

Effectiveness of E Learning Methods in Plant Clinics of Tehran

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Abstract The major purpose of this study was to examine the effectiveness of e learning methods in plant clinics of Tehran. The total population was 75 participants in the plant clinics classes in year 2011-2012. The main instrument to collect the data was questionnaire and its validity and reliability was confirmed. The results show that majority of respondents preferred CDs as the best tool in teaching them in plant clinics classes. The results for regression analysis by stepwise method indicate that 43% of the variance in the perception of respondents could be explained by educational levels and access to the computer at home.

Keywords E learning, Tehran, Plant Clinic

1. Introduction

Green space is considered as an important part of the cities. The rapid urbanization along with environmental pollution has forced policymakers to tackle challenges in developing green spaces in the cities.

Konijnendijk, Gauthier and van Veenhuizen indicated that different strategies were developed globally to promote green cities and increase the amount of needed green spaces in metro areas [1].

In many developed countries, there has been a tremendous commitment by governments toward improving the social and ecological aspects life in cities. Barbosa et al referred to criteria such as amount of provision, distribution of green space and the ease of access to such spaces as the key contributors to social and ecological function in urban environments [2].

Tehran is no exception and as the largest metro area in Iran, due to increasing population and limited green spaces, faces the challenges of growing need for more green spaces. Based on the report by Tehran Parks and Green Space Organization, in recent two decades about 1500 parks were established and urban and peri-urban forest respectively amount to 7,000 and 35,000 hectares, and the green space per capita of Tehran amounts to 7.5 square meters. According to the provisioned programs for 2007-2010, 2,000 hectares of urban green spaces will be established, if the necessary credit is provided, and the urban green space per capita would hit 9.5 square meters [3].

Region 15 with more than seven hundred thousand residents, is located in the southeast part of city and considered among the deprived regions in Tehran. In term of available green spaces, there are 95 parks in this region. The green space per capita in this region is 23.21 square meters, while this amount for city of Tehran is about 7.5 square meters.

One method to increase participation and inform residents about importance of green spaces is to encourage them to attend educational classes. Plant clinics are one of the most common methods of training and educating people in the cities.

Different clinics have been established and among them is Uganda in which started mobile clinics to help residents in combating pests and plant diseases. The clinics comprise teams of crop specialists who visit rural areas looking out for signs of pests and diseases, and report information on them and the crops affected to the country's Ministry of Agriculture, Animal Industry and Fisheries [4].

The first plant clinic in the Tehran was established in 1996 in the region 14 with emphasize on identifying and combating plant pests, increasing the knowledge of residence about green spaces and promoting their participations in protection of green space. In these clinics, classes are being held free and participants are being educated about different subjects in green spaces and residential gardening [5].

Currently, there are two plant clinics operating in region 15. The first one was established in 2004 and the second one started its activity in 2008 with goal of training residents about planting flowers and developing vertical green spaces.

It is important to point out that training session in plant clinics often uses traditional methods, but in recent years, application of e learning have been promoted to increase the

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coverage of participants in the classes.

Ahmadpour *et al* citing Lippert and Plank noted that e learning is an effective, very flexible delivery method and it brings the added benefit of being able to have experts and specialists from different regions and states in the same class without transportation and lodging costs, many types of learners are receptive to using the Internet and e-learning [6]The major purpose of this research is to examine the effectiveness of e learning methods in training courses at plant clinics.

2. Methods

This research was a descriptive/correlative method and survey method was used to collect the data. The total population of this study was 75 participants in the plant clinics classes in region 15 of Tehran Municipality.

The instrument to collect the data was questionnaire and out of 75 respondents, 69 returned the completed questionnaire. The collected data was analyzed by using SPSS software and descriptive and inferential statistics was used to analyze the data.

The dependent variable for this study was effectiveness of e learning in plant clinics as perceived by participants. The independent variables included age, marital status, access to computer at home, access to internet, educational level and e learning methods used by participants.

The validity of questionnaire was confirmed by a panel of experts from Science and Research branch and municipality of Tehran. The reliability was measured by using Cronbach coefficient alpha and it was determined to be 0.712. The data was analyzed by using descriptive and inferential statistics and SPSS software was used.

3. Results

The descriptive results show that average age of respondents was 37 years old. Majority of respondents has at least a diploma from high school (29%) and more than 78 percent were married.

It was reported that 91 percent had access to computer at home, while 78 percent were connected to internet in their residence.

Respondents were asked to identify about advantages of e learning methods and highest mean referred to

diversification in providing training (mean=4.22), while lowest mean was speed of access to educational information (mean=3.75).

Table 1. Means of Respondents' Views about the advantages of e learning methods (1=very little; 5=very much)

| Statement | Mean and Standard Deviation | |
|---|-----------------------------|------|
| | Mean | SD |
| Diversification in learning methods | 4.22 | 0.64 |
| Affordability in time and cost | 4.04 | 0.98 |
| Up to date information about green spaces | 3.98 | 0.95 |
| Speed and accuracy of access to information | 3.75 | 0.94 |

Table 2 shows the perception of respondent about their skills in using educational materials. It was reported that they had the best skill in using educational CDs and they had the weakest ability in using educational software.

Table 2. Means of Respondents' views about their skills in using e learning materials (1=very little; 5=very much)

| Statement | Mean and Standard Deviation | |
|----------------------|-----------------------------|------|
| | Mean | SD |
| Educational CDs | 3.97 | 0.81 |
| Educational films | 3.94 | 0.82 |
| E mail | 3.57 | 1.42 |
| Electronic journals | 3.34 | 1.43 |
| Educational software | 3.23 | 1.47 |

Table 3 displays the respondents' means about the role of training classes in improving their situations. As can be seen the highest mean number refers to the improving economic and social conditions (mean= 3.84) and lowest mean number refers to decreasing the cost of providing vegetables for homemade use (mean=3.23).

Table 3. Means of Respondents' views about role of training classes in improving their conditions (1=very little; 5=very much)

| Statement | Mean and Standard Deviation | |
|---|-----------------------------|------|
| | Mean | SD |
| Improving economic and social condition | 3.97 | 0.82 |
| Improving a positive attitude in life | 3.84 | 0.91 |
| Providing opportunity for self employment | 3.73 | 1.16 |
| Gaining self confidence | 3.69 | 1.04 |
| Providing vegetables for homemade use | 3.23 | 1.16 |

Table 4. Correlation measures between independent variables and dependent variable

| Independent variables | Dependent variable | R | P |
|----------------------------------|-------------------------------------|--------|-------|
| Age | Effectiveness of e learning methods | -0.011 | 0.93 |
| Educational level | Effectiveness of e learning methods | 0.10* | 0.021 |
| Access to computer at home | Effectiveness of e learning methods | 0.05* | 0.045 |
| Access to internet at home | Effectiveness of e learning methods | 0.062* | 0.013 |
| Advantages of e learning methods | Effectiveness of e learning methods | 0.077* | 0.052 |

**p<0.05

Spearman coefficient was employed for measurement of relationships between independent variables and dependent variable. Table 4 displays the results which show that there was relationship between educational levels, access to computer at home, access to internet, advantage e learning methods as independent variables with perception of respondents about effectiveness of e learning methods in plant clinics as dependent variable.

Table 5 shows the result for regression analysis by stepwise method. Independent variables that were significantly related to perception of respondents about effectiveness of e learning methods were entered. The result indicates that 43% of the variance in the perception of respondents could be explained by educational levels and access to the computer at home.

Table 5. Multivariate Regression Analysis (effectiveness of e learning methods as dependent variable)

| | B | Beta | T | Sig. |
|----------------------------|----------|-------------|----------|-------------|
| Educational levels | 0.24 | 0.23 | 0.71 | 0.027 |
| Access to computer at home | 0.17 | 0.13 | 0.07 | 0.044 |

$$R^2=0.43$$

$$Y=0.24 X_1 + 0.17 X_2$$

4. Discussion and Conclusions

The perception of participants about effectiveness of e learning methods in plant clinics of Tehran was discussed in this article. As the regression analysis showed, access to computer at home and educational level caused 43% of variance on the perception of respondents regarding effectiveness of e learning methods in plant clinics.

The findings showed that CDs was determined to be the most effective material in using e learning methods by respondents. The result is in accordance with findings from a research by Allen and Seaman [7].

There is need for more information about benefits and advantages of e learning in informing residents about importance of green spaces in Tehran. It is also important to

provide computers to those residents that do not access to computer at their homes and attend their technological needs. Along with technical classes about green spaces, authorities should hold classes about application of computers for the attendees in the plant clinics and this would accelerate the speed and accuracy information for participants.

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