

What can research evidence tell us about barriers and facilitators on the implementation of blended training for health care workers? Rapid evidence review

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Abstract

Background: Blended learning/training is defined as a combination of face-to-face traditional classroom-style teaching with e-learning/web-based technology models to reduce classroom contact.

Objective: The aim of this rapid review was to summarize the best available evidence on the barriers and facilitators to implement blended training for health care workers.

Methods: It was prepared based on structured searches of literature and selected evidence-based healthcare databases.

Key findings: The barriers and facilitators for implementing blended training/learning were identified and indicated below.

Importance: The finding of this review will inform the health sector and other stakeholders to strengthen or develop policies and strategies for effective implementation of blended training/learning.

What this review found?

- ⊙ The barriers identified for implementing blended training/learning includes:
 - Lack of information technology skills among trainees
 - Negative emotions toward e-learning, and inadequate infrastructure
 - Lack of standardization of online training and lack of time
- ⊙ The facilitators identified for implementing blended training/learning includes:
 - High-level government support
 - Well designed system including piloting of courses, evaluation and feedback
 - Availability of guidelines
 - Skilled staff on IT and flexibility of the training

What is rapid evidence review?

Rapid evidence review addresses the needs of policymakers and managers for research evidence that has been appraised and contextualized to a specific context in a matter of hours or days. This rapid evidence review goes beyond research evidence and integrates multiple types and levels of evidence. However, this rapid review does not include a conclusion and recommendation.

Where did this rapid evidence review come from?

This document was created in response to a request from the Ministry of Health to synthesize the best available evidence related to barriers and facilitators for the implementation of blended training for healthcare workers. It was prepared by the Knowledge Translation Directorate in collaboration with, the Health System and Reproductive Health Research Directorate of EPHI, and Jhpiego Ethiopia-Health Workforce Improvement Program.

Included:

- Key findings from the available studies

Not included:

- Recommendations
- Detailed descriptions



Introduction

Blended learning or blended training is defined as a combination of face-to-face traditional classroom-style teaching with e-learning/web-based technology models e.g. virtual classroom/, distance learning using printed handouts; and reduced classroom session/contact (McGrath 2013). It has been widely implemented globally and applied in a variety of fields in the training of students and professionals (Moore et al. 2006). Comparing this method to traditional face-to-face learning in the field of

health education, it consistently showed better impacts on knowledge outcomes. (Vallee et al. 2020; Ødegaard et al. 2021). Moreover, it has a positive effect on trainees' skills enhancement, knowledge retention, increased problem-solving ability, and learning satisfaction (Liu et al. 2016; Kang and Kim 2021). In line with this, the implementation of blended learning is cost-effective, efficient, and enables the provision of one-on-one coaching as compared to face-to-face learning (McGrath 2013).

The The 2016 Ethiopian Information, Communication, and Technology (ICT) policy advocate the use of innovation and digital technology in the field of health and others.

Accordingly, the Ministry of Health has committed to modernizing its ICT for creating electronic information systems, linking hospitals, health centers, and health institutes with broadband and optimizing the use of ICT for online education, and providing training for health professionals (EICT 2009). Although blended learning has shown to be an effective training method (Makhdoom et al. 2013; Liu et al. 2016; Kang and Kim 2021), further investigations are needed on barriers and facilitators before its adaptation for the successful implementation of this approach. Therefore, this rapid evidence synthesis was prepared in response to the Ministry of Health's request, to provide the best available evidence on the barriers and facilitators of the implementation of blended training. Furthermore, the finding of this review will inform Regional Health Buraues, professional associations, training institutions, and other stakeholders to strengthen or develop strategies or policies for effective implementation of blended learning for health care workers.

Methods

A rapid evidence synthesis approach adapted from the Supporting the Use of Research Evidence (SURE) Rapid Response Service was applied to search, appraise and summarize the available evidence on barriers and facilitators for the implementation of blended training for the healthcare worker. To answer the question under review it was searched for relevant studies from databases including PubMed, the Cochrane Library, JSTOR, Health system evidence, and SUPPORT summary. In addition, gray literature and Google scholar were looked at. The following key terms were used for searching: barriers, facilitators, blended training/learning, and health worker with their mesh terms.

Inclusion and exclusion criteria: All studies found on the barriers and facilitators to implement blended learning/training for health workers were included for this review. Because of the limited studies found, the researchers included the findings of studies that are indirectly related to the objective of this review. Accordingly, studies that see barriers and facilitators of implementing e-learning were included as well, considering e-learning as a key component of blended learning. The included studies were limited to human and English language. The last search was made on May 17, 2021, with no date restriction. Transparent reviews (e.g. news, letters, editorials, reports, communications, comments, and correspondence) were excluded.

How this rapid evidence review was conducted????

The methods used to prepare in this rapid evidence review were adapted from the Supporting the Use of Research Evidence (SURE) Rapid Response Service.

In this review, the researchers have searched for relevant evidence related to barriers and facilitators for the implementation of blended training for health workers. The evidence in this summary comes from systematic reviews and other studies.

It was prepared based on structured searches of literature and selected evidence-based healthcare databases (PubMed, the Cochrane Library, JSTOR, Health system evidence, and Support summary. In addition, we looked for gray literature and Google scholar).

Main objective of the review

The main objective of this review is to summarize the best available evidence on the barriers and facilitators to implement blended training for health care workers.

Specific Objectives of the review:

1. To identify the barriers for the implementation of blended training for healthcare workers.
2. To identify the facilitators of blended training for healthcare workers.

Review findings

This study searched for relevant studies on different databases to answer the objectives under review. Based on the search, systematic review, integrative review, qualitative and mixed-method studies were identified. The researchers appraised the methodological quality of systematic reviews using AMSTAR. Accordingly, the review findings summarized as follow:

Evidence on barriers for implementation of blended learning/training

Six eligible evidence dealing with the barriers to implement blended learning/training were found. Although the majority of the studies found were focused on e-learning, one study was directly related to the objective. Out of the six studies one was systematic reviews and the remaining were integrative review, qualitative and mixed-method studies. The identified barriers include lack of information technology skills among trainees, negative emotions toward e-learning, inadequate infrastructure, lack of standardization of online training, and lack of time (Childs et al. 2005; Zhang et al. 2015; Richmond et al. 2016; Lawn et al. 2017; Wilbur and Taylor 2018; Almost et al. 2019). A summary of the findings related to the barriers to the implementation of blended learning/training can be found in table 1.

Table 1: Summary of findings on barriers to the implementation of blended learning/training

Studies	Findings	Type of document	Critical appraisal tool (AMSTAR 2)
Effective e-learning for health professionals and students barriers and their solutions. A systematic review of the literature findings from the HeXL project (Childs et al. 2005)	The main barriers for effective implementation of e-learning were found to be: resistance for change, costs, poorly designed packages, inadequate technology, lack of skills, need for a component of face-to-face teaching, time-intensive nature of e-learning, and computer anxiety.	Systematic review	Moderate quality review
An integrative review of e-learning in the delivery of self-management support training for health professionals (Lawn et al. 2017)	Limitation on computer literacy skills, lack of access, take more and/or lack of time, limited space, gap on personal skills of information selection, and negative emotions were the identified online learning barriers for the delivery of training for health professionals.	Integrative review	Moderate quality review
Does a blended learning environment suit advanced practice training for pharmacists in a Middle East setting? (Wilbur and Taylor 2018)	Challenges with technology adaptation, time management, and learner isolation were the perceived barriers by the pharmacist enrolled in the blended learning environment.	A qualitative study design	Not applicable
Web-based training for primary healthcare workers in rural China: a qualitative exploration of stakeholders' perceptions. (Zhang et al. 2015)	The perceived barriers to utilizing the web-based training method included poor computer literacy, lack of personal interaction, inadequate infrastructure, and lack of time and motivation.	Qualitative study	Not applicable
The Acceptability and Feasibility of Implementing an Online Educational Intervention With Nurses in a Provincial Prison Context. J Forensic (Almost et al. 2019)	The most common barriers in implementing an online education for Nurses in a provincial prison were lack of time, heavy workloads, inadequate staffing, lack of resources, the disparity between resources, and lack of space.	A sequential mixed methods	Not applicable
Using mixed methods evaluation to assess the feasibility of online clinical training in evidence based interventions: a case study of cognitive behavioural treatment for low back pain (Helen et al. 2016)	The barriers to online clinical training were categorized into external and internal factors. - External barriers included: technical difficulties in gaining access to the online training program due to out-of-date web browsing software, distractions when working in the home environment, and having a workload within the working institution that hinders taking training online. - Internal barriers included: sitting for long periods, self-discipline not to skip sections and 'cheat', lone working without the capacity for any face-to-face discussion, concentration on a computer screen, and their openness to change.	A mixed-method case study	Not applicable

A critical appraisal tool was used by AMSTAR 2 to assess the systematic review quality

Evidence on facilitator for implementation of blended learning/training

Three indirectly and one directly related study that deals with the facilitators for implementation of blended learning/training for health care workers were found. Similar to the finding on barriers, the evidence found on facilitators focuses mainly on e-learning. The studies on facilitators include one systematic

review, two qualitative, and one mixed-method study. The facilitators include high-level government support, infrastructure, skilled staff on IT, and flexibility of the training (Childs et al. 2005; Zhang et al. 2015; Wilbur and Taylor 2018; Almost et al. 2019). A summary of the findings related to the facilitators for the implementation of blended learning/training (e-learning) is found in table 2.

Table 2: Summary of findings on facilitators for the implementation of blended learning/training

Title	Findings	Type of document	Critical appraisal tool (AMSTAR 2)
Effective e-learning for health experts and students barriers and their solutions. A systematic review of the literature findings from the HeXL project (Childs et al. 2005)	The availability of the following factors facilitate effective delivery of e-learning: ▪ National/local approach, infrastructure, standards, guidelines, integrated services. ▪ Strong commitment and support from the institution (managers) and trainers. ▪ Presence of a range of skilled staff. ▪ Evaluation research (to identify cost-effectiveness & cost-benefits). ▪ Easy access to technology for both trainers and learners. ▪ The flexibility of programs, study methods, and access to trainers and facilities so learners can maintain an appropriate work-life balance. ▪ Well designed e-learning programmes / courses/package ▪ Shared responsibility between trainers and learners ▪ Piloting of packages/courses and ongoing evaluation ▪ Providing for feedback ▪ Support materials ▪ Identification and dissemination of examples of good practice	Systematic review	Moderate quality review
Does blended learning environment suit advanced practice training for pharmacists in a Middle East setting? (Wilbur and Taylor 2018)	• Pharmacists appreciated the flexibility and self-regulated review of distance-based content	A qualitative study design	Not applicable
Web-based training for primary healthcare workers in rural China: a qualitative exploration of stakeholders' perceptions (Zhang et al. 2015)	• Facilitators of the web-based training approach included the training content applicability, the user-friendly and interactive learning format, and policy support.	Qualitative study	Not applicable
The acceptability and feasibility of implementing an online educational intervention with nurses in a provincial prison context (Almost et al. 2019)	• The most common facilitator for implementing online learning was managerial support • Work schedule (the flexibility to attend), and workload (including having lighter workloads or time available) were the two main facilitators for the implementation of online learning	A sequential mixed methods	Not applicable

A critical appraisal tool was used by AMSTAR 2 to assess the systematic review quality

Conflict of interest: Authors declare that they have no conflict of interest

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