COMPARISON OF BLENDED AND E-LEARNING APPROACHES IN TERMS OF ACCEPTABILITY IN-SERVICE TRAINING HEALTH CARE WORKERS OF KERMANSHAH UNIVERSITY OF MEDICAL SCIENCES

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Abstract

One of the approaches to solve the medical science education problem is using the new technology which followed by E-learning. The aim of this study was the comparison of combined and e-learning approaches in terms of in-service education acceptation level of Kermanshah medical science university’s employer in 2013. This study was conducted cross-sectional. The statistical population consisted of 287 men and 422 women. 246 people have selected through statistical cluster random method. The data collection tools was a questionnaire that its validity and reliability have been evaluated by surveying specialist and test re-test with the correlation coefficient of 0.80 in the statistical population. Data analysis has done by using descriptive statistics, ANOVA and SPSS ver.21software. The results showed that there was a statistically significant difference between the e-learning acceptation methods based on the individual’s experience (P=0.025). Also there was a significant difference among the groups for the acceptation of blended and e-learning (P= 0.041).

In other properties there wasn’t a significant difference. The readiness for blended learning acceptation was in high level and could promise the use of it for in-service health employers.

Keywords: E-learning, In-Service Education, Health Workers, blended Learning.

Introduction

The services in health centers are a combination of precaution and health caring. Many studies have been done with this regard which emphasis the development of E-learning (1). Although there have not been a long time that E-learning approaches is used but many organization tried to use various features of this type of education. However using this kind
of education has its pros and cons. The most important issue that involved the users of this kind of education is the cost/benefit and efficiency of this method (2). With this regard education through computer and combined method could be effective in reducing the learning problems of learners who have learning disabilities in comparison with traditional and common methods (3). Providing some services in all part of the country for urban and rural health centers, require continuous educating of employers. One of the approaches for solving this problem is using the new technology such as E-learning (4, 5). Studies have been shown that for E-learning implementation in medical science field, some infrastructure, standards and skill are needed. With regard to the E-learning, the development and implementing it in medical science is essential. But the thing that is very important is the effective access to this type of education (6). The newer methods such as blended learning in recent studies have been discussed too (7). Blended learning is defined as long-range of face to face and online education and is not restricted to a particular method (8). Blended learning by having the benefits of both traditional and electronic learning (9) is an effective approach for increasing the effectiveness of learning, ease of access to educational material and increasing the cost effectiveness. Also presenting various chance of learning, cause the consideration of individual differences learning besides increasing the educational interest (10). E-learning cause the noticeable save of time in learning and its costs because in this educational method, the materials are edited once and used many times. Numerous studies have been shown that E-learning provides at least an effective traditional education and caused the happiness of learners (11). This method has been used in the world with prior and in-service learning for many years. Ghazi Saeedi and, Ghasemi in a study emphasized on the importance of e-learning in medical science universities and said that with regard to the benefit of E-learning, The development of it in medical science is very essential but the important thing is the effective access way to this kind of education. Therefore, it is important to select and implement the best E-learning method based on the prominent countries experience (12). By using the E-learning the goals which is not accessible by traditional method is become accessible. Although the books are important for promoting knowledge in some studies high level of E-learning acceptation has been reported (13).

A study which has done on the health apprentices after conducting a workshop by combined and E-learning method showed a satisfaction (14). The results of Jahanian and Eatebar study showed that the participated students in virtual learning period of university’s e-learning centers were satisfied for the access to the virtual learning centers equipment and learning by the virtual learning methods. While they don’t have a positive attitude to these periods (15). A study
which have done on the faculty members of Ahvaz medical science university showed their agreement for the blended and E-learning (16). Individuals who included the continuous learning are agreed with the continuous learning program which conducted by E-learning method and effective use of time, updating and promoting the knowledge and presenting new content (17). Prioritizing the responder’s attitude in relation with E-learning period showed that the responders consider the positive attitude, saving time and economic resources in higher priority (18).

The Erdem et al. study showed that the students have a positive attitude in relation with combined learning condition. In this study, the highest average was related to the face to face learning environment in blended learning method (19). Also Jeffrey et al. in their research concluded that the teachers prefer involving learners than online learning (20). Using E-learning in pain management education for nursing students showed that the average score of students who use E-learning is higher (21). However some believed that E-learning is effective when combined with guidance.

In other words, E-learning and lesson class (combinedlearning) should be at the same time in order to promote (22). Also combinedlearning has a significant positive effect on learner’s academic success (23). Tosun study showed that there are some combined approaches for learning high efficiency foreign languages (24). Due to the fact that scientific evaluation for determining the acceptation and implementation rate of each new technology such as E-learning is the cause of success in using them, the aim of this study is to answer this question that how much the health employers were ready to accept in-service combined and E-learning.

Material and Methods

This is a cross-sectional study. The statistical population consisted of 790 (287 man and 422 woman) health employers who were in health department (health employers in Kermanshah provinces health center, 14 health centers of affiliated and rural) in 2013. By using the estimation formula Cochran sample size and with the reliability of 0.95 and accuracy of 0.05, it was estimated 246 people. From this number 123 person were work in rural center and 100 people were the expert of township and 23 people were the experts of the province health center. 288 people filled out the questionnaire and the returned rate of it was 92%.

The sampling has done by staging cluster random method. First all the health centers of province divided into 15 city (cluster) and from them 4 city (cluster) have selected randomly. The selecting criteria for sampling was having at least associate degree and working in health centers of Kermanshah province. Individuals who have not this condition were
excluded from the study. The data collection tool was a questionnaire which has three part of demographic information with 5 question, E-learning with11 and combined learning acceptation with 4 questions. The scoring have done from 1-5 based on the Likert scale.

The validity of the questionnaire has estimated by validation method. And have approved by 17 medical and technological learning experts. For estimating the reliability the test re-test method have done with 20 participant of Kermanshah health work with interval time of two weeks which its Pearson correlation coefficient between two test is estimated 0.80. With regard to the clusters region and individual justification, the questionnaires were given to them and after filling them out, they were collected.

The questionnaire was without name and filling them out was voluntary. For analyzing the data the statistical descriptive index was used which include the frequency distribution table, the central tendency index (the mean and standard deviation) and also the ANOVA and SPSS v21 were used too. The significant rate in all cases has considered 0.05. For observing the ethical point, the permits was taken from the information and technology department of university and participating in the study have done with the oral satisfaction of individuals.

**Results**

From 228 participant in this project, 139 (61.6%) person were woman and 89 (38.4%) were man, 92 (40%) have the associate degree, 88 (38%) have bachelor’s and master’s degree and 40 (22%) have professional doctoral degree (general practitioner). In cities and provinces health centers the highest frequency was related to the employers with bachelor’s degree and in rural health centers it was related to the employers with associate degree.

The lowest frequency in cities and province health centers was related to employers with professional doctoral (general practitioner) and in rural health center it was related to employers with master’s degree. By considering the agreed individual for using E-learning, 97% of individuals have the readiness for acceptation of E-learning method (table1). 95% of health employers in province health center have the readiness to accept the E-learning while this readiness for cities and rural health centers employers was 98% and 97% respectively (table1).

All the health employers of the province health center were agreed with in-service blended learning. 95.5% of health employers who work in city’s health center were agreed with in-service blended learning too. The greed rate of health employers who work in rural center for in-service blended learning was 93.5% (table1).
The results showed that the total average of blended learning (4.20±0.65) in comparison with E-learning (4.28 ±0.58) based on the academic level of individual was lower (Table 2).

**Table 2: Comparing the acceptance rate of blended and E-learning method based on the Education Degree.**

<table>
<thead>
<tr>
<th>Education Degree</th>
<th>E-learning</th>
<th>Combined learning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean±SD(year)</td>
</tr>
<tr>
<td>Diploma and Advanced diploma</td>
<td>92</td>
<td>4.26±0.53</td>
</tr>
<tr>
<td>Undergraduate and postgraduate</td>
<td>88</td>
<td>4.26±0.65</td>
</tr>
<tr>
<td>(Doctor (General Physician)</td>
<td>40</td>
<td>4.35±0.59</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>228</strong></td>
<td><strong>4.28±0.58</strong></td>
</tr>
</tbody>
</table>

The data were analyzed by ANOVA and the results showed that there was a significant difference among the groups for accepting the blended and E-learning method. These results have been presented in table 3.

**Table 3: The differences among the groups for accepting blended and E-learning method by ANOVA.**

<table>
<thead>
<tr>
<th>Source of variations</th>
<th>Sum of squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between group</td>
<td>10.102</td>
<td>3</td>
<td>2.824</td>
<td>3.059</td>
<td>0.041</td>
</tr>
</tbody>
</table>
The results showed that the total average of E-learning acceptation (4.19±0.86) was more than blended learning (4.3±0.88). But this difference wasn’t significant (P>0.05). The results presented in table 4 by the separation of work experience.

**Table-4: Comparing the acceptance rate of blended and E-learning method based on the job experience.**

<table>
<thead>
<tr>
<th>Job experience (year)</th>
<th>E-learning</th>
<th>Combined learning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean±SD(year)</td>
</tr>
<tr>
<td>&lt;5</td>
<td>40</td>
<td>0.67±4.02</td>
</tr>
<tr>
<td>5-15</td>
<td>88</td>
<td>1.01±4.31</td>
</tr>
<tr>
<td>15-25</td>
<td>92</td>
<td>0.79±4.15</td>
</tr>
<tr>
<td>&gt;25</td>
<td>8</td>
<td>0.71±4.17</td>
</tr>
<tr>
<td>Total</td>
<td>228</td>
<td>0.86±4.19</td>
</tr>
</tbody>
</table>

The results showed that there wasn’t a significant difference between the acceptance of E-learning method based on the individuals work (P=0.223) but this difference was significant for blended learning (P=0.025). The results have been presented in table 5.

**Table-5: The differences among the groups for accepting the blended learning based on job experience by AVOVA.**

<table>
<thead>
<tr>
<th>Source of variations</th>
<th>Sum of squares</th>
<th>DF</th>
<th>Mean of Square</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between group</td>
<td>7.102</td>
<td>3</td>
<td>2.367</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within group</td>
<td>168.101</td>
<td>225</td>
<td></td>
<td>3.169</td>
<td>0.025</td>
</tr>
<tr>
<td>Total</td>
<td>175.203</td>
<td>228</td>
<td>0.747</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Discussion**

The results showed that 97% of the individuals were ready to accept E-learning method. Most of the health workers of the provinces health center were agreed with blended learning (table 1). Individuals who have associate and master’s degree were agreed more than others with the use of E-learning method.

The highest acceptation rate of blended learning method was related to individuals with master’s degree (table 2). Individuals with work experience of more than nine years significantly accept E-learning more than others (Table 3).
With regard to the acceptation rate of E-learning method for in-service learning, 97% of the individuals declare their agreement for acceptation of this method. This result is consisted with Borchers study (13) which showed a high acceptation rate of E-learning and the study which showed the positive attitude of participants (17). It seems that E-learning proved the learners satisfaction at least like the effective traditional learning (10). Because in various studies high rate of E-learning method acceptation have been reported (12). Jahanian and Eatebar study showed that the participated students in virtual learning period of university’s E-learning centers were satisfied with the virtual learning method. However they don’t have a positive attitude about it (15). The difference of present study with the learning study is the type of the statistical population and the study’s condition. This study evaluates the acceptation rate but the recent study evaluates the individual’s attitude. Choi showed that based on the student’s attitude some factors such as the teachers welcome and guidance, multi-media learning are affect the student’s attitude about the effectiveness of E-learning (25). Also the results showed that there was a significant difference between the acceptation of E-learning method based on the individuals work experience. But Ghanbari in his research showed that there was an inverse relation between attitude and teaching experience of Gilan medical science university’s faculty member in comparison with teaching through E-learning. It means that the increase of work experience cause the reduction of attitude about E-learning (26). Maybe this difference was due to the fact that the educating implementation in medical science field needs some individual’s factor (27) and some infrastructure, standard, skills and effective access to this type of education (5). And among them the high experience employers due to not reforming their professional skills, probably have low level of readiness for implementing the E-learning method. Therefore, the need for continuous learning of employers in the field of the health services for using new technology such as E-learning is inevitable (4, 3). For the acceptation rate of blended learning method, the results showed that 95% of individuals were agreed with the use of blended learning methods. Among the studies which were in line with these results, the study which has done about the health apprentices showed an entire agreement after implementing workshop with E-learning method (13). Erden et al. study showed that the students have an entire positive attitude in relation with blended learning implementation (19). Also among the acceptation combined learning method based on the individual work experience, there was a significant difference (P=0.006). Ghanbari research showed that increasing the work experience caused the reduction of attitude about the E-learning method (28, 26).
Conclusion

Based on the results, the readiness for accepting the blended and E-learning method is in high level. Some students showed that the new educational method have high utility for learners. These results can give a promise for using blended and E-learning method for in-service education of health employers of professional health department. The strength point of this study is the feasibility of new educational method besides the traditional educating, which based on the results there was an admissibility of blended learning in statistical population. Lack of access to the standard tools for collecting data is the limitation of this study.

Acknowledgments

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