

Implementing Blended Learning in Health Center of Tabriz, Iran

درابه استقرار النظام التعليمي التركيبي في مركز الصحة في تبريز

Shayganmehr, Aref^{1,*},
Hazratian, Fatemah¹
¹Department of
Adolescents, Youth and
Schools' Health, Faculty
of Health Sciences,
Tabriz University of
Medical Science, Tabriz,
Iran
*Health center of East
Azerbaijan province
Segatoleslam Ave
Tabriz, 5143814998,
Iran
Tel: 00984132330184
Fax: 00984132330196
Email:
shayganmehra@tbzmed
.ac.ir

Background: Blended learning is a term increasingly used to describe the way e-learning is being combined with traditional classroom methods and independent study to create a new, hybrid teaching methodology. The aim of this study was to explore the perspectives of Tabriz health center staff on the Establishment status of blended learning system based on ISO 10015 requirements.

Methods: The Statistical Society of this descriptive survey included all of the Health staffs of Tabriz Health Center in 2015 and the sample size was set at 285 using Morgan table. Data collection tool was a 63-item researcher-made questionnaire in the five-point Likert scale based on the requirements of ISO10015. It measured feasibility assessment, design, implementation and evaluation of blended learning. The questionnaire's validity was assessed by experts and its reliability was calculated by Cronbach's alpha as 0.95. Descriptive statistics and One Sample T test were used to analyze the data.

Results: The mean scores were calculated for needs assessment at 2.90 ± 0.44 , design at 2.7 ± 0.51 , implementation at 2.65 ± 0.59 , evaluation at 2.38 ± 0.68 for the implementation of blended learning which all were less the expected mean (3) and this difference was statistically significant.

Conclusion: These results could be used as the basis of the establishment and to enable strengthening of needs assessment, design, implementation and evaluation for providing appropriate infrastructure for the establishment of blended learning and will be interesting and useful.

Keywords: Blended learning, Implementing, Health Center

المقدمه: ان النظام التعليمي التركيبي يعتبر نموذج تعليمي في مجال تعليم المصادر البشرية الذي يرنو الي البرمجه التعليميه من خلال وجود الامكانيات التعليميه و التمحور حول معرفه اساليب التعلم . ان هذا البحث يسمى الي درابه رويه موظفي مركز الصحة في تبريز في مجال استقرار و اجراء اساليب التعليم التركيبي في مراحل: ١- معرفه الاحتياجات، ٢- التخطيط، ٣- الاجراء، التقييم على اساس ايزو ١٠٠١٥

الاساليب: في هذه الدرابه التوصيفيه الاجرائيه اشترك جميع موظفين المركز الصحي في مدينه تبريز في عام ١٣٩٥ و تم تعيين حجم العينه الاحصائيه بواسطه جدول مورگان ٢٨٥ شخص . تم استخدام استمارات تم تصميمها على مستوى مقياس ليكرت ذو خمس علامات و اشتملت على ٦٣ مسئله لدرابه استقرار النظام التعليمي التركيبي في مراحل : ١- معرفه الاحتياجات، ٢- التخطيط، ٣- الاجراء، ٤- التقييم

تم تحليل المعلومات بواسطه الاختبارات الاحصائيه كغبار T .

النتائج: المعدل العام للعوامل المؤثره كالتالي :

- معرفه الاحتياجات ٩٠.٢٤±٠.٢٤

- التخطيط ٧٢.٥١±٠.٢٤

- الاجراء ٦٥.٥٩±٠.٢٤

- التقييم ٣٨.٦٨±٠.٢٤

و هذا المعدل كان اقل من المعدل المفروض و هذه النتيجة كانت ذو قيمه من جبره الاحصائيه .

الاستنتاج: بناءً على هذه الدرابه نوصي بتقويه العوامل التاليه معرفه الاحتياجات، التخطيط، الاجراء، التقييم في مجال ايجاد ارضيه مناسبه لاستقرار النظام التعليمي التركيبي . و ايضا نوصي بالاستخدام الاسلوبين التعليم المجازي و العسوري .
كلمات المفتاح: التركيب التعليمي . الاستقرار . مركز الصحة في تبريز .

بررسی استقرار نظام آموزش ترکیبی در مرکز بهداشت تبریز

تبریز کے مرکز حفظان صحت میں ترکیبی نظام تعلیم رکھا گیا

مقدمه: آموزش‌های ترکیبی مدلی از یادگیری در حوزه آموزش منابع انسانی است که در آن با محوریت روش‌شناسی یادگیری و در نظر داشتن سطح گسترده‌ای از ابزارهای ممکن به برنامه‌ریزی آموزشی می‌پردازد. مقاله حاضر به بررسی دیدگاه کارکنان مرکز بهداشت تبریز در زمینه استقرار و پیاده‌سازی آموزش‌های ترکیبی در مراحل نیازسنجی، طراحی، اجرا و ارزشیابی بر اساس ایزو ۱۰۰۱۵ پرداخته است.

روش‌ها: در این پژوهش توصیفی-پیمایشی، جامعه آماری این تحقیق، کلیه کارکنان شاغل مرکز بهداشت تبریز در سال ۱۳۹۵ بود و حجم نمونه با استناد به جدول مورگان ۲۸۵ نفر برآورد شد. ابزار جمع‌آوری اطلاعات پرسشنامه محقق ساخته در مقیاس لیكرت ۵ نمره‌ای و شامل ۶۳ گویه جهت بررسی استقرار نظام آموزش ترکیبی در مراحل نیازسنجی، طراحی، اجرا و ارزشیابی بود. برای تجزیه و تحلیل اطلاعات از آمارهای توصیفی و آزمون تی مستقل استفاده شد.

نتایج: میانگین محاسبه شده از عوامل نیازسنجی $2/90 \pm 0/44$ ، طراحی $2/7 \pm 0/51$ ، اجرا $2/65 \pm 0/59$ و ارزشیابی $2/38 \pm 0/68$ برای پیاده‌سازی آموزش‌های ترکیبی بود و کم‌تر از میانگین مفروض شده (۳) بود و این تفاوت از لحاظ آماری معنادار بود.

نتیجه‌گیری: توجه و تقویت عوامل نیازسنجی، طراحی، اجرا و ارزشیابی جهت بسط‌سازی مناسب برای استقرار نظام آموزش‌های ترکیبی، استفاده از فواید هر دو روش آموزش مجازی و حضوری را ممکن نماید.

واژه‌های کلیدی: آموزش ترکیبی، استقرار، مرکز بهداشت تبریز

بیك گراونڈ: ترکیبی نظام تعلیم افرادی قوت کو تعلیم دینے کا ایک ماڈل ہے۔ جس میں مرکزیت میتھڈالوجی اور نصاب تعلیم بناتے ہوئے مختلف طریقوں کو مد نظر رکھنے کو ہوتی ہے۔ اس تحقیق میں تبریز کے مرکز حفظان صحت نے ترکیبی نصاب تعلیم پر عمل کرنے کے بارے میں اپنے نظریات بیان کئے ہیں۔ اس کا تجزیہ ایزو دس ہزار پندرہ سے کیا گیا۔

روش: اس تحقیق میں تبریز کے مرکز حفظان صحت کے تمام کارکنان شامل تھے۔ یہ تحقیق دو ہزار سولہ میں انجام پائی تھی۔ ترکیبی نظام تعلیم کے لئے ایک سوالنا مہ دیا گیا تھا جس میں ترسٹھ سوالات تھے۔ ان سوالات کے جوابات کا ٹی ٹسٹ سے تجزیہ کیا گیا۔ یہ سوالات ضرورتوں کا جائزہ لینے، ڈیزائننگ، عمل درآمد اور جائزہ لینے کے مرحلوں کے بارے میں تھے۔

نتیجے: چاروں مرحلوں میں اوسط نمبر فرض شدہ نمبر سے کم تھے اور یہ اعداد و شمار کے لحاظ سے خاصہ فرق رکھتا ہے۔

سفاروش: ان چار مرحلوں میں یعنی ضرورتوں کا جائزہ لینے کے عمل، ڈیزائننگ اور عمل درآمد نیز جائزہ لینے جیسے امور کے لئے ترکیبی نظام تعلیم میں بہتر سہولتیں فراہم کی جانی چاہیں۔ اس میں دونوں روشوں یعنی لکچر اور سائبر اسپیس سے استفادہ کیا جاسکتا ہے۔

کلیدی الفاظ: ترکیبی تعلیم، رکھا، تبریز میں حفظان صحت کے مرکز

INTRODUCTION

In the current era, education anywhere and at any time as well as lifelong learning is one of the accepted principles disapproving traditional views towards sectional education and training¹.

The high-speed progress in science and technology and the needs for re-training has converted lifelong learning into one of the main concerns of numerous countries having growing demands for the use of flexible educational opportunities². Blended Learning is a model of learning in the area of training and development of human resources in which Instructional design is performed through concentrating on methodology of learning as well as considering a wide range of viable tools³. Two major characteristics are taken into account in Blended Learning: access to the highest quality available and use of all the potential tools for education. In this respect, the result is a combination of in-person classes with specific objectives and self-learning training via educational contents; i.e. the ideal form of Blended Learning involves both real and e-Learning⁴.

The present-day orientation to Blended Learning may stand for tendency towards education and skills training through technology over the last 30 years⁵. According to Nelman, Blended Learning as the second wave of e-Learning and training was introduced for the first time by March and others in 2003⁶. In general, Blended Learning is comprised of the following four concepts:

Combination or integration of web-based technologies to fulfill an educational objective is the incorporation of various educational methods to generate desirable learning outcomes with or without technology (integration of each form of technology), face-to-face teacher-oriented education, and integration of educational technologies with the main tasks in order to create a consistent work of learning and activities⁷.

To make organizational education systematic, the ISO 10015 Quality Standard assists organizations in implementing the four stages of organizational education including needs assessment, Instructional design, implementation, and effectiveness evaluation in an organization and also in creating the required human capacities as well as affecting the nature of effectiveness. According to the findings of numerous research studies in this respect, the standardized model of education based on the ISO 10015 Quality Standard can be a helpful guide to educational services⁸. The ISO 10015 international standards include the following four stages:

1. Needs assessment for the requirements of Blended Learning and its development as well as learner needs: The designed educational system should be endowed with capabilities such as the ability of learners to have access to a variety of courses (synchronous, Asynchronous, in-person, and self-learning education and training) based on their needs in order to provide each learner to have online and offline communication and to participate in educational courses virtually.
2. Design and development of Blended Learning
3. Implementation of Blended Learning

4. Evaluation of Blended Learning⁹.

However, it should be noted that the logical arrangement of face-to-face and online components leads to successful fulfillment of educational objectives in Blended Learning in medical disciplines¹⁰.

Rabati and others in a study entitled "examining the attitudes of faculty members to the implementation of e-Learning system" found a significant and direct correlation between the views of faculty members towards e-Learning and blended learning. In this respect, the attitudes of faculty members in terms of the implementation of e-Learning system were positive¹¹. As well, Nowroozi in an investigation into the impact of Blended Learning in the resuscitation environment in order to teach the related issues for nursing and operating room students made use of such education methods and proved their effectiveness¹². Furthermore, Moradi and others conducted a study entitled "analyzing the role of preventive structures in the development of Blended Learning" examined the impact of preventive structures on the development of Blended Learning system¹³. Moreover; Tsugihashi, in a two-year research study on the use of blended learning and web-based education methods in clinical jobs, implemented an Blended Learning method for individuals with health-related jobs in 176 centers and deprived of scientific-clinical competence due to their busy jobs. The results of this study revealed that 76% of individuals working in such centers reported a 40% improvement in their working hours per week and about 89% of participants attended all the programs and obtained acceptable final scores. Furthermore, the clinical competence of the participants increased despite their demanding jobs¹⁴. In terms of using Blended Learning on interns working in emergency wards during a 6-month period, Spedding measured the level of learning and changes in skills through traditional methods and blended learnings. During 5 months after the completion of the course, the interns were satisfied with the virtual environment and described Blended Learning as an easy, accessible, and enjoyable educational method¹⁵. In another study, Rowe investigated Blended Learning in clinical issues for students of health in 57 research papers out of 71 cases published from 2000 to 2010 in clinical fields and found that blended learning method was better than traditional one and it could lead to an increase in the level of learning¹⁶.

Rahimidoost and Razavi in a research study into the feasibility of e-Learning from the perspectives of faculty members and university students in Shahid Chamran University concluded that students and faculty members of the given university had relative readiness to take part in e-learning process¹⁷.

To fulfill the given objectives and in order to deal with the shortcomings in this regard, the researcher was to address the question whether all the conditions and facilities are available in order to implement Blended Learning system (in terms of capability and readiness of human force, organizational structure, effective and efficient integrity of the system, as well as consistency between organizational technology and education) based on the requirements of the ISO 10015 Quality Standard (needs assessment, planning, implementation, and evaluation) in the health-care network or not.

METHODS

Research Design

In terms of the research purpose, the present study was of applied type using a descriptive survey.

Setting and Subjects

The target statistical population in this study included all the staff (N=1100 individuals) working in the health-center in the city of Tabriz in Iran in 2015. Using the Cluster random sampling method in this study, the given sample estimated equal to 285 individuals based on Krejcie and Morgan Table was selected. Samples an equal number in 5 clusters were selected based on the areas of the city.

Data Collection Tools

To collect the required data in this study and to measure the variables, a researcher-designed questionnaire under supervision of the supervisor and advisor professors that provided the possibility of the establishment of Blended Learning based on ISO 10015 in terms of the four factors of needs assessment, planning, implementation, and evaluation Was used. In this questionnaire 14 items were assigned to needs assessment, 16 items were associated with planning, and 18 and 15 items were related to implementation and evaluation, respectively. The highest score for the questionnaire was 5 and the lowest score was 1, measured through a comparison of the mean scores for statistical samples with arithmetic mean equal to 3. The questionnaire comprised of 67 items based on five-point Likert-type scale and scored from very low (score 1) to very high (score 5) was used. The questionnaires were distributed in person after obtaining informed consent from participants and explaining the objectives of the study as well as confidentiality of information, and then they were collected following their completion.

Validity and reliability

The validity of the questionnaire was confirmed by 5 specialists and faculty members in the Department of Educational Sciences and Psychology in Azarbaijan Shahid Madani University. The reliability coefficient of the items in the questionnaire was also obtained following a pilot study among 30 experts (the staff working in health-care centers) and using Cronbach's alpha equal to 0.95. Such a value was also calculated for all the four components considered in the questionnaire which were 0.78 for needs assessment, 0.87 for Instructional design, 0.92 for implementation, and 0.95 for evaluation

Including/Excluding Criteria

The inclusion criteria of the study included participants' willingness to participate in the study, and exclusion criteria included unwillingness of participants to continue the study or not completing the questionnaires.

Data Analysis

Descriptive data analysis was performed using SPSS (version 19) Data were presented by mean and standard deviation and descriptive statistics as well as One Sample T test were used to examine the assumption of the means for the Comparison of the mean scores in requirements of needs assessment, planning, implementation, and evaluation in Blended Learning methods with arithmetic mean assumed(3). P-values less than 0.05 were considered to be statistically significant.

RESULTS

Descriptive statistics

The number of complete questionnaires collected was 289 cases. The results of descriptive data showed that 86 participants (29%) were male and 203 individuals (73%) were female. The mean age was 40 ± 9.2 years. Moreover, 20.5% of the participants were Doctor and 28.6% of them were experts. In addition; 18.9% and 17.8% of participants were instructors as well as midwives, respectively; the rest of the participants were employees or paramedics. Working experience in 10.9% of participants was lower than 5 years, and it was over 25 years in 43% of participants.

Analytical statistics

The level of significance is less than 0.005 Therefore, the null hypothesis be rejected. Also, The results revealed that the T negative, and the level of readiness in health center in the city of Tabriz in order to implement Blended Learning at all four factors was lower than the assumed mean of 3 in Tables (1) and (2).

The results revealed that needs assessment requirements of Blended Learning and evaluation requirements of Blended Learning had obtained the highest and the lowest mean scores, respectively. In the meantime, synchronous education components had acquired the lowest mean score and in-person education components had obtained the highest mean score in terms of feasibility. That is the most significant obstacle to the establishment of Blended Learning was due to the problems related to educational evaluation and those in synchronous education; the highest feasibility for establishment was also associated with the components of in-person education.

Table 1. Results of One Sample T test associated with the mean score of the ISO 10015 quality Standard factors affecting Blended Learning

Factors	mean and SD	degree of freedom	t	P
needs assessment requirements of Blended Learning	2.9(0.44)	288	-19.3	0.001
design requirements of Blended Learning	2.7 (0.51)	288	-7.0	0.001
implementation requirements of Blended Learning	2.65 (0.59)	288	-7.8	0.001
evaluation requirements of Blended Learning	2.38 (0.68)	288	-14.04	0.001
total mean	2.5 (0.6)	288	-12.4	0.001

Table 2. Results of One Sample T test associated with mean score of components of Blended Learning

Components of Blended Learning	mean and SD				degree of freedom	t	P
	needs assessment	planning	implementation	evaluation			
synchronous education	2.4 (0.6)	2.3 (0.6)	2.7 (0.5)	2.6 (0.7)	288	-8.1	0.001
Asynchronous education	2.4 (0.8)	2.8 (0.6)	2.6 (0.5)	2.6 (0.5)	288	-9.0	0.001
in-person education	2.4 (0.7)	2.8 (0.9)	2.6 (0.6)	3.1 (0.5)	288	-5.1	0.001
self-learning education	2.5 (0.8)	2.7 (0.6)	2.7 (0.7)	2.8 (0.6)	288	-4.1	0.001
total mean	2.4 (0.7)	2.6 (0.6)	2.6 (0.5)	2.8 (0.4)	288	-4.1	0.001

DISCUSSION

The results showed that the factor of the needs assessment requirements of Blended Learning for the establishment of Blended Learning was lower than the mean (average). The results of this study were consistent with the findings of Moemenian in which the impact of educational needs on the basis of the ISO 10015 Quality Standards on reinforcing the competency of employees working in Middle East Behsazan Industries Company was examined¹⁸ and also the results obtained by Foroughi Abri and others on the relationship between educational programs and the real needs of students in Ghadir Quranic Sciences and Islamic Teachings Institute of Higher Education¹⁹. These findings could indicate that in terms of educational needs assessment; examining the needs of employees at different levels of knowledge, insight, and skills; determining educational needs in accordance with changes in the external environment of the organization (such as the entry of new technologies into the organization, and rival organizations), having a yearly job review in terms of the required qualifications, specifying educational needs on the basis of current and the expected needs of the organization have been less considered. Given that the component of needs assessment in synchronous education obtained a score lower than the mean for needs assessment in the state of theoretical mean and it also acquired the lowest mean compared to other components, it was required to pay more attention to e-Learning especially in terms of the cases mentioned above.

The findings also showed that the mean score of the items of the use of various forms of Instructional design was lower than the theoretical mean of 3. The results of the present study were in agreement with the findings in the study by Hajrahimi on the adjustment of the level and contents of educational courses with job status of the staff with different design and educational content in employees of the Ministry of Agriculture²⁰ as well as the results obtained by Abdolaziz and Ahmad in terms of appropriate planning associated with the needs of trainees²¹. Moreover, the findings of this study were in line with the results of an investigation by Davoodi Mamaghani in which it was concluded that software and electronic contents were not sufficient for the implementation of e-Learning²²; however, the results of this study were in contrast with findings of Nasiri²³. The results of the study by Salehi Cheshme Ali

terms of economic, legal, and technical dimensions was higher than average and it was lower than average considering operational and temporal aspects²⁴. Thus, this feasibility was largely effective, but not desirable. The findings in terms of the factor of planning indicated that the highest mean score for responses was associated with the items of “in-person education” and the lowest mean score for responses was related to the items of “Asynchronous education”. It is obvious that according to the ISO 10015 Quality Standard; considering the duration of educational courses based on the needs of individuals, using various forms of Instructional design (synchronous, Asynchronous, in-person, and self-learning) in this study, designing educational courses for job promotion, were of the cases that required reinforcement and optimization.

In terms of implementation, the highest mean score was related to the items of “in-person education” and the lowest mean score for responses was associated with the items of “synchronous education”. In this respect, the present study was consistent with the findings of Moemenian¹⁸ in which educational methods with educational contents and their roles in the reinforcement of the skills of employees were determined as well as the study by Foroughi Abri and others¹⁹ into the use of proper educational equipment, experts, and professors and the impact of education on the promotion of quality of in-service education of employees. The findings by Bostrom and Lassen based on the use of learning and teaching methods, learning and meta-cognitive strategies in order to explore the grounds for learning, and familiarity with the classification of different levels of learning process were also in consistent with the result of the present study²⁵. It seems that the utilization of resources, equipment, and educational facilities (such as computers), and consistency between new tools suitable for presenting lessons in e-Learning were considered as the effective factors which required reinforcement in order to implement Blended Learning methods.

Further findings indicated lower mean score for the factor of evaluation in Blended Learning compared to theoretical mean of 3. In a study, Moemenian¹⁸ emphasized on continuous monitoring and improvement of the stages of needs assessment, planning, implementation, and evaluation in order to reform the educational process and Foroughi Abri and others¹⁹ shed light on the method of continuous and scientific evaluation, interpersonal relationships, correspondence between educational courses

needs, required strategies to encourage and motivate learners, and controls on the promotion of quality of in-service education of employees. It seems that the use of different methods to evaluate educational courses (written, virtual, practical), evaluation of changes in the skills of participants in educational courses, examination of beliefs and attitudes of individuals along with the measurement of their knowledge, considering specific criteria to evaluate educational courses, level of achievement to organizational objectives and development of an effective evaluation system specially in virtual methods require more consideration in this regard.

The major obstacle to the implementation of this study was that the existing frameworks for the establishment were more similar to instructions and a list of activities and they lacked the points required in the design of an e-Learning and teaching system. Therefore, in the blended learning method used in this study, there was an attempt to examine different parts of the process of Blended Learning within the framework of the ISO 10015 Quality Standard. The major advantage of this framework was that researchers could be ensured that such important factors have not been overlooked or removed.

CONCLUSION

Given the results of the present study, it was concluded that the implementation of e-Learning and Blended Learning systems required attention to and reinforcement of the four factors of needs assessment, planning, implementation, and evaluation in order to establish Blended Learning particularly in terms of synchronous education components.

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Thus; it was suggested to provide the required grounds and appropriate facilities to have more access to modern technologies in order to improve the existing state and implement Blended Learning properly in universities of medical sciences and affiliated health-care networks. To this end, Blended Learning program should be developed based on the principles of Instructional design. Therefore, enrichment of teaching materials relevant to multimedia environments, emphasis on learner-centered education, flexibility in teaching methods, and arrangement of educational conditions should be taken into consideration. In this respect; factors such as development of computer literacy in teachers and the staff, appropriate use of information and communication technology, as well as proper planning and effective evaluation play their own basic roles. Therefore, Blended Learning will lead to acceptable outcomes provided that all the components of the design of this type of education are taken into account.

Ethical approval

Consent was taken from all the participants. At the beginning, the participants were acquainted with the purpose of the study, method of teaching, privacy and confidentiality of the study

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