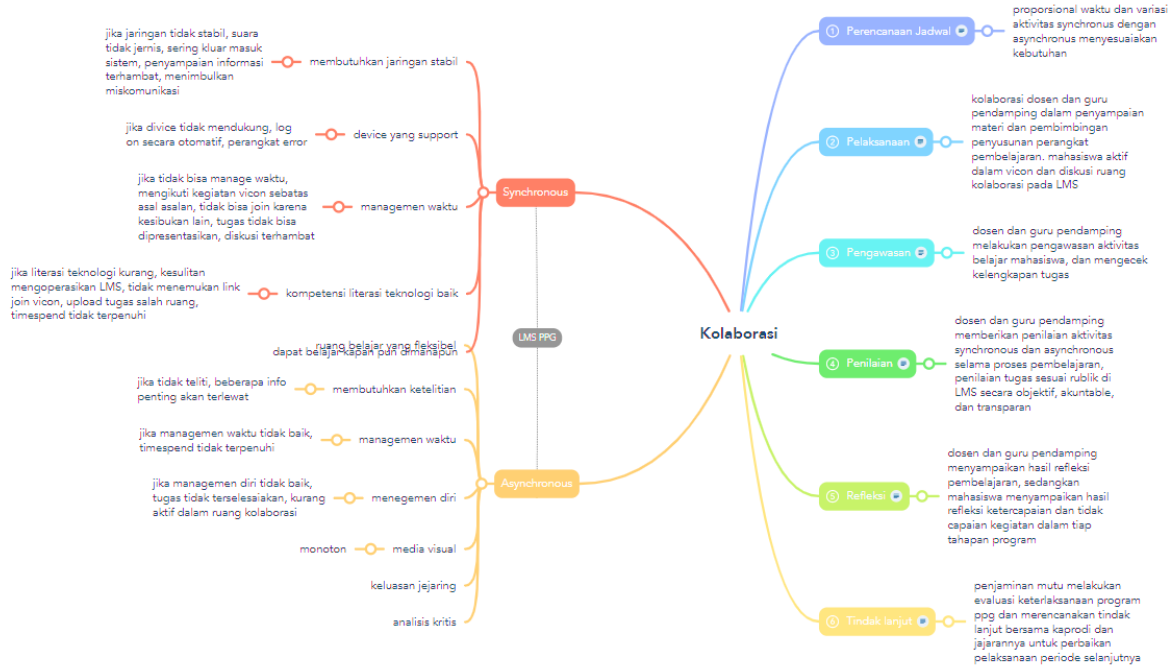

Figure 1. Mind mapping of synchronous and asynchronous activity problem analysis

Figure 1 shows that there are several advantages and disadvantages in synchronous and asynchronous learning activities from LMS PPG learning activities. Synchronous learning activities have weaknesses and strengths including: (1) requires a stable network, if the network is unstable then

the voice becomes unclear, frequent going in and out of the system, hampering the delivery of information, causing miscommunication; (2) a supported device, if the device does not support it will log out automatically, an error device; (3) time management, if you can't manage time then video conferencing activities are limited to random, you can't join because of other activities, assignments can't be presented, discussions are hampered; (4) good technological literacy competence, if technological literacy is lacking then it is difficult to operate the LMS, can't find the join video conference link, uploads assignments in the wrong space, timespend is not fulfilled; (5) can learn anytime and anywhere. Meanwhile, asynchronous learning activities have strengths and weaknesses including: (1) flexible study space; (2) requires accuracy, if not thorough then some important information will be missed; (3) time management, if the time management is not good then the timespend is not fulfilled; (4) self-management, if self-management is not good then tasks are not completed, less active in collaboration spaces; (5) visual media so that it seems monotonous; (6) network breadth; (7) critical analysis. Seeing the advantages and disadvantages of synchronous and asynchronous activities, the collaboration of the two is an alternative solution in the effectiveness of synchronous and asynchronous learning activities. The collaboration is oriented towards outcome-based education which includes the following activity stages: (1) schedule planning, proportional time and variations of synchronous and asynchronous activities according to needs; (2) implementation, collaboration between lecturers and accompanying teachers in conveying material and guiding the preparation of learning tools, students are active in video conferencing and collaboration room discussions at LMS; (3) supervision, lecturers and accompanying teachers supervise student learning activities and check the completeness of assignments; (4) assessment, lecturers and accompanying teachers provide assessments of synchronous and asynchronous activities during the learning process, assessment of assignments according to the assessment rubric in LMS in an objective, accountable, and transparent manner; (5) reflection, lecturers and accompanying teachers convey the results of learning reflections, while students convey reflections on achievements and those that have not been achieved in each stage of the program; and (6) follow-up, quality assurance evaluates the implementation of the PPG program and plans follow-up with the head of the study program and his staff to improve the implementation of the next period.

Synchronous Learning

Synchronous learning in the Daljab PPG program is integrated into the LMS through vicon activities that utilize the Google Meet platform with a minimum duration of 3 JP/meeting. Interaction between instructors (lecturers and accompanying teachers) and students is established through video conferencing which takes place in real time so that sufficient quota and a stable network are needed. Some of the findings of obstacles, namely for students with unstable internet networks have an impact on delivering information/material that is not clear, often going in and out of vicon, needing free time to participate in learning activities. Student activities take place face-to-face with instructors and other students through interaction in video conferencing but have not been able to facilitate discussion,

question and answer for all participants with a large number of classes. However, with a stable network, this synchronous method makes it easier for students to learn faster, understand material quickly and can take part in learning anytime and anywhere (Martin. F. et all, 2023). Synchronous activities provide strengthening of personality competencies through attitudes in utilizing online platforms in interacting both with instructors and other students in cyberspace, attitudes during presentations and delivery of reflection results at each learning stage. Strengthening pedagogical competence through the stages of deepening the material, the stages of developing learning tools and offline Practical Field Experience (PPL) by involving sit-in instructors online. Strengthening social competence through online communication activities, giving each other suggestions on learning tools, video recordings and reflections produced by colleagues, and strengthening professional competence through the PPL 1 and PPL 2 stages with online sit-in instructors and involving teacher observers in class which helps video recording as well as observation for reflection material.

Asynchronous Learning

Asynchronous learning takes place through discussions in collaborative spaces between lecturers, accompanying teachers and PPG Daljab students. The three parties commented on each other's statements and answered student questions on the LMS. The topic of discussion is the result of feedback from the presentation of the material at the stage of deepening the material, the device development stage and the PPL stage. Asynchronous learning occurs not only in the LMS but in interactions with experts who are used as resource persons in determining problems to finding alternative solutions to problem solving. The advantages of this asynchronous method can facilitate all students in arguing, giving suggestions, submitting questions, and reflecting results flexibly. However, the problem is that long interaction with the LMS can lead to boredom having to type for a long time and requires careful reading of statements and comments in the collaboration space. Asynchronous learning has an impact on strengthening personality competencies, namely ethics during LMS use activities in collaborative spaces, strengthening pedagogic competencies through preparing/making learning tools, video editing, and evaluation activities, strengthening social competencies through interviews with experts, written communication in collaboration spaces , interaction with students during PPL, strengthening professional competence through offline PPL 1 and PPL 2 activities in class.

Synchronous Collaboration with Asynchronous

Synchronous and asynchronous collaboration starts with planning/arranging a learning schedule for each meeting with a total of 7 hours. Of the total jp it can be divided proportionally for each synchronous and asynchronous activity and made variations according to needs. In its implementation at the stage of deepening the material because it takes time in delivering the material and more time in the interview process with experts to find problems and determine solutions, there are more asynchronous activities while taking into account the timesspend, the duration of synchronous activities

is at least 3 JP. Whereas at the device development stage, because it requires intense guidance as well as product presentation, there are more synchronous activities than asynchronous. Asynchronous activities are used to strengthen synchronous activities or vice versa (Abdillah, C., 2021) as needed. As Swerdlow explained. B., et all. (2023) this pattern of collaboration can start with synchronous activities, strengthened by asynchronous, followed by synchronous and asynchronous activities. Shahabadi. M.M., and Uplane. M. (2015) emphasized that synchronous and asynchronous collaboration supports the effectiveness of distance learning. Furthermore, the evaluation process is carried out by lecturers with accompanying teachers by providing objective assessments by inputting values according to the assessment rubric in the LMS for both synchronous and asynchronous activity assessments. The results of the assessment can be seen by the student concerned to be used as material for self-reflection.

CONCLUSION

The distance learning model is effectively implemented in the learning activities of the PPG Daljab program by collaborating on synchronous and asynchronous learning activities through the preparation of a mature planning schedule, proportional time between synchronous and asynchronous activities, implementation of learning supported by human resources and quality online learning facilities, as well as evaluation accountable, transparent and objective learning

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