

Challenges in Public Health Program Planning Exercise with a Team-Based Learning Approach during COVID-19 Confinement

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CHALLENGES IN PUBLIC HEALTH PROGRAM PLANNING EXERCISE WITH A TEAM-BASED LEARNING APPROACH DURING COVID-19 CONFINEMENT

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ABSTRACT

Background: Bachelor's Public Health program in Universitas Airlangga conducts the public health program planning course using a case-based that involves an interdisciplinary health workforce and community. Teams of students exercise the program planning cycle to design a health program.

Aims: This paper describes the course structure based on the lesson study framework and analyzes any challenges to applying this approach during COVID-19 confinement in Indonesia.

Case Discussion: Public Health Program Planning and Evaluation Course are compulsory for public health bachelor students in Indonesia. The learning outcome is the same for all public health institutions, but the course design depends on the school. In Universitas Airlangga, this course is conducted through three phases of team-based learning for fourteen weeks a semester. Due to the shifting from offline to fully online learning during the Pandemic, significant changes have been made in the team forming and type for student assignments. This adaptation covered not only the learning media but also the subject matter.

Conclusion: The lecturers realized the significant limitation is sharing an authentic experience in conducting primary data collection during situational analysis. Otherwise, a more COVID-19 contextual setting also urges to be delivered since it greatly disrupts how a public health program is conducted in Indonesia.

Keywords: lesson study, public health program planning course, covid-19, higher education, learning outcome

PRACTICE POINTS

- Lesson study is vital for the teacher to understand the impact of their course redesign on students learning through collaborative work between the teaching team and the involved practitioners.
- Simplified and designed teaching media online learning is needed to ensure that all students from different backgrounds will have the same opportunities to access the learning.

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INTRODUCTION

Indonesia is one of the countries that report any COVID-19 community transmission. Since the mid of March 2020, Indonesia's government has decided that all students from primary to higher education must study at home. An evaluation of this study at home policy during the COVID-19 Pandemic shows that it has affected students' lives regarding their roles as students, adults, and children in the family.¹ This COVID-19 Pandemic has brought a disruptive change in their education life as a student. This COVID-19 control measure has forced the lecturer to move all learning processes to virtual. Abruptly moving to online learning, the student faced various challenges in learning. Hence, lecturers have tried to modify the course to fit the student's conditions.

The public health program planning and evaluation course is a practicum course that commonly instructs students to interact with health facility health workers frequently. During this Pandemic, the teaching team decided to make this course entirely online. Due to the COVID-19 control measures, online learning could not be assisted by any offline meeting in the laboratory, making the practicum course impossible to conduct. Hence, this course immediately converted into full-time digital work and possibly resulted in an unideal learning outcome.

Furthermore, online learning in LMICs is characterized by a gap between the poor and the rich; the remote rural and urban affluent are students from different socioeconomic backgrounds.² It also happened in Indonesia during the COVID-19 Pandemic. In Indonesia, students in rural areas reportedly prefer to study offline even though the Pandemic still happened.³ Many communities in Indonesia's disadvantaged areas face technical problems related to internet connectivity and their

learner's and instructors' low digital competencies.³ There is an urgent need to review the e-learning platform choice.⁴ Consequently, equitable access for students and teachers to technological resources is needed.⁵ This investment must ensure that the curriculum, pedagogy, and assessment used in online learning are inclusive for all students.

This case study is conducted to answer all of these challenges. This paper describes the course structure based on the lesson study framework and analyzes any challenges to applying this approach during COVID-19 confinement in Indonesia.

CASE DESCRIPTION

An overview of the course

Public health program planning and evaluation are mandatory subjects taught to undergraduate public health students in Indonesia. The Bachelor's program in public health is a 4-years undergraduate degree program. The public health bachelor's students should attain eight core competencies, including analytical and program planning competencies. These competencies positively relate to the public health program planning and evaluation course.

The course's learning outcomes enable the students to be public health program planners in *Puskesmas*. *Puskesmas* is a government-owned primary healthcare facility in Indonesia, including its remote areas. Hence, to make the students familiar with the problems in *Puskesmas*, the course is delivered using a case-based method that involves interdisciplinary health workers and the community. Students are divided into teams and assigned to a *Puskesmas* to practice an entire program planning cycle. Approximately 255 students in the Bachelor's program of Public Health in the 5th semester take this course.

Table 1. Comparison of Student Team Structuring Before and during Pandemic Confinement

	Before pandemic confinement	During pandemic confinement
Number of teams	Eight teams	Eight teams
Team size	8 to 9 students in each group	8 to 9 students in each group
Team forming	Randomly grouped by team teaching	Grouped by team teaching based on the student's domicile ¹
Team type	A self-managed team assisted by a health programmer from <i>Puskesmas</i>	A self-managed team that works virtually with no assistance from <i>Puskesmas</i>

Notes: ¹Public health program in *Puskesmas* has regional-based coverage

Table 1 shows the changes made by the team teaching regarding the student team composition. Significant changes have happened in the team forming and type for student assignments. Previously before the Pandemic, lecturers sent their students to work with *Puskesmas*. Students make a situational analysis in designing health programs, which commonly brings them to primary data collection. The students do a face-to-face survey, field observation, and any qualitative data collection in the community. Because of the COVID-19 confinement, the lecturers could not instruct the same learning method for this course.

The first change is related to team forming. Every semester there are 60-70 students take this class. The teaching team provides two *Puskesmas* used as learning sites for each class. Four groups of students analyzed one *Puskesmas*. Before the Pandemic, students worked in groups whose members were chosen by students. During the Pandemic, the team formation mechanism was changed by the teaching team. Team teaching groups students according to their area of origin to make it easier for students to analyze the situation and develop program plans per their area's needs. It was done because the teaching team could not provide *Puskesmas* as a learning site like before the Pandemic. This change was made since *Puskesmas* had a super high workload during the Pandemic. It is also a measure to limit student exposure to COVID-19 transmission.

The second change is related to the type of team and the assistance provided by practitioners from the *Puskesmas*. Before the Pandemic, each team of students was accompanied by one program manager at the *Puskesmas* to ensure that their planning process followed the *Puskesmas*' planning. However, no program manager is willing to be a student companion during the Pandemic. It is due to the very high workload of program holders during the COVID-19 Pandemic.

Figure 1 depicts the course structure during the COVID-19 confinement. The course is conducted through three phases of team-based learning with fourteen weeks a semester.

In the preparatory phase, lecturers use a workshop to introduce the concept of the program planning cycle. This workshop introduces the course structure, methods, and expected learning outcomes. Lecturers repeat additional information related to the course assignment and progress in each meeting to ensure that students understand how this course will work.

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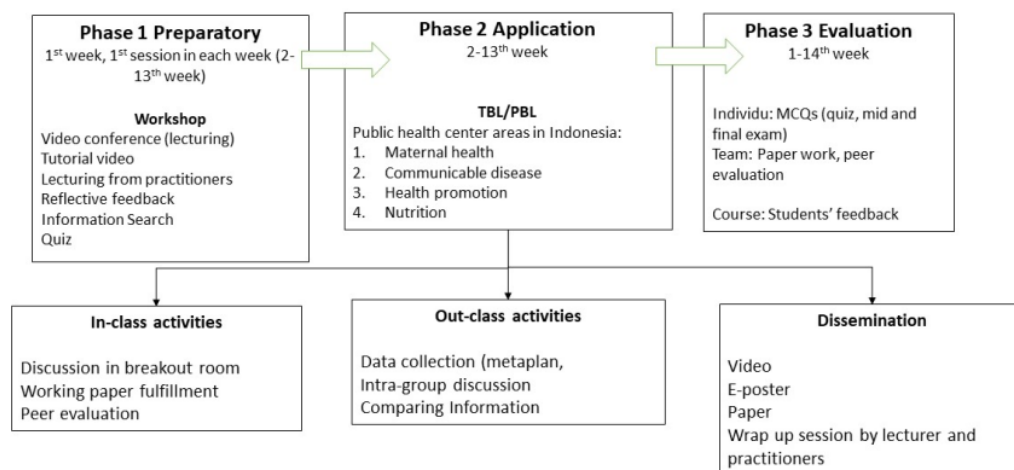


Figure 1. Team-based Learning Activities

Team-based learning with a case-based design is conducted during the application phase. Students into eight teams are assigned to create a public health program based on the identified problems. The material for each meeting is designed according to the program planning cycle. Four cases are used in the course. Each team will have one health problem, and its health program must be designed. The lecturers were aware that the COVID-19 contextual setting significantly disrupted how a public health program is conducted in Indonesia. Hence, a session in the course is dedicated to introducing this change.

The course has in-class and out-class activities, closed by a dissemination session at the end of the semester. These three different application phases use various digital learning media. This application phase lets the students have an in-depth discussion on planning and evaluating an effective public health program appropriate for the team's health problems, which the team successfully identified. Previously, the students gathered community information during the out-class activities to identify these health problems. The lecturers provide several dissemination channels during the course to confirm the validity of the information and use them as the baseline in designing health programs. Before the Pandemic, this course always has a dissemination session that invites health practitioners from *Puskesmas* who have assisted students' work in *Puskesmas* for a semester. Since there was no assistantship from *Puskesmas* for this course during the Pandemic, the dissemination session was slightly modified by only inviting alumni who already work as public health programmers in *Puskesmas*. Students are asked to present their work by using video and an e-poster. Both are uploaded to the social media channels created only for this course's purposes.

Phase 3 is the evaluation of the learning carried out in this course. A series of evaluations were carried out for each meeting from the first to the 14th. Student learning outcomes are assessed to assess individual and team learning. The teaching team used multiple choice questions (MCQ) with the vignette method following the competency examination for the Bachelor of Public Health. This

MCQ is used during each quiz at several meetings that discuss the basic concepts of planning, mid-term, and end-of-semester exams.

Meanwhile, the team performance evaluation was carried out using project-based learning by assessing paperwork and peer evaluation. The paperwork exposed how is the quality of program planning that the team has made. Students are asked to compile complete reports, summarize them into scientific articles, and present them in dissemination in front of practitioners. At the end of the semester, the teaching team asked students to fill out peer assessments between team members regarding their performance and their contribution to group achievement. The assessment component is divided into 40% individual and 60% team scores

Lesson study for the course

Lesson study is a methodology where the teaching team design and redesign lesson planning in collaborative work. This lesson study was conducted during the "study at home" policy related to Indonesia's COVID-19 confinement. A process note was created for each discussion during course planning, implementation, and evaluation. I also recorded the student's responses and performance during the course.

The lecturers collaboratively plan to modify the lesson instruction without limitations due to the confinement. The preparation for this course was started in the mid of June 2020 by the team teaching, which consisted of six lecturers from multidisciplinary departments, i.e. (1.) health policy and administration; (2.) nutrition; (3.) health promotion and education; and (4.) epidemiology. The teaching team wrote a syllabus containing each week's topic, learning method and media, task design, and anticipated student responses.

This course was conducted for 14 weeks, from August 2020 to December 2020. Data was collected through the lecturer's observation of students' anticipated responses and the learning outcome recorded through the student's assessment. At the end of the semester, lecturers' were interviewed about their teaching experience in this course. This course also

invited health practitioners from *Puskesmas*, the primary healthcare center in Indonesia responsible for public health program planning, to deliver a visiting lecturer and review students' assignments. The visiting lecturers were also interviewed on what aspect of this course must be redesigned to help the student achieve the expected learning outcomes. The lecturer's reflection on this course was conducted by evaluating the course design and students' final scores through the last meeting.

We asked the lecturers and the invited health practitioners to share their opinions on the significant challenges this course faces in achieving learning outcomes.

Table 2. Identified Problems in the Course

Identified problems
Based on lecturers' evaluation
1. The lecturers could not observe the quality of discussion in a small team
2. Students complained that the video conference duration was too long
3. The lecturers could not observe student's retention of the material
4. Low participation in discussion, more male students actively unmute to share their opinion rather than female students
Based on health practitioners' evaluation
1. Students tend to neglect the coordination between health programs → no interaction with other teams that discuss in the breakout room setting
2. Students tend to digitalize the public health program due to the Pandemic and forget to analyze the digital literacy of the population

The teaching teams asserted that most problems were related to the student's performance assessment, learning media, and students participation during small classes. Before the pandemic confinement, the teaching team always assisted students in teamwork discussions. While it converts to online learning, where students discuss with their team through online breakout rooms, the team teaching had difficulty assisting the discussion. Limited teachers that could join the breakout rooms made the student's teamwork not optimally observed by

the teachers. Teachers acknowledged that evaluating students' retention of the material they delivered was difficult. In the meantime, the students complained directly to the course manager that the duration of online meetings for material delivery was too long. Those conditions were plausibly related to the teachers' reports on low student participation during material delivery in the online class. Interestingly, the teachers underlined that gender could be related to this low participation, where they found that male students were more active in the class than females.

Health practitioners who participated in the course were also involved both in the course before and during the Pandemic. They compared those courses and identified several problems in the course during the Pandemic. By observing the programs created by the students at the end of the course, they found that students missed accommodating the principle of program coordination in their program. This principle is vital in public health programs in *Puskesmas*. By this principle, a health problem could not merely be resolved by only one program, but several programs with the same objective or target population should be coordinated their program implementation. Previously, before the Pandemic, the team teaching used the class discussion to ensure that all student teams understood other teams' programs so they could accommodate this principle. However, during the online course, the such class discussion was replaced by online discussion in the breakout room per team. The health practitioners also reported that the students tried to digitalize all of their programs. For instance, health counseling for low-education mothers was planned to be conducted through online media without considering the mother's digital literacy.

DISCUSSION

During the COVID-19 Pandemic, the public health planning and evaluation course has transformed into a brand-new online course. Before the Pandemic, it provides a real learning experience of practical skills in the field. Research has found that online learning's success is determined by the subject matter, software, the characteristics of learners, and instructors.⁶ This lesson study shows adaptation

initiated by the lecturers. This adaptation covered not only the learning media but also the subject matter. Hence, the lesson study represents how the lecturers have tried to accommodate the technical issues of upgrading and digital platforms choices.

The lecturers upgraded the subject matter by adding COVID-19 context-specific public health program planning through this lesson study. Unfortunately, the limited interaction with practitioners makes the students neglect collaborative action between public health programs as a critical principle in program planning. Health practitioners critiqued that the students' public health program dismissed the cross-program coordination. It probably could happen because the breakout room setting during the class discussion brings inflexibility to students hearing discussions of other teams. Thus, the lecturer's presence is essential to online learning success.⁷ The lecturers' effort to prepare the subject matter and assist students with feedback is crucial for online learning success.^{4,8} The lecturer must internalize feedback and adjust the course.⁶ In contrast, with 255 students participating in the course, one-by-one feedback from the lecturer to students was difficult. Consequently, the lecturers could not observe the quality of discussion in a small team, and hard to observe students' retention of the material, which also identified as other challenges of this course.

This study also reports that the students complained that the video conference duration was too long. It could be understood since many studies have reported that more independent work is more effective in online learning.^{4,8,9} Students perceived that online learning gives them more ability to learn about subject matters and manage their learning target. Reading courses with feedback from the instructor is better for online classes.⁸ It increases self-confidence and empowers learners to be more flexible in their learning process.⁹ For this reason, the lesson study should also consider evaluating the frequency and duration of each applied learning method. Evaluation will help the lecturer formulate the most effective learning method combination.¹⁰

The system quality of the e-learning portal has a positive relationship with user satisfaction and e-learning utilization among students.¹¹ However,

challenges in implementing e-learning in Indonesia are not merely about the lack of students' and teachers' digital competencies or the school's poor e-learning infrastructure.¹² It also intersects with other barriers, including economic and mental health outcomes.¹³ During this sudden change, e-learning that uses straightforward media with no need for many internet packages is preferred in LMIC settings like Indonesia.¹⁴ Considering these circumstances, lecturers must be aware of two things. First, lecturers must accommodate students with more convenient media to submit their assignments. It is not only related to the internet infrastructure or the platform's simplicity. It must also consider how this digital utilization will impact the socioeconomic condition of the students. Second, the health practitioner's review of the student's program could indicate any missing subject matter. As critiqued by the health practitioners in this study, students tend to digitalize the public health program due to the Pandemic and forget to analyze the population's digital literacy. Hence, current digital literacy could be added to the course besides the COVID-19 program planning context. Several improvements need to be made to ensure that the online public health program planning exercise can meet the set learning targets. This case study can identify what technical skills are lost due to changes in learning methods but have not been able to identify how students' soft skills are mastered. On the other hand, the program planning process always involves the community so that soft skills are very important to carry out the process. The utilization of team-based-learning will then extremely need to ensure that students have also exercising interpersonal competencies during the course. More concise indicators are needed to measure how this method help online public health course achieve the soft skills learning outcomes.

CONCLUSION

Online learning for practicum courses such as the public health program planning and evaluation course is hindered by many challenges related to the subject matter, learning platform, and the students' socioeconomic condition. Online course material makes it easier for students to re-use various reading sources to support learning. The

variety of learning media used in online lectures allows students to independently organize their learning pace according to their learning style. The online public health program planning practicum can still meet the target of achieving hard student skills, but the soft skills competence related to interpersonal communication with the community cannot be adequately measured. However, team-based learning in this online practicum course allowed interpersonal communication within the student team developed progressively. However, the poor internet connection and the high price of internet providers are other significant obstacles to online learning for students with limited resources. Overall, lesson study has helped the lecturer plan and evaluate students' responses to how the practicum course has converted entirely online. In the future, the lecturer must also consider using the lesson study to observe the interaction of students' characteristics with their access to online learning.

RECOMMENDATION

This research shows that any adaptation made in learning models during the Pandemic must ensure students' learning outcomes. The adaptation must also ensure how to facilitate students with various socioeconomic backgrounds to participate in online learning. In a course with a team-based approach, lesson study is needed to ensure that teaching and learning activities during the Pandemic can still build the expected collaboration competencies. Lesson study activities must also be carried out in a collaborative, mutual, and sustainable way between the lecturers, students, and practitioners involved in the learning process. Further study should consider a methodology that can measure how online learning with a team-based approach can meet the targeted soft competencies in the course. Team-based learning study in the public health education context must also consider the community leadership level and not only measure the interpersonal communication within the team.

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COMPETING INTEREST

The authors declare that there are no competing interests related to the study. The author declares that the study was solely written by the author and did not include nor involve any other individuals eligible as co-authors.

LIST OF ABBREVIATIONS

LMICs: Low and Middle-Income Countries

AUTHORS' CONTRIBUTION

Nuzulul Kusuma Putri – developing research proposal, collecting data, data analysis, and publication manuscript

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