Enablers and Barriers of Blended Learning in Faculty Development

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Abstract

Introduction

Online learning provides a ubiquitous and self-paced learning experience, while face-to-face learning encourages commitment in a prescheduled formal instruction. Blended learning (BL) combines these two mediums and provides flexible learning opportunities. While faculty development programs have utilized these two mediums separately, BL has not been fully implemented locally until recently. Identifying elements that enable or hinder faculty within a newly implemented BL program can enhance the learning experience and support professional development. The current study aims to identify how junior and senior faculty members of medical departments at a Turkish university perceive enablers and barriers in a new BL faculty development program.

Methods

This research is a multiple case study with qualitative inquiry using in-depth interviews and thematic analysis. Using a BL approach, the research team designed faculty development activities based on the Four-Component Instructional Design model. Participants accessed the activities on a Moodle learning management system. Faculty experiences in blended faculty development were examined. The study group consisted of 26 participants, with 14 junior faculty in case 1 and 12 senior faculty in case 2 from different medical departments at a Turkish university. Data were collected and analyzed using qualitative methods.

Results

This study identified enablers and barriers within a BL faculty development program. While participants identified three barriers, they identified eight enabling elements in a BL program. A lack of time was the most critical barrier to participation in the program. Setting goals for personal development and obtaining skills in teaching were essential enablers within the BL program.

Conclusion

The use of an online platform to support face-to-face faculty development programs is beneficial in several ways for faculty. Faculty developers can utilize BL to foster engagement and motivate faculty for increased participation, especially if they seek to mitigate known barriers to a successful BL program. Online communication and activities are suggested to develop communities of practice in the workplace. Strategies to eliminate workload and provide guidance on time management are required for both junior and senior faculty.

Categories: Medical Education

Keywords: multiple case study, online, enablers and barriers, qualitative study, faculty development, blended learning

Introduction

Faculty development has a key role in capacity building and establishing a growth mindset for faculty. Faculty development programs can foster skills and roles that are in demand. Faculty have reported positive attitudes toward these development programs in general [1] but indicated that the programs come with challenges [2-4]. Murray reported that the challenges for community college faculty consisted of a lack of goals and robust teaching methods, low faculty turn-out, and lack of evaluation [5]. Among medical faculty, the challenges of daily teaching and research activities are complicated by the additional requirements of clinical duties [6].

Various instructional approaches in faculty development have been conducted to overcome these challenges, such as workshops, seminars, short courses, and fellowship programs [7]. The approaches applied to faculty development programs have been successful, but each approach carries certain drawbacks or barriers. All these approaches employ face-to-face methods in which learners and faculty developers meet...
In addition to the conventional face-to-face methods, online learning options exist for faculty development, such as Communities of Practice (CoP) [2,8]. Online options better support long-term development goals [9]. CoP and other online options can ease the burden of faculty involvement in academic roles and facilitate this long-term involvement.

Blended learning (BL) combines two educational approaches, namely face-to-face and online, into one educational modality [10]. BL has the potential to mitigate negative aspects in both approaches [11]. To participate in face-to-face programming, participants and instructors must meet at a specific time and location. The time and location requirement of face-to-face can be a hindrance when participants and instructors have busy schedules and heavy workloads. Online learning eliminates the time and location logistical issues of face-to-face while also reducing costs and improving the quality of student learning [12]. However, a lack of social interaction can be detrimental to participation. BL has potential as a successful teaching modality for faculty learners and instructors by using beneficial elements of face-to-face and online modalities [2,13].

In a BL environment, it becomes essential to identify elements that act as barriers to learning and elements that facilitate learning to optimize the program's success and support professional development among faculty members. To identify these elements, qualitative research should be used that captures data from people in real-world conditions, as described by Yin [14]. This current study aimed to identify how junior and senior faculty members of medical departments at a Turkish university perceive enablers and barriers in a BL faculty development program.

**Materials And Methods**

**Study design**

This research used a multiple case study design with qualitative inquiry to understand faculty experiences in a BL development program and is part of the Ph.D. thesis of the first author (Y.Y.) submitted to Middle East Technical University [14]. Using in-depth interviews and thematic analysis, we sought to examine the perception of faculty toward the BL faculty development program. The reason for selecting the multiple case study design is it allows comparison among cases. When studying descriptive or explanatory issues and attempting to gain a first-hand understanding of individuals and events, the case study method is a very effective methodology. The nature of BL in the current study creates a contemporary phenomenon. Moreover, "in-depth" and "real-life context" are other valid reasons to employ the methodology in the study. Faculty development programs are conducted during the participants' work hours, along with their other duties of the clinician-educators such as patient care. Throughout the program, how faculty react to the program is a necessity since they should divide their working hours to cope with each of the roles their job demands of them. Two groups of participants enrolled in courses based on their medical career needs. One group (i.e., case 1) consisted of junior faculty members who had not previously received a faculty development certificate. Junior faculty case was defined in the study as an instructor or attending physician without faculty appointment, or faculty without a faculty development program certification. The second group (i.e., case 2) consisted of senior faculty. Senior faculty case was full professors or associate professors with faculty development certification.

**Study context and participants**

The current study took place at Ege University's Faculty of Medicine. The Faculty of Medicine is a relatively large medical faculty by Turkish standards, with 45 departments contributing to the teaching activities of the faculty's educational program for prospective doctors. There were 552 teaching faculty and attendings, 412 research assistants (i.e., residents), and 2,500 undergraduate medical students in the faculty [15]. The faculty's hospital had a 1,816-bed capacity and serviced a total of 65,245 inpatients and 1,026,644 outpatients in 2015 [15].

Purposive convenience sampling was used in forming the study population, which consisted of participants in a faculty development program available from June 13, 2016, through July 1, 2016. From a potential pool of 20 junior faculty members, three did not consent to participate, and three could not attend the face-to-face sessions. Therefore, case 1 consisted of 14 participants.

Case 2 had 24 applicants; however, five subsequently withdrew their application, citing other urgent work. Of the remaining 19 applicants, five requested not to participate in the current research study, and two were unable to continue after the first course session. As a result, case 2 consisted of 12 participants.

**Development and implementation of blended faculty development**

We developed a faculty development course to teach participants how to design and create online activities for their teaching activities. The faculty development course used the Four-Component Instructional Design (4C/ID) model [16]. The model consists of four components: learning tasks, supportive information,
procedural information (i.e., just-in-time), and part-task practice. At all steps of the process, the primary researcher designed the BL faculty development course in consultation with experts. Each design step was evaluated and reviewed based on experts in medical education and instructional technology. Figure 1 shows the phases of the blended faculty development courses in the program.

**FIGURE 1: Blended learning design for the faculty development program**

The open-source learning platform Moodle (Moodle, West Perth, Australia) was used to deliver the online activities of the current study. As a part of the instructional design process, Moodle was enhanced with a mobile application to connect participants ubiquitously to reach the system quickly and access information when needed. Moreover, participants were notified about their course activities via mobile application notifications.

**Ethics**

The current study was conducted under the approval of the Human Subjects Ethics Committee of Middle East Technical University. All participants provided written informed consent to participate.

**Data collection**

An interview form was developed by the primary researcher of the current study to collect participant views on their experience in BL faculty development. The form consisted of basic questions to obtain the participant’s gender, age, academic title, and experience with information communication technologies and BL, including a self-reported computer skill score using a scale of 1 to 5 points.

The form allowed a semi-structured interview to better understand a participant’s views on blended faculty development courses. The final interview form consisted of 12 main questions and probing questions where necessary that covered the participants’ experiences with BL faculty development courses.

We conducted in-depth semi-structured interviews within two weeks of the end of the program. The interviews took place in locations where the participants would feel comfortable, and the primary researcher conducted all interviews. Prior to each interview, participants were informed of the interview procedure. Participants provided consent to be audio-recorded, and the audio records were kept confidential and used only for this study. The interviews were conducted and analyzed in Turkish language and translated to
English for reporting. Each participant’s responses were masked and assigned a designation from P1 to P26.

Data analysis
We used the inductive method to analyze the interview data. Conversations were transcribed verbatim from the audio files, along with any notes. The average duration of the interviews was 45 minutes. NVivo software Version 11 (QSR International Inc., Burlington, MA) was used along with an audio playing feature to adjust the conversation speed and assign time codes to participant answers. Transcriptions were read and reread by the researcher to confirm their accuracy. Next, each interview transcription was coded in nodes. Emerging codes were aggregated in a master list of all codes from the interviews. The codes were merged into categories representing similar meanings. Each category was then labeled according to its theme.

Rigor and trustworthiness
Peer debriefing and member checking assured credibility within the study. The primary researcher consulted the other research team member supervisor and co-supervisor, and the assigned thesis monitoring committee during various stages of the study. Moreover, ideas and feedback from two independent scholars in medical education were sought throughout the study. The researcher also applied member checking during the interviews and after the transcription. In addition, two voluntary participants were invited to review the raw data and themes to eliminate issues caused by misinterpretation. No significant problems were raised during the volunteer participants’ review meeting.

In the current study, several coders were invited at different stages of the analysis process. Before starting to code, each coder was informed about the research, the interviews, and the structure. The first coding round was conducted by the primary researcher and two coders, each of whom had a Ph.D. in healthcare. During the process, the coding structure and principal codes were described. Each coder then examined a small part of the data, discussing new emerging codes. The coders discussed the final codes and reached a consensus.

Confirmability is the exclusion of potential bias of the researcher in the reporting of a study’s findings. The researchers played a significant part in the analysis, design, development, and implementation of the intervention of the current study into BL faculty development. The primary (Y.Y.) researcher holds both M.Sc. degrees in computer education and instructional technology and works as a lecturer in the medical education field. Senior researcher (S.Y.) is a full professor in Computer Education and Instructional Technology. H.I.D. is a full professor in the medical education field. All of these researchers have expertise in qualitative research.

Results
The study included a total of 26 participants (16 females, 10 males) with a mean age of 41 years (standard deviation, SD: 6.9 years; range: 33 to 53 years). Table 1 presents participant demographic data. Participants had a mean self-reported computer skill score of 4.04 (SD: 0.77; range: 2 to 5).
| Academic title          | Case 1                  | Case 2                  |
|------------------------|-------------------------|-------------------------|
|                        | Percentage (n)          | Percentage (n)          |
| Full professor          | -                       | 75% (9)                 |
| Associate professor     | 36% (5)                 | 25% (3)                 |
| Assistant professor     | 7% (1)                  | -                       |
| Attending physician     | 57% (8)                 | -                       |
| Basic science           | 43% (6)                 | 43% (5)                 |
| Clinical medical science| 36% (5)                 | 50% (6)                 |
| Surgical science        | 21% (3)                 | 6% (1)                  |
| No                      | 80% (12)                | 17% (2)                 |
| Yes                     | 14% (2)                 | 83% (10)                |
| Total                   | 100% (14)               | 100% (12)               |

**TABLE 1: Demographic information of the participants**

**Enablers of blended faculty development course**

Among the enabling elements of BL for participants, eight themes emerged from the analysis. Table 2 presents the enabling themes and representative quotations of participants in cases 1 and 2, listed from most frequent to least frequent. For example, personal development was the most common enabling theme for case 1 participants, whereas improving teaching skills was the most common enabling theme for case 2 participants.
Improving Teaching Skills

Improving teaching skills was the most common enabling aspect for case 2 participants (five of 12) and was based on feedback are extremely important. P10

Case 1 Example Quotations

Case 2 Example Quotations

TABLE 2: Enabling themes and representative quotations for cases 1 and 2, presented from most frequent to least frequent

f = code frequency

Personal Development

Personal development was the most common enabling theme in the BL experience for case 1 participants. Ten of 14 case 1 participants and three of 12 case 2 participants stated that the courses improved their abilities in areas they perceived as lacking in their competencies.

Improving Teaching Skills

Improving teaching skills was the most common enabling aspect for case 2 participants (five of 12) and was second most common for case 1 participants (eight of 12). As the current study’s primary focus of the BL
faculty development courses, improving teaching skills emerged from the analysis. In total, 13 (or half the study population) participants agreed that improving teaching skills was among the top enabling aspects of BL programs. Participants valued the scope of the courses and perceived the courses as an opportunity for professional development. Participant P24 stated their motivation for the courses was workplace responsibilities and possible knowledge to provide better teaching. Additionally, P17 stated their motivation was from a learner perspective, as improving their skills for the benefit of future generations motivated them to become a better educator.

**Certification**

Seven participants reported certification as an enabler (case 1, n=6; case 2, n=1). Certification as an enabling element was more common to case 1 participants than case 2 participants.

**Perceived Quality of Course**

The perceived quality of the course content was an essential element to the participants. As participant P22 mentioned, the courses were designed for immediate use in a short time. Participants perceived BL faculty development programming as effective use of their time as academics.

**Learning Climate in BL**

BL provided a learning environment where faculty could socialize in the face-to-face sessions. The online part of the learning was seen as supportive information, whereas knowledge retention was required to support the face-to-face sessions. Interaction and feedback were important aspects of BL.

**Decrease Time Allocation for Face-to-Face Sessions**

One participant mentioned the time allocation needed for attending face-to-face sessions as an enabling element. For long-duration courses, participation can be problematic, and courses can be hard to follow to completion. In this context, BL was seen as an approach that decreased the time required for face-to-face sessions.

**Additional Incentives**

One participant in case 1 and two in case 2 felt that additional incentives (beyond saving time, gaining knowledge, skills, and certification) were enabling elements for BL programs. Participants asked if attending the courses would be supported with anything additional, implying direct financial incentives in the interview transcripts.

**Job-Related Interest**

One participant in case 1 and four in case 2 stated that the potential for gaining knowledge and experience from the courses was an enabler for them. They perceived the BL approach as the current and future methodology of education and wanted to be part of its development. They felt that they could improve their skills and incorporate them into their teaching.

**Barriers to blended faculty development course**

Participant feedback on barriers within BL coalesced into three prevailing themes. Table 3 presents the common barrier themes and representative quotations of participants in cases 1 and 2, listed from most frequent to least frequent. Participants in both cases asserted the same themes but with different emphases. Case 1 participants reported lack of time as the most common barrier, while case 2 participants listed beliefs and assumptions as to the most common barrier.
Case 1 Example Quotations

Beliefs and assumptions
After a certain age, the concentration decreases. P8. It is very important for the academician, I think we can adapt more, however, the adaptation of the older lecturers is much weaker. P16

Online learning abilities
I had other projects in the evenings. I have restricted in there. I've a little hard time trying to find where to enter. There was a little deficiency in the information that guided me. That menu structure needs a little improvement. P9

Case 2 Example Quotations

Beliefs and assumptions
People are afraid of also technological things. Technological things may need to be told a little more. If this is really wanted, the subsystem support can be established. P5

Online learning abilities
I am in a tough bind in the busy schedule. The patients are accepted in order, I miss that. The patients are waiting and their everything is ready. We have to think about them... They made an appointment and it’s the natural one. There are patient relatives came from Germany and you cannot postpone them. I don’t even want to take administrative function. Binds are bad. P26

TABLE 3: Barrier themes and representative quotations for cases 1 and 2, presented from most frequent to least frequent

f = code frequency

Lack of Time
Lack of time was the top barrier for the participants of case 1 (11 of 14). Only four participants of case 2 reported time-related restrictions as a significant barrier. However, more than half of all participants reported lack of time as an important barrier. Ten participants mentioned difficulty in following up to complete online learning tasks. Some participants reported feeling overwhelmed by their requirements to complete all learning tasks due to their clinical and teaching workload.

Participants reported that allocating time to attend the courses was challenging in a busy workplace environment. They reported that advance arrangements should be made according to the course program. Some participants speculated that the long duration of the courses might adversely affect the face-to-face session attendance.

Beliefs and Assumptions
Beliefs and assumptions were a significant barrier in a BL faculty development program; it was the top barrier for participants in case 2 and the second most common barrier for participants in case 1. Integrating online components in which participants are used to taking courses by traditional methods of teaching and learning made different impressions on the faculty. Half of the participants mentioned that beliefs and assumptions, precisely age, change, and culture, affected their views.

Case 2 faculty reported that age might cause lack of concentration, lack of technology usage, and lack of ability to adapt. An altered routine was seen as another barrier. However, case 1 participants did not mention anything about the change.

Four of the participants mentioned culture as a barrier. The participants stated that getting used to one method and then adding other methods to learning may not help them. Moreover, the traditional point of view is also affected. They are afraid that introducing BL may bring about additional workload, especially learning tasks to be completed beforehand.

Online Learning Abilities
Online learning abilities were the final notable theme regarding barriers. Generational differences may create a gap in information and communication technology (ICT) skills. Eight participants stated that technology frightens some of the faculty. Furthermore, learning how to use such technology must be adopted and disseminated to their medical students. The more they feel “into” the online technology, the
During the coronavirus disease pandemic 2019, faculty had first-hand experiences of online interactions.

may foster motivation for future course participants entice faculty participation despite the time and workload barriers. Honoraria or an award for participation rewards may play a role in the program's success. A system such as financial or other forms of rewards may A BL learning approach carries intrinsic incentives, but study participants also suggested that extrinsic face-to-face sessions and discussing with and observing other participants online were enjoyable and online content in the present study, faculty perceived BL was engaging. Participants felt that socializing in supporting face-to-face encounter.

In a study by Fox et al., participants reported a sense of isolation in online learning programs without a programming and modalities. Shah et al. found that BL motivates learners for mentor support. application of new methods in their education provide faculty a sense of the future of educational The perceived quality of a course is a factor in the level of participation. The novelty of BL and the application of new methods in their education provide faculty a sense of the future of educational programming and modalities. Shah et al. found that BL motivates learners for mentor support. Vaughan et al. and Welch similarly reported that 10 weeks of teaching certification is required in Sweden to gain tenure. Given the participants' inherent desire to improve their academic rank and the requirement for certification, it is not surprising that junior faculty perceived this aspect as an enabling element in a BL program.

The faculty reported that workload-related lack of time kept them from attending and following up on activities in the BL program. A busy work life within a medical faculty environment was a major barrier, and the courses were seen as additional workload and were therefore not prioritized compared to other duties for which the faculty are responsible. Our study participants were not the only subjects to report such concerns; lack of time, workload, isolation because of technology, and increases in student numbers have also been reported in the literature.

Addressing participant beliefs and assumptions upfront may mitigate some difficulties in adapting to a technology-forward BL experience. By emphasizing the incentives and aspects that facilitate successful learning experiences, these barriers may be mitigated by the inherent elements that we identified as enablers in the BL approach.

A decrease in the time required for face-to-face sessions was a good advantage of BL noted by the faculty in our study. Other studies reported a similar time constraint problem, and this study shows that BL reduces the time commitment necessary for face-to-face encounters.

Junior and senior faculty perceived personal development and improving teaching skills as significant enablers in the BL faculty development program. Pernar et al. described a faculty development program based on weekly emails with compact content to improve teaching skills that failed due to a lack of instructional design. However, in a carefully designed program, faculty can establish a level of involvement that improves their teaching skills.

Our findings suggest that certification as an enticement enabled the junior faculty as they did not already have such a certificate, and they perceived certification to advance their academic careers. Indeed, the program’s participants become certified after completing the faculty development program, and some program participants are required to obtain certification for career promotion (e.g., attending physicians). Vaughan et al. and Welch similarly reported that 10 weeks of teaching certification is required in Sweden to gain tenure. Given the participants' inherent desire to improve their academic rank and the requirement for certification, it is not surprising that junior faculty perceived this aspect as an enabling element in a BL program.

The perceived quality of a course is a factor in the level of participation. The novelty of BL and the application of new methods in their education provide faculty a sense of the future of educational programming and modalities. Shah et al. found that BL motivates learners for mentor support.

In a study by Fox et al., participants reported a sense of isolation in online learning programs without a supporting face-to-face encounter. By providing face-to-face sessions and supporting courses with online content in the present study, faculty perceived BL was engaging. Participants felt that socializing in face-to-face sessions and discussing with and observing other participants online were enjoyable and facilitated peer learning.

A BL learning approach carries intrinsic incentives, but study participants also suggested that extrinsic rewards may play a role in the program’s success. A system such as financial or other forms of rewards may entice faculty participation despite the time and workload barriers. Honoraria or an award for participation may foster motivation for future course participants.

During the coronavirus disease pandemic 2019, faculty had first-hand experiences of online interactions.
This experience is expected to affect the future of faculty development and health professions education [30]. Faculty may expect an online component for any learning activity. As described in this study, BL will be imperative for faculty development.

Limitations

This study was conducted at a single center in Turkey, which may limit its transferability. As a qualitative study and single-center data source, one should not generalize the results. However, the diverse specialty of the participants may inform broader context in faculty development in medical sciences.

Conclusions

BL can be used to design future faculty development programs. Faculty developers can utilize BL to foster engagement and motivate faculty for increased participation. While faculty seniority may affect use of the online tools, intuitive online platforms should be selected for wide acceptance among faculty. Online activities in faculty development should be approached cautiously. Workload and time management are main barriers in BL faculty development. Strategies to eliminate workload and provide guidance on time management are required for both junior and senior faculty. Goal setting for online activities should be aligned with the faculty’s priorities and the expectations from faculty development. The activities and the content should complement face-to-face sessions and provide opportunities for faculty to support their online learning skills.

Additional Information

Disclosures

Human subjects: Consent was obtained or waived by all participants in this study. Human Subjects Ethics Committee of Middle East Technical University issued approval 2016-FEN-035. The current study was conducted under the approval of the Human Subjects Ethics Committee of Middle East Technical University.

Animal subjects: All authors have confirmed that this study did not involve animal subjects or tissue.

Conflicts of interest: In compliance with the ICMJE uniform disclosure form, all authors declare the following: Payment/services info: All authors have declared that no financial support was received from any organization for the submitted work. Financial relationships: All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. Other relationships: All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

Acknowledgements

This study is part of the Ph.D. thesis of the first author (Y.Y.) submitted to Middle East Technical University.

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