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Blended E-learning on clinical skills learning from the medical student's perspectives

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Blended E-learning on clinical skills learning from the medical student's perspectives

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Abstract. With the rapid development of the internet, learning technology responds to the birth of e-learning with the vast use of a various Learning Management System (LMS) software to facilitate online learning in a structured manner. Moodle is an LMS developed by Martin Dougiamas which has four basic concepts, namely: constructivism, constructionism, social constructionism, connect and separate. Several studies have shown that learning reform that combines Moodle with conventional classes, shows an increase in student knowledge, attitudes, and behaviour. This study aims to compile a student's perception on Moodle-based e-learning model in clinical skills learning in the Medical Faculty. This qualitative case study adopted the 'define' and 'develop' phases of the 4D model of a module development. The informants were 11 fourth-year medical students, at the academic phase of a medical school at Universitas Islam Bandung, Indonesia. This study was conducted using unstructured in-depth interviews and small group discussions. The verbatim data were transcribed using Microsoft Word and analysed using NVivo ver.12 software. Four major themes emerged from the define phase: teaching materials, training evaluation, student's learning styles, and the weaknesses of the conventional clinical skills training. This research described that conventional way of clinical skills learning has many limitations and suggested that the use of e-learning based module such as Moodle, could be used as a blended learning approach and can cover the shortcomings of conventional learning methods in clinical skills teaching of the medical students.

1. Introduction

Many medical schools worldwide, build the skills center as the main facility to enhance the student's clinical skills. The establishment of the skills center has challenges in the form of high cost of establishment, maintenance and rejuvenation. Outside of the routine schedules, rarely or even very few opportunities for students to be able to repeat clinical skills training [1].

The complexity of the content of clinical skill's learning material determines how long it takes for the training process. There is a positive relationship between the number of clinical skills training repetition and the level of student satisfaction [2,3].

The process of teaching procedural skills contains five stages, consisting of: 1) students learn the cognitive components; 2) trainer demonstrates the procedure; 3) trainer reads the procedure; 4) students re-explain the procedure; and 5) students demonstrate the procedure. Based on these stages, repetition by the students in procedural skills teaching processes allows for substitution with other methods such as the use of computer-based learning or e-learning [4].

E-learning can be used by lecturers in the Faculty of Medicine to improve the efficiency and effectiveness of learning to overcome social, scientific and pedagogic challenges in the process of medical education. The clinical skills curriculum developer needs to ensure that the use of e-learning in clinical skills should utilize media that facilitate the adult learning or student-centered approach and must increase the depth of student learning on clinical skills learned [5,6].

A standardized teaching videos can be an option as a learning media that needs to be developed into learning resources to overcome the limitations of lecturer's time and resources that may be encountered on clinical skill's teaching in the Faculty of Medicine [7].

Currently there are various Learning Management System (LMS) software that can be used to facilitate online learning in a structured and tangible form of e-learning. One of the LMS software is Moodle. Moodle is an LMS developed by Martin Dougiamas which has four basic concepts, namely: constructivism, constructionism, social constructionism, and connect and separate. Learning reform that combines Moodle with conventional classes showed an increase in student knowledge, attitudes, and behavior [8].

One previous study showed that blended learning was statistically significantly better than conventional learning in all domains of the educational environment-except for social perception, and in all types of examination: written, objective structured clinical, and case scenarios [9].

However, there were no sufficient research data that describe the student's perception on the conventional teaching methods and the usage of e-learning to improve the clinical skills learning. This research was aimed to describe the medical student's perception on the conventional clinical skills learning and their perception on e-learning Module as a blended learning method.

2. Methods

This is a cross sectional descriptive study with a qualitative approach. A case study approach was used to observe phenomena and perceptions of data collected from informants. This study is a part of research on teaching materials modelling based on development models recommended by Thiagarajan, namely 4D Model which consists of define, plan, develop and disseminate. This preliminary research focused on the 'define' and 'develop' phases as the first two phases of the 4D model [10].

In accordance with the four stages of modelling the 4D teaching material model proposed by Thiagarajan 1974, define phase in this model was aimed to determine and confirm learning and learner's needs in selected clinical skills modules.

In the define phase, various online searches were conducted to obtain various clinical skill modules from various medical education centres in Indonesia and worldwide. In addition, several videos were downloaded from various medical faculty, domestic and foreign professional associations, and training institutions/websites. Based on the search results, it was determined that there were two clinical skill modules which became the modelling topic, which is:

- Circumcision; and
- Basic examination of Neurology.

In the develop phase, a qualitative study was carried out using small group discussion (SGD) method for selected informants and in-depth interview with the 'outlier' informants.

This research was conducted in Universitas Islam Bandung, Faculty of Medicine, Indonesia on August 2018. Data was taken from the primary data. Informants of this research were 11 students of the fourth-year academic phase of the Medical School.

Data was analysed using thematic analysis. The analysis was carried out qualitatively. Content analysis was chosen because the main theme was known beforehand. Data analysed in the form of transcripts and convert audio transcripts into narration on Microsoft Word 2013 software before analysed further using NVivo Version 14.0.

3. Results and discussion

The SGD and in-depth interviews results obtained various variables related to the perception of the conventional clinical skills teaching which can be seen below:

a. Teaching materials (modules)
- Digital teaching materials should be developed
- Skills laboratory module should be more comprehensive both in the basic theory and procedural steps of the certain skills
- Preference for using the national language instead of English as the language in the module

b. Evaluation of learning
- The concept of comprehensive OSCE should be considered as an option of student's performance assessment method
- Peer group evaluation should be facilitated through clinical skills repetition
- Pre-test and post-test should be conducted as a part of clinical skills teaching
- National exit exam board for the medical students (UKMPPD) try out should be simulated frequently

c. Various student's learning styles should be considered as a variable of the module development

d. Conventional clinical skills learning has several weaknesses in aspects
- Skill repetition still be a major issue in clinical skills acquisition
- Ideal ration of the tools and materials provided in each skill
- Inconsistence of the content of the preliminary lecture by expert resource persons with the content of the module
- Lack of standardized learning methods between trainers
- standardization of the trainer still needs to be improved
- inadequate training time allocation

The informants were then given a demonstration of two (circumcision and basic examination of neurology) e-learning modules using pre-designed Moodle-based modules and SGD was subsequently carried out to gain students' perceptions of the use of blended learning in clinical skills learning. From the second SGD we found several variables related to the use of e-learning as a valuable issue to be considered in developing and implementing a blended learning in clinical skills.

- facilitation of e learning is an obligation
- e-learning modules must be applied primarily to complex clinical skills
- the advantages of e-learning can provide increased repetition and enthusiasm for student learning
- Moodle was fairly suitable to be adopted as an e- learning modality
- e-learning developed using the Moodle was fairly suitable to encourage the self-directed learning approach.
- use of social media should be considered as an option instead of Moodle
- videos of standardized clinical skills must be made by the faculty itself and their contents in accordance with the printed modules
- faculty YouTube channelling should be considered as a channel option for the e-learning modalities

It is necessary to develop e-learning models on clinical skills that accommodate student's perceptions of the limitations in conventional learning methods. The making of the model should accommodate the local characteristics of the institution and consider various variables such as: student's characteristics, availability of resources owned by the faculty, and specific competencies to be achieved by certain clinical skills learning. It is improper to replace conventional.

It is impossible to replace conventional methods by applying pure e-learning methods approach. The use of e-learning is only useful as a learning aid rather than being the main approach, otherwise known as blended learning.

4. Conclusions

This research describes that conventional way of clinical skills learning has many limitations and suggest that the use of e-learning based module such as Moodle, can be used as a blended learning approach and can cover the shortcomings of conventional learning methods in teaching clinical skills of the medical students. The use of social media and YouTube must also be considered in the development of a standardized multimedia contents channeling of e-learning.

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