The Influence of Blended Learning on the Knowledge of Health Human Resources at the North Sulawesi Public Health Center

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Abstract
Blended learning is a blend of several types of distance and face-to-face learning. It is claimed that blended learning increases students' knowledge. Therefore, it is necessary to implement blended learning in health human resource (HR) training. The objective of this study was to examine the impact of blended learning on training on the increase of human resource knowledge at Puskesmas in North Sulawesi. This is a quasi-experimental study with a one-group pre-posttest design. This study was conducted between 5 and 10 September 2022 at the Regional Technical Implementation Unit (UPTD) of the Health Training Center (Bapelkes) of the Regional Health Office (Dinkesda) of North Sulawesi Province. This study surveyed 30 Health Human Resources, specifically the Rapid Action Team for Conquering Outbreaks and Outbreaks at Puskesmas. This study's dependent variable is the level of knowledge. The tool utilized is a questionnaire. In this study, univariate and bivariate data analysis are employed. The results of this investigation suggest that the minimum, maximum, and mean values have all increased. The minimum value grew by 48.50 points, the maximum value by 30 points, and the average value by 33.33 points. The results of the t-test reveal a t-value of 20.0478 and a p-value of 0.0001 (p<0.05). These values represent a difference in knowledge between before and after receiving blended learning training. The outcome of this study is that training with the blended learning method has an effect on the trainees' knowledge. integrated learning; human resources in health; training; knowledge

Keywords: integrated learning, human resources in health, training, knowledge

INTRODUCTION
The 2019 Corona Virus Disease (Covid-19) pandemic has repercussions on the health, economic, and social sectors, particularly the education sector. Covid-19 has impacted school administration in the sphere of education. Covid-19 compelled the offline (face-to-face) learning and training process to be conducted remotely (online). Online learning or training, commonly known as distant learning, allows facilitators and students to conduct learning outside of the school, without being in the same room or face-to-face. The facilitator imparts knowledge or instruction through internet-accessible online media (Tamboto et al 2021; Pontoh et al 2021; Nurhadi 2020).

Human Resources (HR) in health are essential to health development. Human resources in health play a part in raising everyone's awareness, willingness, and capacity to live a healthy lifestyle in order to attain optimal health status. With the introduction of a new disease, namely the Covid-19 pandemic, the issue of health human resources has taken on a greater strategic importance. In order to prevent the spread of Covid-19, it is necessary to have health personnel with the necessary knowledge and abilities to deal with outbreaks and other extraordinary situations (KLB). (Ministry of Health, Indonesian Republic, 2022).

During this epidemic, one of the measures to expand the knowledge and abilities of human resources, including health, is remote training. Training human resources plays an essential role; the more effectively an institution performs selection, the easier it is for hospitals, health centers, and other service institutions to conduct training, because the human
resources that arrive are consistent with the institutions’ expectations. It is hoped that this training will eliminate knowledge, attitude, skill, stress, and communication gaps inside an institution. Existence of talent training can enhance performance in the forms of competence, engagement, and contribution (Rotty et al. 2017; FK UGM 2022).

However, over time, various issues with distant learning were identified. Based on the findings of a study conducted by the Mojokerto Regency Education Office in 2021, a number of issues were identified, including inconsistent internet network access, insufficient equipment, high quota costs, uneven mastery of science and technology among educators, including teachers/lecturers/tutors, and unprepared implementation of the learning process. Educating utilizing distance learning techniques and others (Mojokerto District Education Office 2022).

Current and future demands on education The future is the improvement of the intellectual and professional abilities, as well as the attitudes, personal qualities, and morals of the Indonesian people in general. In the current period of free market competition, this can position the Indonesian people as dignified in the global community. Indonesia’s low education quality is a major concern in the contemporary world of education, particularly higher education. (Elfian, Ariwibowo, Johan, 2017). The mixed learning strategy is one attempt to address this issue. Blended learning is a blend or combination of distant and face-to-face learning (Graham, 2014). Blended learning training combines face-to-face learning with the aid of information and communication technology, which has advantages such as students interacting directly with learning content, being able to interact with friends, participating in group discussions and exchanging opinions, and having access to e-libraries and classes. virtual, online evaluation, e-tutions. Access and manage learning blogs, online seminars (webinars), watch expert speakers on YouTube, and study online via video, audio, and virtual laboratories (Lalima & Dangwal, 2017).

Blended learning has two key characteristics: (1) a learning process that integrates diverse learning models, learning styles, and the utilization of various information and communication technology-based learning media; and (2) a combination of online and face-to-face independent learning. - direct instruction from the facilitator to the students. and integrate autonomous learning; (3) learning is supported by successful learning from delivery methods, learning techniques, and learning styles; (4) in the case of students in schools, parents and instructors play a significant role in blended learning students' education. In their children’s education, teachers are facilitators while parents are motivators (Nurhadi 2020).

Several research have been undertaken to determine the impact of blended learning on trainees' knowledge during the Covidian-19 epidemic. During the Covid-19 pandemic, Nurhadi (2020) stated that we must adopt a new lifestyle known as the New Normal. He underlined the importance of implementing health protocols like wearing masks, cleaning hands, and maintaining physical separation. The blended learning model is an initiative that can reduce large gatherings at the same time and location within the context of physical separation. However, blended learning in no way diminishes the essence of the training objective, which is to improve competence. Blended learning attempts to facilitate learning by providing a variety of learning media while taking student characteristics and the need to apply health regulations into account. Encourage participants to maximize their usage of online communication for knowledge development.

Anggita et al. (2020), who employed a quantitative descriptive technique and a survey method, were the first to employ this methodology. The research sample consisted of 30 individuals selected by systematic sampling. Questionnaires were utilized in the data collection process. The technique for data analysis employs percentage correction. 40% of respondents had a very high level of knowledge, 50% had a decent level of knowledge, and 10% had a low level of knowledge, according to the data. 20% of respondents strongly agree that the blended learning method can enhance students' understanding, creativity, and activity in learning, whereas 50% agree and 30% disagree with this statement. This study concludes that the level of respondents' understanding of the blended learning
method is high. Blended learning is simple to implement and can enhance students’ comprehension, creativity, and engagement.

According to researchers, blended learning training is one of the most effective ways to develop teachers’ and students’ knowledge and skills. On the other hand, this strategy is not commonly implemented in health human resources. The North Sulawesi Provincial Health Office has the duties and obligations of aiding the Governor in carrying out government matters, which are the region’s authority and delegated assistance tasks in the health sector. One of the supporting components required to do this assignment is health human resources. Qualified health personnel can aid the Health Office in carrying out its tasks and obligations to the greatest extent possible. Training is an endeavor to increase the quality and capability of health human resources. The Health Office routinely provides training in epidemic control and outbreak control for the Rapid Action Team (TAC) at Pukesmas. Due to the Covid-19 epidemic, this training was originally conducted online; nevertheless, an evaluation revealed that the online training was ineffective on both the knowledge and skill levels. The purpose of this year’s blended learning program is to develop the participants’ knowledge and abilities to the greatest extent possible. Therefore, it is vital to investigate or assess the impact of blended learning training on the knowledge of health human resources. This study aimed to determine the impact of blended learning training on the knowledge of health resources at Puskesmas in North Sulawesi.

METHOD

This research is a quasi-experimental study with a pretest-posttest control group design. This research was conducted at the Regional Technical Implementation Unit (UPTD) of the Health Training Center (Bapelkes) of the Regional Health Office (Dinkesda) of North Sulawesi Province on 5-10 September 2022. The respondents of this study were 30 Health Human Resources namely the Rapid Action Team for Overcoming Outbreaks and Outbreaks at the Puskesmas. The variable measured in this study is the level of knowledge. The instrument used is a questionnaire. This study began with the distribution of online questionnaires to each participant to measure the participants' prior knowledge. Furthermore, the training participants were given online material for 2 days and then given face-to-face training for 4 days of activity. At the end of the training, the final knowledge measurement was carried out using the same questionnaire. Data analysis carried out in this study is univariate and bivariate analysis. Univariate analysis was carried out by explaining the lowest, highest and average values. Bivariate analysis was performed using paired t-test.
RESULTS AND DISCUSSION

Result

Univariate analysis

![Results of Univariate Analysis](image)

Figure 1. Results of Univariate Analysis

This study demonstrates a rise in the minimum, maximum, and mean values. The minimum value grew by 48.50 points, the maximum value by 30 points, and the average value by 33.33 points. This demonstrates that the blended learning strategy develops the trainees' knowledge in a descriptive manner. According to Akhmalia et al. (2018), the average pretest score of the experimental group is higher than that of the control group. However, there is no significant difference in the pretest values of the experimental and control groups, indicating that the experimental and control groups possess the same concept mastery capacity.

Bivariate analysis

<table>
<thead>
<tr>
<th>Treatment group</th>
<th>Variation in Average Score</th>
<th>t value</th>
<th>df</th>
<th>SE</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Post test</td>
<td>33.33</td>
<td>20.0478</td>
<td>29</td>
<td>1.663</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

The pre-post-test mean value was determined to be 33.33 points, the t-value was 20.0478, and the p-value was 0.0001 (p < 0.05) based on the findings of the t-test. These values represent a difference in knowledge between before and after receiving blended learning training. The results of this study revealed that training with the blended learning method had an influence on the trainees' knowledge. This study's findings are consistent with those of Puspita et al. (2017), who examined the impact of blended learning on the understanding of SMA Negeri 9 Semarang students on sexually transmitted illnesses. This is a quasi-experimental study employing a pre- and post-test control group design. The subjects of the study were 210 students from SMA Negeri 9 Semarang's tenth grade. The results of this study reveal that the blended learning group demonstrates a substantial gain in knowledge before and after receiving counseling using a blended learning and lecture strategy (p = 0.000). This study concludes that the blended learning method has an effect on the knowledge of SMA Negeri 9 Semarang students.

Anggita et al. (2020) find that the blended learning strategy has an effect on the cognitive learning outcomes of students. This research is corroborated by Uzun and Senturk's (2010) findings that there are differences between students taught utilizing...
blended learning approaches and those taught face-to-face. According to Uzun and Senturk (2010), interactive materials containing instructional videos, images, and tasks are a more effective success factor in a blended learning setting. This is the reason why blended learning is more effective than face-to-face learning in terms of both academic aptitude and attitude toward computer use.

Discussion

From the result analysis, The pre-post test mean value was determined to be 33.33 points, the t-value was 20.0478, and the p-value was 0.0001 (p<0.05) based on the findings of the t-test. According to Wijayanti et al. (2022), the average knowledge score prior to training was 17.133 1.67 and after training it was 0.0292 0. Prior to the course, seventy percent (21 out of 30) of respondents possessed an adequate level of understanding. After the course, as many as 19 respondents (63.3%), rated their level of knowledge as good. The level of knowledge within the sufficient category decreased. After the intervention, however, there was an increase in the number of responders with good knowledge, from 5 to 7 (23.3%).

Mutaqin et al. (2016) demonstrated that student performance was pretty excellent given that this was the first time students had utilized blended learning. 25% of pupils had scores below 5.3 and 25% have scores over 7.8 according to the quartile distribution. 75% of students in the usual class group scored below 5.5 (upper quartile), while 75% of students in the blended learning class scored 5.3. (lower quartile). Thus, the statistics on the value of the blended learning class at the Regional Technical Implementation Unit (UPTD) of the Health Training Center (Bapelkes) of the Regional Health Office (Dinkesda) of North Sulawesi Province is significantly superior than that of the traditional learning class. In addition, the findings of the bivariate analysis are shown in the subsequent section.

Wijayanti et al (2022) study on the impact of blended learning on cadre training on Youth Posyandu's knowledge. This is a pre-experimental study with a pretest-posttest design for a single group. This study's sample consists of thirty adolescents from six hamlets in the vicinity of the Depok III Health Center in Yogyakarta. For data analysis, the paired sample t test was utilized. The data analysis revealed that the average knowledge score prior to training was 17.133 1.67, whereas the average knowledge score after training was 20.029 2.033. The results of the various tests yielded a p value of 0.000 Consequently, there is a substantial difference in the knowledge scores before and after training.

This study's findings are consistent with those of Rovai and Jordan (2004), who found that blended learning is superior to traditional learning and online-only learning. In fully online learning, individuals are less independent and dependent on other students, whereas in traditional learning, the class is dominated by a critical number of students with little time for discussion.

Blended learning, according to Curtis et al. (2005), requires three elements: combining the benefits of each teaching technique, combining diverse learning methods, and merging online and traditional learning. Blended learning, according to Dziuban et al. (2004), is a strategy that blends effectiveness and socialization chances with an upgraded online technological environment. In other words, blended learning should be considered as a redesign of the learning model characterized by the following features: 1) a shift from tutor-centered learning to tutor-centered learning, and 2) enhanced engagement between tutorial participants and tutors, participants with teaching materials, and tutorial participants with additional learning resources.

Blended learning is a learning strategy that combines the features and functions of well-known teaching and learning methodologies to give a more effective educational experience. Face-to-face learning is typically dominated by students with strong academic achievement or those who enjoy expressing their thoughts, whereas shy pupils rarely voice their opinions during learning events. Due to the absence of in-
CONCLUSION

The result reached by this study is:

1. Analysis of the data revealed that the average knowledge score prior to training was 17,133, whereas the average knowledge score following training was 20,029. The p-value produced by the multiple tests was 0.000. Before and after the training, there was a large change in the knowledge scores.

2. The mixed learning class at the Regional Technical Implementation Unit (UPTD) of the Health Training Center (Bapelkes) of the Regional Health Office (BapelKes) of North Sulawesi Province was statistically superior to the traditional learning class. Additionally, the results of the bivariate analysis are presented in the next section

BIBLIOGRAPHY


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