Accrediting On-the-job E-learning System of Education Personnel in Tehran City

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ABSTRACT

In this study, factors affecting on-the-job e-learning system credit of education personnel in Tehran city are addressed. Accordingly, 320 education employees in Tehran City were chosen as study sample. To measure research variables, an ascertained questionnaire was used and after evaluation and approval of its validity and reliability, the questionnaire was distributed among the respondents. When data collection was fulfilled, the relationship between model's variables was examined using the t-test and the Spearman correlation coefficient. Results showed that learning courses credit in this section of the country's educational system is respectively affected by learning quality improvement, Continuous evaluation mechanism, and teaching methods. Furthermore, in another part of the study, factors affecting on-the-job e-learning system credit of education personnel in Tehran city are ranked using the Hierarchical Analysis Process method; based on which these factors were ranked from the most to the least effective as follows: first, learning quality improvement with significance coefficient 0.216; the second, continuous evaluation mechanism with significance coefficient 0.155; third, teaching methods with significance coefficient 0.143; forth, teachers' grasp with significance coefficient 0.143; fifth, learning cost reduction with significance coefficient 0.130; sixth Learning site quality with significance coefficient 0.120; and, finally , learners' combination with significance coefficient 0.094.
KEYWORDS: Accredit, E-Learning, Education.

1. INTRODUCTION

Evaluating credit is one of the oldest, yet most controversial evaluation patterns in higher education. In conceptual terms, credit evaluation is derived from the word Accredit meaning "assigning, authorizing, allowing, thanking, ascribing" (Muhammadi et al, 2007:61).

Different definitions are represented for accredit depending on the feature on which it is emphasized. In the encyclopedia of higher education, Adelman points accrediting as the process of control and trust in higher education by which it is possible to revise and evaluate and or conduct both to evaluate the institution or its future plans for reassuring that the least standards are met (Adelman, 1992; trans. by Ghorchian, 1995).

An accrediting pattern is one of the patterns in which quantitative trends are applied and used for ranking or classifying to gain a quantitative image of the factors under evaluation. However, in recent years, there have been changes in the process and its objectives to fit better with the essence of academic processes and programs. In fact, the question of whether the plan or system under study meets the standards set by higher education and professional institutions will be answered via accrediting (Muhammadi et al, 2007: 63). Accrediting plays the following roles:

- **Reassuring Quality:** accrediting is an important tool through which it is possible for faculties, universities and programs to guaranty quality for students and people. Accredited status is a sign showing the institution or program will meet at least the threshold standards regarding its teachers, curriculum, students' services and libraries. And, it will sustain only if the institutions or programs provide evidence for number stability.
- **Using Governmental Fund:** doing so like students' loans and other public financial aids requires accrediting. Students' loan box is accessible to the students taught in institutions or programs accredited by the recognized organization.
- **Drawing Trust of Private Sector:** accredited institutions or programs are important for employers to evaluate applicants' documents and seek to enhance the educational services for their current employees**.**
- **Transmission Feasibility:** accrediting is important considering feasible transmission of the students between universities and faculties during courses and programs. Receiving institutions consider the credit of the giving institutions. Although the credit of the institution is just one of the factors considered, it is the key factor based on which the quality of the institution will be judged (Itun, 2006).

Generally, accrediting is conducted bearing the following objectives in mind:

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- Confirming whether an institution has met the international and official standard or not;
- Helping the students with detecting accredited institutions and programs;
- Helping the institutions with determining the extent of acceptable transmission units;
- Contributing to programs detection for investment;
- Protecting a program or institution in coping with harmful internal and external pressures;
- Enhancing standard level of the institution or program;
- Determining measures and criteria for certificate or accrediting license release;
- Providing conditions and criteria of determining qualification of an institution or program for receiving governmental grants (Pazargadi, 1998:30).

Accrediting stems from officials' concerns regarding public health and security along with serving national prudence (Ithon, 2006). Standards considered in accrediting can be the least (requirements) or the last; the former is specific to governmental accrediting and the latter to specialized organizations and professional associations (Damme, 2000). Different ideas are addressed regarding advantages and benefits of accrediting; some believe that accrediting results in formal recognition of the estate and quality of the phenomenon under study which not only examines and demonstrates resources and documents of the institution, but also leads to gaining legitimization in higher education system and as a result, employers and university volunteers and other stakeholders are attracted; indeed, applicants are reassured that the status and estate of the institution or program are approved by specialized association and or government, so (internal-external) consumers' security is a positive consequence of accrediting (Damme, 2000). About disadvantages of accrediting, also different views are provided tuning to different forms in private and public educational system; among which is reassuring the quality based on voluntary cooperation of school and university and always this question is posed that "if accrediting is voluntary, how is it possible to reassure quality?" Whereas higher education institutions and programs might not have any authority in the field and accrediting lacks different types of regional and provincial supports and or it might lead other institutions to not to recognize granted degrees (Ratcliff, 1996; trans. by Yadegarzadeh, 2004).

Some consider accrediting as a tool for justifying public activities and plans, persuading the public and keeping on their activities (governmental system). Some also consider it as a reason for drawing volunteers to higher education institutions and imbuing this thinking that they are the best among other institutions (non-governmental systems). However, aside from these changes, there is a wide agreement regarding the matter that accrediting process (internal evaluation, external evaluation and determining the credit and status of the institution/program) results in improving and reassuring quality and educational systems responsiveness to exclusive resources and as a result high cost-efficiency, optimization and transparency of university affairs (Muhammadi et al, 2007:64). The main advantage of granting certificate or accrediting is that it helps non-specialized individuals have an informed judgment on the quality of organizations and programs and professional qualifications of individuals (Stufflebeam, 2003).

Considering on-the-job learning, it can be said that accrediting is to make responsive the on-the- education centers and also is the process of quality control for institutions and their programs to reassure that the least set and acceptable standards and indices have been achieved.

Based on the above mentioned, the present article attempts to answer the question "which factors affect on-the-job e-learning system credit of education personnel in Tehran city and to what extent?

2. Background of the Study

An ample of studies is conducted at national and international levels in the field of e-learning some of which are:

With the advent of information technology to education field, many researchers have addressed different features of the study. In many studies, organizational factors, infrastructures and facilities, and planning and policy making have been addressed in e-learning. In another study, qualifications and skills required for expanding e-learning in educational systems have been pointed out. Some researchers pointed the lack of appropriate software and hardware facilities, internet access cost, band width limits, etc (Rezaei, 2009).

Mazlumi's (2007) findings in a study as "strategies, trends, and standards in e-learning" formulated for a Master's thesis in Tarbiat Modarres University which address the advantage and characteristics of e-learning system and complying with respective international standards, introduce the students' learning skills as one of the key factors for an e-learning program success. Also, other results of the same study show that e-learning is a movement just started and will affect educational system; e-learning is a complement to traditional learning and teaching. Additionally, it can be said that cause of e-learning qualities, it is required to develop suitable methods for organizing and learning and managing it.

Sadeghi (2008) – in a study under the title of "how to build e-learning in our organization" – examines strategies and challenges of administering e-learning and says that: e-learning phenomenon as an IT feature in organizations possesses characteristics drawing organizations' attention. Outstanding qualities of e-learning help the organization guide the change flows in the organization toward desirable direction and provide continuous

learning in them using new information and communication technologies. This study explores challenges in employing e-learning in the organization by describing e-learning, its application in the organizations and its status in organization's policies. Whereas, Robabeh Farhadi (2005) in a study under the title of "new e-learning paradigm in information age" examines changes and evolutions happened in education field after the advent of digital age and virtual world, and besides explaining the importance and necessity of e-learning in the new age, she summarizes required infrastructures for development and growth in IT era as follow:

- Developing information and communications technology skills cross the society and for all classes of people;
- Promoting and encouraging educational research in IT field;
- Qualitative and quantitative development in educational software area;
- Developing information and communications technology skills education centers;
- Reinforcing internet network infrastructure across the country;
- Expanding public accessibility to computer and internet;

Also, Jamshifar (2005) – in a study under the title of "reviewing the strategic needs for developing virtual education at secondary level in Tehran" – concludes that necessary infrastructures are established for development as needed and in some other, there is a need for further development, and general technological and cultural infrastructure of the country have foregone the educational and management infrastructure for entering e-learning era. Also, it is required to conduct organized and systematic work on both learning and management areas in particular training for managers and experts of e-learning courses.

In a study by Berta under the title of "measuring the students' tendency to e-learning", she considers e-learning as a function of different factors; among which are the extent of the students' interest and tendency, feeling of desirability when using the instruments, the extent of adaptability to the technology, and the students' background regarding the technology cited (Berta, 2009).

Petrakou, in a study under the title of "virtual world as a framework for on-line learning", examines different features of virtual training. Studying different characteristics of virtual learning in universities and high schools, he points to the significance of administering the courses based on the students' learning capability and emphasizes on that administering the courses without embracing the main features of on-line courses can reduce the learning level and the respective concept transmissions to the students (Petrakou, 2009).

In a study under the title of "exploring the efficiency of virtual labs in enhancing the students' learning level", Dalgarno et al examined the effect of virtual courses in enhancing the students' learning level. They showed that the students getting familiar with learning materials via internet and virtual courses have better confidence comparing to other students. Also, their grasp of the materials are deeper, though this learning level depends on many factors (Dalgarno et al, 2009).

Limniou, Roberts, and Papadopoulos – in a study on Chemistry students regarding the use of virtual environments for learning chemistry courses – show that learning level of the students enhance considerably by means of advanced instructional instruments and also using virtual three-dimensional environments. Results also demonstrate that using virtual courses for fields of study requiring mental and creative examination of the instructional materials can be really effective, in other word, considering the students' fields of study is also important in exploring different features of virtual courses (Limniou, Roberts, and Papadopoulos, 2008). In an article under the title of "E-learning, Challenges, Conflicts and solutions for success", Russo and Benson (2002) address the question that "whether e-learning posses the quality and value of traditional learning" and to answer the question and examine the success of these courses, the researchers review three Cs: Content, Connection, and Community. In Content part, it is pointed that it is not possible for students to success without any content or systematic framework. If basic resources of the field are lecture-oriented per se, the physical space will be considered as an important condition for success and without these conditions and equipment such as self-study books, CDs, websites and videos, e-learning has no chance of success. In community part, student's personal communication with learning equipment and also with organizations, institutions, field of study, teacher and other classmates are considered. The major challenge here is to design appropriate e-learning tasks, existence of connection and community between content and elements of the students' lives (Russo & Benson, 2002, ctd. by Eslami, 2007).

Summarizing respective literature reviews shows that there have been different studies conducted in Iran and across the world regarding e-learning, however, so far, no studies have been found about examining the factors affecting on-the-job e-learning system credit of education personnel.

3. METHODOLOGY

3.1. Research Method

In term of objective, the present study is an applied research, and In term of research method, nature and the way of exploring the problem, it is a descriptive study. Also, In term of understanding, explaining, analyzing and evaluating data collected, it is statistic-based.

3.2. Research Hypotheses

- There is a significant relationship between education quality and accrediting educational system in education e-learning in Iran.
- There is a significant relationship between continuous evaluation mechanism and accrediting educational system in education e-learning in Iran.
- There is a significant relationship between learning cost reduction and accrediting educational system in education e-learning in Iran.
- There is a significant relationship between teachers' grasp and accrediting educational system in education e-learning in Iran.
- There is a significant relationship between teaching methods and accrediting educational system in education e-learning in Iran.
- There is a significant relationship between teaching site and accrediting educational system in education e-learning in Iran.
- There is a significant relationship between learners' combination and accrediting educational system in education e-learning in Iran.

3.3. Statistical Population and Sample

The statistical population of the study is composed of all education employees in Tehran using on-the-job courses system of the organization.

Since part of the statistical population will be selected based on the researcher's own judgment, the sampling method is subjective and, the sample will be randomly selected among Tehran City education employees using on-the-job courses system of the organization.

To determine the sample size, the Kukran formula is used. Kukran developed following formula for calculating the required number of samples in the random sampling method:

$$n = \frac{Nt^2S^2}{Nd^2 + t2S^2}$$

Where N stands for the size of the statistical population or employees, t for acceptable confidence index which is obtained from the t-student table on the assumption that the attribute distribution is normal. S2 stands for estimation of the attribute variance under study in the population which is the variance of employees who have participated in on-the-job e-learning service in the area under study, d for desirable probable accuracy (half of the confidence interval), and n for sample size. Accordingly, the sample size was calculated based on the Kukran formula as 311. To enhance the calculation accuracy, the number was increased to 320.

3.4. Data Collection Tool and its Validity and Reliability

Here, the main tool for data collection was ascertained questionnaire. Reviewing field literature accurately and existing questionnaires and naturalizing them according to the statistical population, the researcher designed questionnaire and had an attempt to make it as short as possible and easily understood, and avoid negative questions to lessen the mental effect of such questions in respondents.

Dependent and independent variables of the study respectively are "accrediting educational system" and "learning quality improvement, continuous evaluation mechanism, learning cost reduction, teachers' grasp, teaching methods, learning site, and learners' combination".

3.5. Validity and Reliability of the Questionnaire

Since the research questionnaire is ascertained, its validity was confirmed by advisor and reader of the thesis. However, to determine reliability of the questionnaire, the Kronbach alpha coefficient and SPSS software were used. The alpha value that was obtained is presented in table (1) and as a result, the questionnaire reliability was confirmed.

Table 1: Reliability analysis

Row	Item	Kronbach Alpha Coefficient
1	Questionnaire	0.923

4. Research Findings

In this section, the research hypotheses are tested. Seven main hypotheses were addressed in this study regarding the relationship between variables. In order to test the research hypotheses, the t-test and the Spearman correlation coefficient were employed to examine the relationship between dependent and independent variables.

4.1. T- TEST ANALYSIS

As mentioned, the "t-student" test can be used for testing hypotheses in which the population mean is less than or equal to a specific number and also for testing hypotheses related to comparison of the mean between

two populations. After entering the results of the questions about the above hypothesis in the SPSS software and analyzing them based on the t-student method, the test statistic is calculated and about the approval or rejection of the hypothesis is decided. The t-test results for evaluating the above hypothesis are represented in table (2).

Table 2: t-test analysis

Variable	Sample Size	Sample Mean	Standard Deviation	t-statistic	Significance of the Variable
Accrediting educational system	190	3.23	0.81	3.563	0.000
Learning quality Improvement	190	3.16	0.96	2.741	0.007
Continuous evaluation mechanism	190	3.18	0.90	2.230	0.000
Learning cost reduction	190	3.16	0.90	2.874	0.004
Teachers' grasp	190	3.24	0.85	4.586	0.000
Teaching methods	190	3.16	1.11	2.919	0.004
Learning site quality	190	2.29	1.29	1.781	0.080
Learners combination	190	2.61	1.11	2.615	0.020

4.2. Spearman Correlation Coefficient Estimation

Correlation coefficient is a statistical tool through which it is possible to measure the extent of linear correlation between two variables. Since the research hypotheses present the relationship between two variables, so correlation coefficient is used to examine rejection or approval of the hypotheses (Table 3).

Table 3: correlation coefficient between research variables

Independent variable	Dependent variable	Significance Level	Spearman Coefficient
Learning quality improvement	Accrediting educational system	0.788	0.000
Continuous evaluation mechanism	Accrediting educational system	0.747	0.000
Learning costs Reduction	Accrediting educational system	0.719	0.000
Teachers' grasp	Accrediting educational system	0.712	0.000
Teaching methods	Accrediting educational system	0.711	0.000
Learning site quality	Accrediting educational system	0.443	0.036
Learners' combination	Accrediting educational system	0.312	0.060

The confidence level of the model is (%95) and the error level is (%5), as seen in above table, considering the Spearman correlation coefficient test, a significant relationship between all dependent and independent variables (aspect site quality) of the study is confirmed But the Variable of Site Quality at the level of 90% is confirmed. In other word, all seven hypotheses of the study are approved at the level of 90%.

Based on the results, accrediting learning courses in this part of Iran educational system is respectively affected by teachers' grasp, learning cost reduction, learning quality improvement and teaching method.

4.3. Determining Importance Coefficients of Indices using Analytic Hierarchy Process (AHP)

In the rest, the importance of the effective factors is reviewed using Hierarchical Analysis Process method. To rank and prioritize each index, first, the above seven indices are paired-compared from the each respondent's viewpoint.

Since seven different matrices have been filled by about 200 respondents to evaluate six dimensions of responding, AHP first transforms the matrices to a unit matrix. One of the best methods to integrate the paired comparison tables of all respondents is the geometry mean, since the paired comparisons create data as "proportions" and also since the comparison matrix is reverse, using the method is further authorized, because the geometry mean maintains the reverse quality in the paired comparisons matrix. If we suppose that $a_{ij}^{(k)}$ component stands for K^{th} respondent for comparing I measure to j measure, the geometry mean for correspondent components is calculated by the following formula:

$$\overline{a_{ij}} = \left(\prod_{k=1}^{n} a_{ij}^{k} \right)^{1/n}$$

Using the above matrix, group-wise comparison between measures is as Table 4.

Table 4: primary matrix of indices pair comparison after data integration

Index	I1	I2	I3	I4	I5	I6	I7
I1	1	1.67	1.8	1.44	2.32	1.53	1.56
I2	0.6	1	1.08	0.86	1.39	0.91	0.93
I3	0.55	0.93	1	0.8	1.29	0.85	0.87
I4	0.69	1.16	1.25	1	1.61	1.06	1.09
I5	0.43	0.72	0.77	0.62	1	0.66	0.67
I6	0.65	1.1	1.18	0.94	1.51	1	1.02
I7	0.64	1.08	0.15	0.92	1.49	0.98	1

Where:

I1: Learning quality improvement

I2: Teaching costs reduction

I3: Learning site quality

I4: Continuous evaluation mechanism

I5: Learners' combination

I6: Teaching methods

I7: Teachers' grasp

Data collected was evaluated using Expert Choice software and results are as Figure 1.
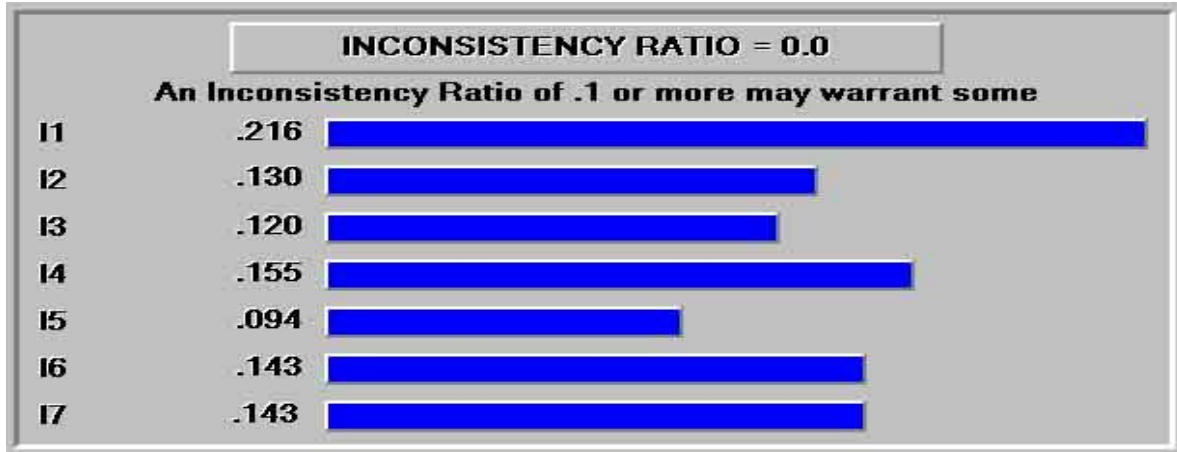

Figure 1: Expert Choice software output

Accordingly, the table 5 shows results from indices priority matrix.

Table 5: final priority matrix of different features of accrediting e-learning system in education using AHP method

Index	Weight of Index
I1	0.216
I4	0.155
I6	0.143
I7	0.143
I2	0.130
I3	0.120
I5	0.094

So, based on AHP method, the importance of different features of accrediting on-the-job e-learning system of education employees in Tehran City is ranked from the most to the least significant:

1- Learning quality improvement

2- Continuous evaluation mechanism

3- Teaching methods

4- Teachers' grasp

5- Teaching costs reduction

6- Learning site quality

7- Learners' combination

Adaptability rate shows the reliability and confidence degree of the model and based on Saati (1980) and other researchers' opinions, if calculated score for the index is less than 0.1, it will indicate the accuracy of calculations and results from questionnaire using the AHP method.

Since adaptability index is very smaller than 0.1, it can be said that paired comparisons of the group has great adaptability and the model is completely significant.

5. Conclusion and Suggestions

Electronic training in Iran is a novice industry in e-education technology, however, educational centers and institutions and in particular universities attempt to provide appropriate pattern fitting best with educational and cultural structure of the country in e-learning field. In addition to natural advantages of e-learning, one of the most important reasons of the necessity of organizing e-learning centers and institutions in Iran is increasing

demand for education and in particular in higher education which regarding resource limits and educational capacity in current educational system, it has been converted to a specific social subject.

Specialized and efficient manpower and equipped with updated information is considered as the main and programmable capital of every government. However, the matter has other secondary layers as well; when societies develop, people learning needs increase, a new generation comes to the edge requiring education and expertise. On one hand, capability of the governments is not enough to cover the whole potential. It is specially matters in organization like education cause of having a close relationship with students and future generation of the country is more important. On the other hand, accessing and grasping information and communication technology and exploiting it in strategic and important issue of educating manpower is itself one of the important power components in contemporary era which cannot be ignored. In other words, non-stop and non-expensive development of e-learning system across the world proves the necessity of this teaching method.

Previous studies show that in two last decades, most of the higher education systems worldwide have had an attempt to evaluate and improve learning quality, research and provision of specialized services at university level and also at e-learning system level. The countries which have successful experiences in this field have conducted continuous evaluation and internal evaluation as a basic approach in promoting quality culture. In most of these countries, internal evaluation based on the organizational objectives has been emphasized. Considering results of the study and also the high priority of the above index among the seven indices of accrediting e-learning system, the followings can be suggested:

- Since the main function of educational organizations is to help individuals with making personal knowledge and also producing, promoting and transmitting practical knowledge, integrative pattern of educational management that facilitates collective participation is suggested.

  In the same regard, "collaborative school management" approach is considered. In this approach, educational systems and teachers of e-learning have to possess the followings:

- Knowledge of teaching-learning processes which accordingly teachers could be guided toward the wide spectrum of the learners' abilities.
- The ability of designing and administering educational plans required in the country, zone, and area to supply special learning needs of consistent education.
- The ability to recognize the necessity of evaluating administered plans in educational management process.
- Ability to establish a common prospective to superior educational quality or efficiency or performance.
- Ability to employ cooperative method in setting goals, policy making, planning, organizing, administration and evaluation in the e-learning organization.
- In addition to employing the above pattern of institutional management, it is possible to observe evolution from traditional to modern in teaching methods. The evolution is summarized in the table below based on the respective elements:

Table 6: Evolution from traditional to modern in teaching methods

Elements	Traditional	Modern
Learner's duty	storing information	Information and knowledge management
Teaching emphasis	Individual	social
Teacher-learner relationship	Learned/not-learned	Learners community
Teaching-learning process	inactive and teacher-dependent	Active and participation in knowledge production
Course content	Finite with certain measure	Infinite with different measures
Learning amount	Limited to classroom	Open and based on the quality of the learner's interaction

- Also, another point can be considered in the course of scientific/specialized quality evolution is the economic importance based on knowledge and information management and awareness. Given the significance of knowledge and information management at individual, organizational and social levels, it is suggested that e-learning management to be transformed in future years to enhance administrative processes concerning knowledge production, attraction, exploitation, exchange and distribution.

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