

Blended Learning for Medical First Responder Training: Needs Analysis

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Abstract

The rapid development of technology demands a fast, easy, cheap, effective, and efficient system and can be accessed anytime and anywhere, including education and training. In the world of education, technological progress is marked by the number of people using the blended learning model. This study aims to obtain and collect information, data, and opinions from stakeholders and training participants at the Training Center of National Search and Rescue Agency to develop a blended learning model for Medical First Responder Training for responders. This study uses the Research and Development (RnD) method with the Integrative Learning Design Framework development model and the PEDATI development strategy. This research is limited only to the initial analysis stage, namely in the form of field studies and literature studies to determine the needs of the Medical First Responders Education and Training and the needs of students who will be the first steps in developing blended learning of MFR training for rescuers within the National Search and Rescue Agency. This study indicates that the National Search and Relief Education and Training Center needs an effective and efficient learning model, coupled with the training participants' responses indicating that they wish to have alternative learning sources. The results of this need analysis research can serve as the basis for the development of blended learning training in Medical First Responder.

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Introduction

Information technology which is increasingly developing dramatically, affects the world of education (Astalini, Darmaji, Kurniawan, Anwar, & Kurniawan, 2019; Chen et al., 2012; Stathopoulou et al., 2018). This influence requires us to adapt to existing technological developments constantly. As a result, today's education world has used many internet-based learning processes or what is commonly known as e-learning. E-learning is a learning process that utilizes information technology (Thai, De Wever, & Valcke, 2017; Widyaningsih, Yusuf, Prasetyo, & Istiyono, 2020). With e-learning, learning is packaged to be accessed easily and quickly without being hindered by distance and time.

Online learning has begun to be looked at and utilized by the Education and Training Centers such as the State Civil Service Training Center, including the National Search and Relief Agency. With this online learning, it is hoped that it can solve every problem in conventional learning (Alcaide, Solis, & Hontoria, 2020; Atmojo & Nugroho, 2020; Satrianingrum & Prasetyo, 2020). One of the training programs that will implement online learning is the Medical First Responder (MFR) training. This training aims to provide knowledge and skills of first aid to victims quickly, precisely, and safely before receiving

medical treatment. This Medical First Responder (MFR) training is focused on rescuers for pre-hospital treatment. This training is vital for a rescuer, where the main task is to find and help victims.

According to Rørtveit & Meland (2010), training lay responders closer to potential victims than medical professionals is a potential strategy to shorten the distance between collapse and initiating cardiopulmonary resuscitation (CPR) in cases of cardiac arrest outside the hospital. Therefore, it is essential if a rescuer with non-medical education is provided with the knowledge and skills to remember their main duties and functions.

Medical First Responder (MFR) is the first helper to arrive at the Disaster Area (TKM) who has expertise in medical emergency care and has received basic emergency training (Jayaraman et al., 2009). To become an MFR rescuer, one must have a responsible character, a high social spirit, be honest, emotionally stable, in good physical condition, and have special skills and expertise. Therefore, a Medical First Responder (MFR) must have several characteristics, including Responsible, Social, Honest, Appearance (clean, in good uniform, friendly), Stable emotions, Professional attitude, Good physical condition (supportive), Have good abilities (Stansfield, Shawver, Sobel, Prasad, & Tapia, 2000). The obligations as a Medical First Responder (MFR) are as follows: Maintain personal safety, team members, around and sufferers, Reaching out to victims, Can identify and overcome life-threatening problems, Contact SPGDT (Integrated Emergency Management System) for further assistance, Provide assistance based on the victim's condition, Assisting other emergency personnel, Participating in recording and storing victim data, Communicating with other officers involved, Preparing sufferers for evacuation.

However, there are still some problems that must be faced. Based on the things found during the pre-research survey, namely direct observation, interviews with several policymakers, and training participants, this can be used to develop blended learning. These problems include: (1) limited learning space so that the number of training participants is limited, (2) the number of training that must be carried out is not proportional to the number of existing instructors, (3) duties and obligations of rescuers who cannot leave their assignments for a long time where they must stand by on call if there is a disaster. Therefore, in this study, the researchers tried to examine everything related to the development of blended learning. Based on the problems that have been mentioned, the blended learning model is considered appropriate to be a solution. Therefore, researchers are motivated to conduct a needs analysis to research the development of blended learning Medical First Responder (MFR) training within the National Search and Rescue Agency. We have often heard the term blended learning. In that term, the word blended signifies the use of two or more different learning methods. The main goal is to increase the learning potential of students (Dey & Bandyopadhyay, 2019).

Meanwhile, Hrastinski (2019); María et al. (2016) define blended learning as a form of a learning system that combines in such a way between synchronous and asynchronous learning strategies in order to create learning experiences to achieve optimal predetermined learning outcomes. Blended learning is based on its components, namely constructivism learning theory, cognitivism, and performance support. These learning theories are the main foundation in designing learning. This foundation is the starting point for designing a blended learning model for the Medical First Responder Training (MFR) for responders within the National Search and Rescue Agency.

This study aims to obtain and collect information, data, and opinions from stakeholders and training participants at the Training Center of National Search and Rescue Agency to develop a blended learning model for Medical First Responder (MFR) Training for responders.

Materials and Methods

This research is a Research and Development (R n D) research conducted at the National Search and Rescue Agency Training Center. The development model used is a combination of ILDF (Integrative Learning Design Framework) (Dabbagh & Bannan-Ritland, 2005) and PEDATI (Learn to Apply and Evaluate) (Lasamahu, Siregar, & Sukardjo, 2021). ILDF (Integrative Learning Design Framework) is used for the exploration and evaluation stage, while in the realization stage, it uses the PEDATI learning strategy. This research is limited only to the exploration stage, namely in the form of analyzing the needs and characteristics of participants to determine the needs of the Medical First Responder (MFR) training and the needs of students which will be the first step in developing blended learning in the Medical First Responder (MFR) training for rescuers in the environment. National Search and Relief Agency.

This study gathers information and opinions from stakeholders at the National Search and Relief Training Center and training participants for medical first responders. Information is obtained from data collected through in-depth interviews, observations, questionnaires, and document analysis. Researchers conducted direct interviews with the Head of the Training Center, the Head of the Education and Training Center, and Instructors to determine the conditions of the problems and needs of the Medical First Responder (MFR) Training. The questionnaire was given to training participants to determine the opinions and responses of training participants to current learning and online learning. The collected data were then analyzed using qualitative descriptive methods (Sugiyono, 2014).

Results and Discussion

Results

The need to develop blended learning in the Medical First Responder (MFR) training for rescuers within the National Search and Rescue Agency is based on direct interviews with policymakers, preliminary observations, document analysis, and analysis of training participants needs.

Table 1. List of interviews' result with the Head of the Education and Training Center, the Head of the Section for the Implementation of the Training and Education and Training Instructors.

Question	Head of Division	Organizer	Instructor
What are the obstacles in the learning process at The current training center?	There are many obstacles, (1) the number of instructors is limited, (2) the number of training is large so that the implementation is parallel. Using projectors and material books	There is a lack of instructors, the implementation of education and training takes a long time while the number of training that must be carried out is large. Material slides and books	There are many obstacles, (1) Instructors are lacking, (2) Teaching materials have not been updated, (3) Instruction aids are lacking
What are the forms of media and Learning resources used- Isn't it on MFR Training?	So far so good	The response is	Advanced MFR and Brandy Training Books, AHA quotes and the internet

Question	Head of Division	Organizer	Instructor
How do participants respond Training on development models Current lesson?	Ever heard	very good but it is even better if you add Information Technology in it	The responses varied, both pros and cons
Have you ever been Listen to learning models Blended Learning?	Can be more effective for learning. Participants can practice practice during the meeting and repeat the material on the web used. If there is any shortage of practice sequences, view modules and online practice videos.	Never heard of it	Never heard of it
What is your opinion About the Blended Learning model Learning?	Agree, although the usual way of learning can get more skills.	It is very suitable to be used for the learning process, especially in the current pandemic season	It has never been tried so there is no picture. I only saw that through social media it seemed very effective if used especially in conditions like this, the COVID-19 pandemic
Do you agree if MFR training uses Blended Learning Model?	Subject matter can but can reduce direct contact	Agree	Strongly agree because it can reduce in-person meetings and the number of days can be reduced
What do you expect With the Blended model This learning?		The hope is that in the future, training activities can use this learning model but it needs to be remembered that for practice it must still be face to face	The hope is that it can reduce direct contact and reduce the number of days of implementation so that instructors can focus on one training program without branching out considering that the training is almost timed.

Researchers conducted observation activities to observe the initial conditions during the Medical First Responder (MFR) training process. From these observations, the results can be seen in table 2

Table 2. Observation Results of Medical First Responder (MFR) Training

No	Criteria	Answer
1	Does the learning process still use conventional / lecture methods?	The learning process still uses a conventional learning model where instructor-centered learning. The instructor explains the material, training participants listen and occasionally ask questions.
2	Are the trainees enthusiastic in learning?	It was not obvious how enthusiastic they were
3.	Are training participants active in the classroom?	There are those who actively ask questions and some are only silent listening to the explanation of the material given by the instructor.
4.	Is the number of instructors up to the standards?	No, Balai Diklat only has 8 instructors, far from the standard.
5.	Is the number of students taking part in the training as needed?	No, the number of training participants is approximately 25 people for each training implementation, while there are still many researchers who have not had the opportunity to take part in the training.
6.	Is the training implementation time sufficient for all materials?	It is enough because the training is carried out for 14 days from morning to evening.

In the analysis of this document, the researcher has analyzed several existing documents, including training participants 'data, schedule of activities, curriculum and syllabus, and existing reference books. Based on the training participants' data analysis, 25 training participants attend and participate in the MFR training. They are from various regions in Indonesia, who have never had the opportunity to participate in the training since being appointed rescuer of the National Search and Relief Agency. The material used is still a handout of teaching materials that have not been updated. Current MFR materials include (1) Integrated Emergency Management System (SPGDT) and MFR, (2) Incidents, (3) Transfer of Victims, (4) Infectious Diseases, (5) Anatomical Reference, (6) Victim Assessment, (7) Basic Life Support (BHD), (8) Cardiac Pulmonary Resuscitation (CPR), (9) Automated External Defibrillation (AED), (10) Oxygen Therapy, (11) Bleeding and shock, (12) Soft tissue injuries, (13) Mobile apparatus injuries, (14) Skull, spinal and chest injuries, (15) Burns and temperature / environmental emergencies, (16) Poisoning, (17) I medical emergencies, (18) II medical emergencies (inhalation), (19) III medical emergencies (seizures, diabetes, and strokes), (20) Triage. Curriculum and syllabus arrangements that do not follow the latest rules and only continue from the previous syllabus. For the Semester Learning Plan (RPS), there is still no guidance in the learning process, namely in Lesson Plans made internally by the instructor.

A questionnaire or questionnaire is given to training participants to know the responses, responses, and opinions of training participants to current learning and online learning. Table 3 shows the training participants' questionnaire questions.

Table 3. Results of the Training Participants Questionnaire

No.	Statement / Question	Yes	No
1	I have a computer / laptop	√	
2	Do you know about the internet?	√	
3	Are the internet facilities in your office up to the limit?	√	
4	Do you often use the internet for learning activities or looking for reference sources of learning?	√	
5	Do you like the current MFR education and training system (conventional system / face to face)?	√	
6	I like learning only by using textbooks or textbooks to understand the training material	√	√
7	I have studied using other media		√
8	Do you need alternative teaching materials to study MFR theory?	√	
9	Do you know the online learning system?		√
10	Do you agree if online learning is developed for theoretical material in MFR training?	√	

Based on the table above, the questionnaires distributed to the training participants show that, in general, the training participants use internet facilities either through their laptops or smartphones, and some of the training participants do not know the blended learning development model. However, they want innovation in the Learning model for Medical First Responder (MFR) Training. However, most of the training participants agreed with developing a learning model in the medical first responder (mfr) training which could be proxied with 85%.

Discussion

Initial observations made by researchers were to see the learning process of the MFR training directly, the facilities and infrastructure used, the response of the training participants during the learning process so that the obstacles and shortcomings that exist in this training can be identified; solutions can be found. As long as researchers follow the learning process in class, it appears that the learning process still uses conventional methods or lectures, where the material is presented in the form of slides. During the learning process, the training participants did not actively participate, only listening to what was explained by the instructor. The learning process only takes place in one direction. Occasionally there are training participants who ask questions. The only learning resource is textbooks given when the training participants are already at the Training Center, where the training participants cannot first study the material, so they do not have the readiness of the material in the learning process. In the end, the training participants just listened to the instructor silently without any interaction; the learning process went one way only (Jayaraman et al., 2009).

Apart from observing the learning process, the researcher also conducted document analysis, including the schedule for MFR training activities, textbooks as teaching materials, curriculum, and syllabus for MFR training (Stansfield et al., 2000). In this MFR training textbook, the structure is not systematic, so that the training participants have difficulty understanding it. However, in it there are MFR materials that will be studied, including (1) Integrated Emergency Management System (SPGDT) and MFR, (2) Incidents, (3) Transfer of Victims, (4) Infectious Diseases, (5) Anatomical References, (6) Victim Assessment, (7) Basic Life Support (BHD), (8) Cardiopulmonary Resuscitation (CPR), (9) Automated External Defibrillation (AED), (10) Oxygen Therapy, (11) Bleeding and Shock, (12)) Soft tissue injuries, (13) Mobile apparatus injuries, (14) Skull, spinal and chest injuries, (15)

Burns and temperature / environmental emergencies, (16) Poisoning, (17) I medical emergencies, (18) II medical emergencies (inhalation), (19) III medical emergencies (seizures, diabetes, and strokes), (20) Triage. Although all of the material has not been updated (not updated), the material's content from year to year remains the same without any changes.

Instructors and training participants expect material that has developed following the times and technology, material that can be studied anytime and anywhere even though the training participants have not attended education and training anymore. Training participants can independently learn and find the material they want from various sources. Based on the questionnaire distributed to training participants, 85% of training participants want an alternative learning source connected to technology. The success of the training is primarily determined by what approach the instructor uses to deliver the training material. MFR training is adult training. In adults, being able to understand what the instructors say depends on their learning styles. Adult learning style or also known as andragogy, is an approach to organizing learning. In the adult learning model, there are four essential aspects, including (1) independence (learning is no longer a necessity), (2) experience (reflecting experiences in organizations for the learning process), (3) readiness to learn, and (4) orientation to learn (Jayaraman et al., 2009; Stansfield et al., 2000).

Based on the results of direct interviews with stakeholders at the National Search and Relief Agency's Education and Training Center, namely the Head of Balai Diklat, the Head of the Education and Training Section, and MFR Instructors. It was found that the biggest problem today is the very few instructors, namely 8 instructors, who will provide lessons for 34 training courses that must be carried out for one year. Ideally, the number of instructors is 25 people. The solution that is always taken to overcome the number of instructors is to bring in instructors from one of the National Search and Relief Agency work units, sometimes even outside the agency. However, the results of the interview also illustrated that the implementation of the training took quite a long time, and there were limited places that could only accommodate a maximum of 25 people, so that there were several work units that could not include their rescuers in this MFR Training, considering that there are 34 provinces in Indonesia.

Medical First Responder (MFR) training is held once a year. However, the number of rescuers throughout Indonesia reaches thousands, meaning that it takes a very long time for rescuers to get the opportunity to take part in this training, while the materials in MFR training are essential and needed by a rescuer. Therefore, the right solution is needed to overcome these problems so that rescuers in Indonesia who have not had the opportunity to participate in MFR training do not wait too long. Given that there are rescuers who have to wait 10 years to be able to attend this training.

According to information and data obtained by researchers, the National Search and Relief Education and Training Center, especially for Medical First Responder (MFR) Training and Education, requires innovation or renewal of the learning model implemented far. Learning models that utilize information technology following the times and technology. One of the learning models that take advantage of the current trend in technology is blended learning.

The term blended learning comes from the word blended, which signifies using two or more different learning methods to increase student learning potential (Dey & Bandyopadhyay, 2019). Based on the learning theory of Gagne, Keller, Bloom, Merrill, Clark, and Gery, there are five essential elements, including: (1) live events or we call synchronous, (2) self-paced learning or called asynchronous, (3) Collaboration where learners could communicate with other students, (4) Assessment as a measure of training participants' knowledge, (5) Reference materials. According to (Hrastinski 2019), there are two definitions

of blended learning: learning that combines face-to-face instruction with computer media instruction and integrating face-to-face learning experiences with online experiences. This is generally known as the integration of online programs with conventional classes. Blended Learning can integrate the material into different formats, and the material is delivered asynchronously, then the following material is delivered virtually.

Blended Learning is a form of a learning system that combines in such a way synchronous and asynchronous learning strategies in order to create learning experiences to achieve optimal predetermined learning outcomes (Dey & Bandyopadhyay, 2019; Lim, Wang, Gu, & Oakley, 2016; Thai et al., 2017). There are four learning room settings in the blended learning model, including learning room 1, which is direct synchronous or face-to-face, learning which is carried out simultaneously and in place. Learning room 2 is virtual synchronous, learning which is done simultaneously but in different places. Learning room 3 is asynchronous independently, training participants to learn at different times and places without the help of others. Finally, learning room 4 is asynchronous collaboration, where training participants learn at different times and places and with anyone. For example, in the learning room setting 4, we can have virtual discussions with anyone.

Blended learning that utilizes technological developments, where this learning uses a website, usually uses a Learning Management System (LMS) for theoretical material. In the LMS, the existing material is not only in the form of text but can also be in the form of videos, animations, and even exams that can be carried out online. Therefore, learning strategies are needed in designing in order to get maximum results. Therefore, researchers used the PEDATI strategy.

The Medical First Responder (MFR) training participants are the National Search and Rescue Agency responders on duty and come from every Province throughout Indonesia. Seeing the number of tasks and responsibilities that must be carried out in each work unit, blended learning is considered suitable for use in this training because it can reduce time efficiency. With the application of the blended learning model at the MFR training, it is hoped that it can solve all the problems in the Training Center and provide convenience to instructors in the learning process and increase the learning independence of the training participants.

Conclusion

Based on the data obtained at the needs analysis stage, several things can be concluded, including Medical First Responder Training, which requires an innovative learning model integrated with the development of information technology. A learning model that gives training participants the freedom to access it from anywhere and at any time so that training participants can determine their own time and place to study. The Blended Learning Model is an innovation that is considered to solve all problems so far. Blended learning is a form of a learning system that combines in such a way between synchronous and asynchronous learning strategies in order to create learning experiences to achieve optimal predetermined learning outcomes. In further research, it is hoped that the development of a blended learning model in the medical first responder (mfr) training can be carried out.

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