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A Training Program in the Framework of Rogers' Theory of Blended Learning: A Case of Teachers of Information Technology in Oman

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Abstract
This study aimed at designing a training program according to Rogers Theory of Blended Learning for the teachers of Information Technology in Oman and studying its effectiveness. The study sample was composed of 40 primary school teachers of Information Technology working in public schools of Dhofar Governorate of Oman during the academic year 2016/2017. The researchers used the achievement test and observation card as ~~a~~ tools of measuring the program effectiveness, study results indicated statistically significant differences with a value of (T) for the difference between the average of dimensional applications of the achievement test and skill performance (51.36-15.45) in Information Technology teachers' practice, which resulted in a value at statistically significant level of (0.001) and the training program was effective, as the profit rate of black was 1.33-1.41 respectively. It is a statistically significant value as it is more than 1.2. The effect of the training program was high in terms of both cognitive achievements and skills. The study recommended using educational models as one of the self-education techniques in Information Technology Teacher Training programs along with the integration of other training styles which are compatible with it by implication, the study suggested to exploit Roger's Theory for education technology innovations and designing other models for~~,~~ sustainable educational development.

keywords: Training program, Roger's Theory, Information Technology, teachers, Blended Learning

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1.1 Introduction

Information technology and communication play an essential role in all aspects of life; this large development is also reflected in the education process as the teachers search for new methods, strategies, techniques and models to face various challenges which confront the education process and help in its improvement to achieve the best results.

Innovations for learning, cooperation, and sharing have appeared as the early experiences and dealing with these innovations have revealed better chances for profound enhancement in the quality of educational skills and its competencies and the extent of suitability. As Sayed (1998) rightly state that only now have we started to realize how the education experiences will develop through the mixed investment of traditional learning techniques and techniques based on modern technology.

With the spread of the e-learning systems, the increase in the numbers of users and recruiting it in educational process, many difficulties have emerged including the absence of a direct social connection between the element of educational process – teachers and students and the management which has adverse effects on the social connection skills of the students. Also, their needs ~~to~~ of infrastructure and equipment require a high sum, in addition to the ability of teachers and students of using e-learning technology skills, along with the hardships of using the formative and summative evaluation process and the guarantee of its credibility, especially when the subject involves higher skills.

Given these difficulties the need to for an education system emerged based on exploiting the strengths of e-learning as well as the advantages of traditional learning, what has been termed later the "blended learning", where e-learning is integrated with conventional class-based knowledge. According to Zaytoun (2005), blended learning is known as the education in which the characteristics of both traditional learning and learning through the Internet are used in one integrated model, using the maximum available techniques for both the processes. Milheim (2006) defines blended learning in terms of using modern technologies in education and teaching without leaving the common educational reality of attending the class room and focusing on direct interaction inside the class room by using modern mechanisms like the Computer and the Internet.

Salama (2006, p.54) claim that blended learning is characterized by low educational expenses in comparison with e-learning. It also provides a face to face connection in addition to enhancing human aspects and social relationships between learners and teachers, flexibility to attend to all issues of individual needs and learning styles of students with differences in their age and levels. It also provides opportunities ~~of~~ for making use of technological progress in design, implementation, usage and the enrichment of human knowledge towards enhancing the quality of education process i.e. the quality of educational product and the competence of teachers. Al Batea & Abdelmawla (2008) are of the view that the blended learning encompasses the advantages of both the traditional learning and e-learning and helps students exploit electronic educational technology in the learning process vis-à-vis the traditional way of learning used by teachers.

Tangible practical reality appears in preparing Information Technology Teachers in the field of Education as most of them are not well developed in recruiting blended learning as it requires

specialization in Information Technology. Hassan (2009) remarks that the colleges and universities either do not have this specialization or it is not ensured that Information Technology teachers are trained to recruit blended learning after their graduation.

Furthermore, as Shawky (2004) argues, practicing blended learning at the present time ~~is~~ comes at the expense of the serving teacher's time and rarely comes as a response to the need of the hour and the planning of training programs and their implementation fall upon the efforts and desires of educational leaders and managers; therefore, these programs haven't achieved desirable success in enhancing the performance of Information Technology teachers. This has resulted in the lack and inadequacy of Information Technology Teachers' knowledge, skills and competence of exploiting blended learning as a result of which the educational process still-circulate in the range of school textbooks, lectures and the interaction between the student and teacher. (Ibrahim, 2000, p.21).

The call for exploiting Rogers Theory to design and develop educational programs and to adopt and recruit~~ing~~ innovations in teaching is not new, as many scientists and researchers in the field of education technology have called for its usage because these innovations also depend on the process of publication in this context (Sayls& Ritchy, 2000, P. 130). The works of Rogers have a significant effect in understanding the phenomenon of publishing innovations and its adoption in addition to a group of social factors and individual regulatory structure the theory has presented which affects the rate of adopting innovations recruitment to be integrated in the process of educational design.

Surrv& Farquhar (2002) remarks that studying the theory of publishing and adopting ~~the~~ innovations is necessary for the field of education technology for many reasons, including that many specialists in the field of Information Technology do not realize the reasons behind not adopting innovations and products of education technology. The theory of publishing and adopting innovations helps to understand a number of factors which effect adopting innovations and make the information technology teachers able to clarify, suggest and check the factors that effect or facilitate adopting all new developments-relevant to the field of education. In addition, the study of publishing and taking innovation theory may lead to the development of an educational model which may serve as a systemic model for guiding the process of adoption and recruitment rightfully and effectively.

1.2 The problem of statement:

The studies assured the vitality to take care of training education programs from the stage of identifying training needs and caring about the content of training and its methods, its period, the time of convening and following it, the vitality to adopt new theoretical attitudes in designing educational programs for teachers during the service.

Therefore, it is necessary for the teacher of information technology to gain knowledge and information during their service, and performance skills are required in blending e- learning and traditional learning to be able to adopt blended learning in the educational process through the educational program based on Rogers's theory through answering the following questions:

1- What are the required skills for blended learning of information technology teachers?
2- What are the training needs required of information technology teachers for recruiting the skills of blended learning?
3- What is the training program set according to Roger's theory to adopt blended education by information technology teachers?
4- What is the effectiveness of the proposed program in developing the cognitive achievement connected with knowledge and information required to adopt blended learning by information technology teachers?
5- What is the effectiveness of the proposed program in developing blended learning skills of information technology teachers?

1.3 Research limits:

1- Applying the program to a sample of information technology teachers at the primary level schools (first round) in Dhofar Governorate in Oman.
2- The structure of the training program was restricted to the training needs of blended learning skills achieved through e-learning which has some recurrences in identifying the training needs.
3- Caring only about the cognitive side and performance to recruit blended learning skills during the education process.

1.4 Research Items:

The training program: The recent research defines the education program as an organized plan to a number of education and training situations where e-learning and traditional learning are integrated and organized according to Rogers' theory in the form of a group of minimized educational models, meetings, discussions and scientific statements. It also includes the basics components for the training programs to train the teacher of information technology on the skills of blended learning recruiting it in education through a period or an educational level.

2- **Blended Learning**: Education combines both characteristics of traditional classroom education, and e-learning in an integrated model, making use of the maximum technology available for both of them. (Milheim, 2006).

3- **Roger's theory**: Adopting and publishing innovations: The recent research adopts defining the process of adoption as a type of education types and taking decisions. It is also a mental process, the teachers of education technology pass by from the time they hear about an idea or method, or a new tool (blended learning), till its final adoption in other words the usage and full recruitment of the idea or the new tool (Rogers, 1997, p. 155)

1.5 Hypotheses:

1- There are statistically significant differences to the level of 0.05 in cognitive acquisition connected with the required knowledge to recruit blended learning between the average degrees of pre-and post-test acquisition to the side of the post-test.
2- There are statistically significant differences to the level of 0.05 in the performance connected with the required skills to recruit blended learning between the average degrees of remarks card to the pre-and post-performance to the side of post-performance.
3- The training program makes a high effect (n2>0.14) in knowledge acquisition connected with the required knowledge to adopt recruiting blended learning skills.

4- The training program makes a high effect (n2>0.14) in the level of performance skills required to adopt recruiting blended learning skills.

1.6 Significance:

The importance of the research has several reasons:

1- Organizing a training program for information technology teachers to recruit blended learning skills during their service.
2- Making use of these procedures in recruiting Rogers' theory to adopt information technology teachers for blended learning during their service.
3- The training program may be useful for those who work on developing the educational program at the concerned faculties by preparing the teachers of information technology, especially concerning the field of blended learning.

2- Literature Review

2.1 Blended learning

Blended learning is the learning accomplished through using various communication methods to teach a specific subject. These methods may include a mixture of direct lecturing in the time of lectures, communicating through the internet and self-leaning which mixes traditional learning and its usage and the usage of various educational technologies which gives freedom to the teacher to use communication skills inside the classroom. This was defined by (Khames, 2003, p. 211) as an integrated system that aims at helping the student in every stage of high education level, based on mixing the traditional learning and e-learning in different forms inside the classrooms.

It is also defined by (Ismail, 2009, p.96) as using the mixture of learning methods of collaborative learning, e-learning and traditional classrooms face to face, education management systems, self-learning in learning strategies to get the suitable content in a suitable form for suitable individuals and at suitable times. Synthesis learning includes various presentation methods to complete each other and enhancing the learning of the learned behavior and its application.

Showing these detentions about blended learning makes us conclude that blended learning is a process done by mixing techniques with traditional learning, learning by using the technology in various forms from technological devices, audio-video, communication and internet technology and by using the technology as a supportive technique for traditional teaching.

2.1.1 Mixing traditional education and e-education methods:

Introduce (Zaytoun, 2005, p. 171) presented various available alternatives for the teachers to choose from when using blended learning in teaching; the most dominant alternatives are as follow:

The first alternative: Achieved by educating and learning a specific lesson or more in the subject through classroom educational methods and teaching another lesson or more through e-learning tools, the student would be evaluated finally through traditional evaluation methods, or E-evaluation methods.

The second alternative: Both classroom learning and E-learning mutually share in teaching and learning the lesson; beginning with classroom learning followed by E-learning, then the students would be evaluated finally through traditional evaluation methods or E-evaluation methods.

The third alternative: Similar to the second alternative but it first begins with E-learning followed by classroom learning then the students would be evaluated finally through traditional evaluation methods or E-evaluation methods.
The fourth alternative: Similar to both the second and third alternative, however a rotation between classroom learning and E-learning happens more than one time during the events of the lesson, not just once like what happens in those other alternatives.

Most studies dealt with revealing the effectiveness of E-learning, like the study of (Hong& Ridznan, 2003, P.46) and (Abdo& Soliman, 2008, p. 55), while concerning the studies that used e-learning in developing the scientific performance it is connected with technological skills variable was like developing the skills of designing and producing internet websites, etc. Like the study of (Shiang-Wang, 2006, 597) which aimed at learning the scientific skills in the environment of E-learning.

2.1.2 Success factors of blended learning:

There are several factors which contribute to the blended learning success including the following (Muianga, 2005, p. 658), (Naser, 2010, p. 143)

- **Communication and guidance:** Of the most important factors of the success of blended learning is communication between teacher and student, as the teacher guides the student with the time of learning, draws the steps he should follow to learn and the programs he should use for the best achievement.
- **Collaborative work in the form of teamwork:** In blended learning every member (teacher – student) should be convinced that working with this type of learning needs the interaction of all participants.
- **Encouraging the creative and amazing work:** Caring to encourage the students to self-learning and learning among groups, as the available technological multimedia in blended learning allows that.
- **Flexible choices:** Blended learning enables the students to obtain information, to answer questions, no matter where and when or the preceded learning of the student. Moreover, blended learning should include various choices and flexibility at the same time.
- **Communication then communication then communication:** There should be clarity between the available choices for the concerned subject; there should be a fast communication method and should be available most of the time between teachers and students for guidance under all circumstances.

2.1.3 The advantages of blended learning:

Blended learning has many advantages summarized in the following: (Buket 2006, pp.43), (AL Awad, 2005, p.76)
- Making computers and local and global information networks in reach of the student.
- Enabling learning groups from using multimedia collaborative software, E-mail, hypothetical libraries, and all internet data available.

- Coping with the problem of permanent change in the content of educational subjects, where information and numbers change regularly, which makes blended learning helpful in searching for the information rapidly, and the possibility to use it at any time.
- Making the best use of technology and its database, where blended learning choices are various and it is possible to choose suitable educational technology for the determined lesson to teach.
- The possibility to modify the teaching methods as the chance for changing is available under the light of this type of education.
- Making the use of time, as blended learning technologies shorten time to summon information in a short time.
- Making the student permanently connected with knowledge and its sources.
- Producing various software suitable for our society and culture, especially for our students and downloading these programs to the internal network of the university or to internet to enhance its benefit.

2.2 Rogers's Theory

2.2.1 Basic factors for Rogers's theory to publish and adopt innovations

Sees rogers (1995) that the process of publishing and adopting innovations is based on four main factors, these factors play an important role in the process of publishing and adopting and they are innovation characteristics, communication channels, time and a social educational system.

- **Innovation characteristics:** Innovation may be an idea, practice or a skill realized by a group or an individual who adopt this innovation. The innovation characteristics are realized by the members of the social system like schools – identify the level of adopting this innovation, which was identified (Rogers, 1995, p. 15). In his list are five characteristics: relative advantage, compatibility, complexity, the ability to remark and the ability to experience.
- **Communication channels:** In his theory, Rogers pointed to the substance of adopting innovation recruitment as a process of communication basically. They are preceded by exchanging ideas, information and skills about the innovation between the source and the receiver by using suitable communication channels to achieve a common understanding between them. This leads to adopting the innovation as the source may be an individual or a group of members, or an organization, also the receiver, with no doubt. Adopting the recruitment of innovations is based on the success of the communication process and on convincing the receiver. Also, the success of the communication process is based on using suitable communication channels to achieve the desired goal as communication is a sharing process, a creativity to information between the participating individuals in the communication process is to reach to a mutual understanding (Rogers, 1995, p. 18).
- **Time:** The element of time is considered the third basic element in the process of adopting innovations, as the process of adopting requires enough time to be adopted and to be installed inside the working system. The portion of time is connected with the process of adopting innovations from four sides, the first side is the practical levels to build the innovation, the second side is the categories of innovation adopters, the third side is the role of changing agents and the forth side is the rate of adopting the innovation. All sides connected with the side of time will be discussed.

2.2.2 The levels of adopting blended learning

identify (Rogers1995, p. 20) five levels have been by Rogers to the process of taking decision of adopting the innovation, these levels are: knowledge, persuasion, decision, implementation and confirmation.

During the level of knowledge, students will be supplied with knowledge and information about the innovation and its characteristics, possibilities, benefits, goals and aspirations that might be achieved, and the problems it may solve and the advantages of the adopted innovation about prevailing practices. The main purpose for this level is to open the way to a series of levels which will be fulfilled and to raise the sense with urgent need to the innovation.

During the persuasion level, the student forms a positive or negative attitude about the innovation through discussion and interaction with others in terms of the information that has been presented to him or he acquired by himself (Batty& et, al, 2000, p. 7), and the basic purpose for this level is developing the student information about the new innovation.

During the level of decision, the individual makes a kind of mental experiment of the available information for him and between his current attitude to decide whether to accept or refuse adopting the innovation. If the individual felt that the advantages of the innovation higher than the common practices, decides to experience it to make sure of its benefits and the easiness of using it, as it was assured by (Ganee, 2000, p. 162) that the student has to commence his activity with a practical experiment for the innovation to lead him to accept adopting the innovation and the importance of taking care of individual education methods and personal communication methods.

During the implementation level, we should care that students applies the innovation on a narrow scale to identify its benefit rate under his special circumstances. The main purpose of the application level is to show the new innovation within the special circumstances of the student and to identify the possibility to benefit from it for the purpose of full adoption to recruit the innovation (Batty& et, al, 2000, p.8).

At the level of confirmation, the student usually decides to continue adopting and recruiting the innovation and using it, as the basic purpose for this level is to put the results of both levels of adoption and implementation. It should be taken into consideration by the student to embark on continuous recruitment in the future to this innovation during educational situations. Rogers, 1995, 18, preferred to use the style of training in small groups of 5-15 members, where the trainer reached to a level of mastery in cognitive and knowledgeable competencies which helped him to discuss the innovation to increase the knowledge of the students and their skills, answering their questions and inquires and presenting suitable solutions for the expected problems to eventually reach the level of stabilization and full persuasion by adopting the recruitment of the innovation.

2.2.3 Adopters categories for blended learning:

The concept of adopter's categories refers to dividing individuals in social regulations - like the school on the base of their ability to adopt recruiting innovations. When a technological innovation is presented, some members inside the system initiate to adopt and accept recruiting innovations with others (Kosma, 2000). In this term Rogers describes some individuals inside the system of

five categories, the category of innovators, first adopters' category, early majority category, late majority category and the laggards' category.
The following diagram shows the rate of the laggard's individuals towards any innovation inside the educational society.

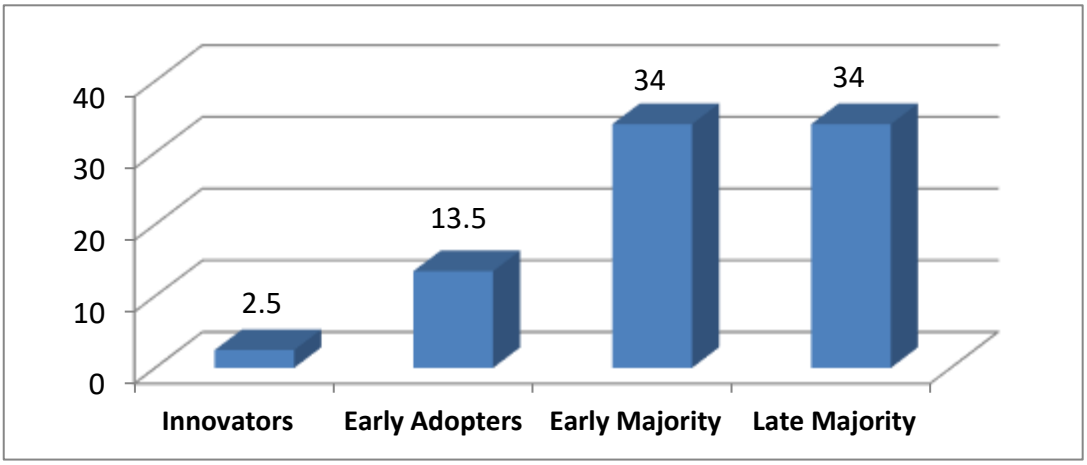

Figure 1. **The rate of the laggard's individuals towards any innovation inside the educational society**

3. Design and build of the measurement tools:

In terms of procedural goals, the tools of evaluation were built for the training program, which included two tools: an achievement test and an observation card. In the following steps every tool was passed by:

3.1 The Achievement Test:

- The achievement test aimed at measuring the achievement of the cognitive goals which are required to recruit blended learning skills connected with E-learning, and was built through the educational needs
- The articles of the test were drafted in the form of multiple choices, considering the time of drafting the test to clarify one specified problem, drafting the questions in an intelligible and clear style, avoiding the questions based on each other and to be of one identified answer, (Shabara, 2000, p. 114)
-The initial form of the test was submitted to a group of specialists in the education technology, curriculum, and teaching methods to assure that the phrases of the test were suitable for information technology teachers, also adding or removing vocabularies which are not suitable for the purpose of the test or modifying it, the drafting for some tests were modified as it has no relationship with the subject of the item, which facilitate the intimation with the right choice, the suggested modifications was implemented on the items of the test, the final form of the test was 44 items
- The stability of the test upon the experimental sample of ten students of girls specialized in information technology at Dhofar University was measured, while the achievement test was applied and the experimental sample result were observed and the half-retail method was used. The stability rate of the test reached 0.8, which means that the test was extremely stable.

3.2 The Performance Observation Card:

- The observation card aimed at acknowledging the extent of acquiring information technology teachers to recruit blended learning connected with e-learning in teaching.
- An observation card to the teachers on information technology was set during the service to the basic skills to recruit the blended learning, every basic skill was divided into several subsidiary skills and their equivalent performances and procedural phrases has were formed to describe every performance of subsidiary performances to the skill. It was taken into account at the time of articulation to use short phrases when defining, and that the phrases include one behavior and to be clear and identified.
- The observation card included 6 basic skills, each one of it has subsidiary skills, and under every subsidiary skill was a group of phrases; the card includes 135 phrases, and one mark was calculated for each step performed by the information technology teachers if he achieved the step correctly and no mark was given if he missed it or didn't do it. Or the trainer corrected the mistake because the serial and logic sequence to the performance of every step and not doing a specific step correctly doesn't lead to keep in implementing the following steps, so it was necessary for the trainer to alert the teacher that there was something wrong. The mission of performance observer – the trainer - had to observe the information technology teacher in his performance of every step and put the sign (✓) in the suitable place.
-After finishing the designing performance observation card in its initial form, it was to offer it to the specialists in education technology and curriculum and teaching methods, to explore their opinion about the extent of achieving the articles of the card to the educational goals and accuracy of their articulation, adding or removing or modifying any performances; under the light of the judges' opinions then rearranging some phrases to be suitable for logic sequence, modifying the articulation of some acts to be suitable for the performance, after performed modifications which the judges recommended, the observation card was now truly valid for application.

The stability of the observation card was calculated with the style of multi observers on the performance of the one student, as an accordance factor was calculated between their evaluations to the performance. The researchers employed two of the colleagues from the education department and trained them on using observation card and identified them with its content and connectivity to the goals which are to be measured. The researcher and his colleagues, by observing the performance of three students from the experimental sample, then calculated the accordance factor of the observer to the performance of each student alone. The average of the accordance factor in the three cases was more than 93 % which means it is an extremely stable and viable to measure.

3.3 Identifying the content and organizing it:

After checking the references and after organizing meetings with a group of specialists in the education technology field to identify the most important skills for blended learning which the teachers of information technology need, in addition to the personal experience of the researcher in using blended learning with the students of Dhofar university and his information about the basics and procedures. In terms of what preceded, the content was identified and chosen in six educational modules after checking many studies about building and using the models, like the study of (Soliman, 2001), (Mohamed, 1999). In terms of what preceded the researcher designed

and built programs models, the first one was under his name and design and he published the educational pages on the internet. The second dealt with searching for information from the internet. The third came under subtitle e-mail and is used in the education and the fourth dealt with building an educational blog, while the fifth came under subtitle building an educational forum, and finally the sixth dealt with the file of the electronic evaluation for the student.

3.4 Identifying the sources of learning and education:

Educational methods were identified in the practical program on a computer for every trainee, display unit for the computer data, and a monitor in addition to the printed models distributed to every trainee before learning.

3.5 Designing and choosing the educational strategies:

The researcher followed the procedures of developing the adoption of technological innovations which Rogers has identified as a general educational strategy, as shown by the following procedures.

- **The level of cognition:** Individuals are supplied with knowledge and information about every educational model, this include presenting the printings concerning the model, showing the basic information for the including skills, its characteristics, advantages, importance, and show how to implement them through a group meeting with the assistance of presentation shows and the private computer for the researcher. The goal from this stage is to recognize the awareness of the trainee for the implemented skills inside every model.
- **The level of persuasion**: This level depends on the existence of the modeling, presenting all accurate and detailed information, and some transitional trainings, organizing free discussions about the idea or the skill needed to be adopted through an assembly in small groups in beside the individual study in some situations. This stage significantly depends on the success of those in charge with the connection in the first level till the trainee feels the need and the positive attitude of the idea or the skill.
- **The level of decision:** To achieve this level, every trainee should be supported to try and apply the idea or the skill to feel its importance and its necessity for him, with acknowledging the difficulties which may confront him and how to overcome them, till he decides his full ability of it. So, every model was considered another meeting to give the chance for every trainee according to his ability and his speed in adopting the idea and the skill through work by small groups and some time the individual learning.
- **The level of achievement** (recruitment): It means the recruitment of the idea or the skill in another situation, through information and sills he has acquired from the preceded levels, As a result , every trainee reviewed every skill or idea he was able to perform in front of his colleagues either who could perform this skill or who couldn't; this level was used to encourage the laggards in adopting the idea or the skill to step into it to acquire skills and information about this skill.
- **The level of confirmation:** Rogers called it the level of installation. To achieve this level, the trainees were asked to repeat the same steps they used to do with the trainer, discuss the difficulties and how to overcome them. This level stands in the position of evaluation for improvement, development and blooming, in case of not adopting the idea or the skill by anyone, and before moving to the second model, he is retrained on the skill. Rogers called this as a reinvention, by simplification of the skill or redesign the situation of adoption which simplifies removing obstacles in adopting the idea or the skill. To achieve this general strategy, many

discussions were done about the idea, scheduled to practice on it, acting of some trainees with the role of the trainer in some situations to be assure their understanding to the idea.

3.6 Choosing education experiences, the method of assembling trainees and the training styles:

Educational experiences were chosen, which can help in achieving the goals with more than experience, commensuration of education sources, as it was chosen from the abstract and alternative experiences for all goals of the models. The styles of practicing included the following:

- Leaning in big groups through the collective shows in the stage of knowledge
- Practicing in small groups (3-5) in case of increasing the numbers of trainees, in the lab during the stage of persuasion and decision.
- The individual training for the trainee in case of being late or the time was inappropriate for him in the stage of decision and recruitment.

4. The level of production for adoption methods:

The level of production means transferring conditions and educational specification of education sources to educational product-sources. Education and learning methods need to be complete and ready for recruiting, through the processes of production, evaluation and revisions to reach the product to the required form to allow for use. Concerning adoption methods to achieve the educational goals for the prepared program a website has been set to deal with many basic skills, and included many multimedia and many connected links with the skills.

5. The level of recruiting the blended learning:

A group of procedures including identifying the room of education sources inside the Salalah private school and the main training center at the general directorate of education and coordinate with the information technology teachers at the school to revise the seats, to identify the assistants to achieve the program and the educational subjects, publications, and the materials needed to practicing. The moral support was presented by the preparation of the trainee sample and rising their motivation to effectively participate, providing them of what is expected from them at the end of the training with using praise phrases, encouraging any progress during the achievement or the performance, providing tools, substances and printings for every trainee, attempting to remove all organized obstacles or the procedures which impede the training and recruitment process. Training facilities also were provided according to the time of the trainee, and the time of implementation, its time and its place was identified according to the set timetable to recruit some of the blended learning skills.

6. The level of evaluation:

This level concentrates on performing the experiment processes to be able to implement the required modifications all over the program. The evaluation processes was performed through the following:

6.1.The structural evaluation:

At this level the program was adjusted and assured of its safety, performing required modifications to make the program ready for the final experiment. The program was submitted to a group of judges and in terms of their opinions, the required modifications were performed and the program

became ready in its final from. It was experimented upon the experimental sample to be assure of the program clarity, its suitability to their levels, as it was clear during teaching the program that the absorption of information technology teachers with no ambiguity in the implemented educational activities and was formed in its final form and became viable to experiment upon the basic research sample. Consequently, the third question was answered from the recent research.

6.2. Final evaluation and the research experiment:

The basic sample of the research was formed of 20 teachers of information technology from the first level of the primary education stage at Dhofar Governorate, in addition to an experimental group composed of 10 students from the students of the fourth grade in the specialization of information technology from the Faculty of Arts and Practical Science at Dhofar University, who finished their study of information technology subjects connected with E-learning, to perform the structural evaluation for the program, they all were volunteers.

After the pre-application of the research tools exemplified in the achievement test and the observation card, the students were prepared to study the program by explaining its idea, and to continue to study it upon the desire of every student; in other words, participating in experiencing the program is optional and not compulsory.

Every trainee in the study of models followed the specific arrangement from the first part to the last one of the model, and according to its self-speed, activities and the connected educational methods, the difficulties which can be obstructive were overcome through group meetings.

After the study of information technology teachers of the program, the post application for the research tools exemplified in the achievement test and the observation card followed; appendix No. 3 shows models of the works and images of information technology teachers during practicing.

7. Statistical Treatments:

The researcher used the T-test to calculate the differences between pre- and post-measurement degrees in the achievement test and the observation card. The statistical treatment was done by using (SPSS), and Eta square to calculate the effectiveness of the program, and the test rate of average for Blake.

8. Results &Discussion

Hereinafter, the results of the study explaining it in terms of assumptions are shown:

8.1 Assumption test concerning cognitive achievement connected with recruiting blended learning skills

This assumption stipulates for the following: There are statistically significant differences in the level (0.05) in cognitive achievement connected with required knowledge for recruiting blended learning between the average degree of the pre-achievement test and the post-achievement test for the post-test result. These results connect with the fourth question of the research questions which is: What is the effect of the proposal program in developing the cognitive achievement connected with the required knowledge to adopt blended learning by information technology teachers? That is what table.1 shows:

Table 1. ***shows the difference between the average degree of pre- and post- measurement in the cognitive test.***

Application type	N	M	A	T-test	Significance level
Prior	20	27.3	2.13	15.45	Significant to level 0.001
Pre	20	64.75	1.55		

As table 1 shows the existence of statistically significant differences, where the value of (T) for the average degree of information technology teachers in both pre- and post-applications is 15.45, as it is a statically significant value to level 0.001. To be assured of the effectiveness of the training program, the trainer used the Blake Equation to calculate the average profit percentage for the students of the experimental group during the achievement test, as shown in table 2:

Table 2. ***shows the average profit percentage for information technology teacher during achievement test*:**

Sample	Pre-application Total marks	Post-application Total marks	Maximum test degree	Total actual profit	Total expected profit	Modified profit rate
20	27.3	64.75	70	37.5	42.7	1.41

As table 2 shows that the percentage of the modified profit for Blake reached 1.41, and it is a statically significant value as it is higher than 1.2 which points to training program effectiveness in developing the cognitive achievement connected with knowledge and information to adopt blended learning. So, the first assumption could be accepted for the following reasons:

- Caring of the training program with the individual factors concerning the targeted categories by providing knowledge according to one's needs and identifying the level of his portal behavior.
- The contained strategy in preset training program according to Rogers theory helped in acquiring information by allowing the required time replacing the skill and assuring on installing it.
- The help of some information technology teachers to their colleagues raised their enthusiasm in acquiring information in addition to considering the trainee of reading the program printings.
- Using methods in presenting the skills from connectivity between both of the theoretical and scientific sides, continuing the constructive evaluation after every module, maybe as a result of small number inside educational situations, which made them in an educational situation that helped the researcher to discuss them and interact with them.
- Teaching technology with modules contribute in forming effective field experience, like responsibility and taking decisions as it allows the learner to work freely and according to his possibilities
- Sowing blended learning characteristics in the stage of knowledge pushed them to acquire the biggest amount of information about it.
- The importance of using the training program which was set according to Rogers theory and the systems' style like advantages in organizing the work, the educational situations and developing the level of understanding the information is connected with cognitive goals to recruit blended learning. This result agrees with both Barawy (2001), Shawky (2004) and Shomly (2007) and these results point to the effectiveness of using the style of learning with modules and systems style in the cognitive achievement of learners.

8.2 Testing assumption concerning skill performance connected with recruiting the skills of blended learning:

This assumption stipulates that there are statistically significant differences of the level of 0.05 in the performance connected with required skills to recruit blended learning between the average degrees of pre-performance and post-performance and the observation card for the post-performance.

These results connect with the fifth question of the research questions which states: What is the effectiveness of the propose program in developing the skills of blended learning of information technology teachers? That is what table 4 shows.

Table 3. ***shows the difference between the average of pre-measurement and post-measurement in the skilled performance.***

Application type	N	M	A	T-test	Significant level
Pre.	20	259.8	10.87	51.36	Significant to level 0.001
Post.	20	531.85	5.13		

As table 3 shows statistically, significant differences of the value of (T) to the difference between the average of information technology teachers' marks reached in both pre- and post-applications 51.36. This is a value statistically significant to level (0.001). To be assure of the effectiveness of the training program, the researcher used Blake's equation to calculate the rate of modified profit for the students' marks of the experimental group in the cognitive test, as table No. 4 shows.

Table 4. ***shows the rate of the modified profit of information technology teachers in skilled performance***

Sample	Pre-application total marks	Post-application total marks	Maximum test degree	Total actual profit	Total expected profit	Modified profit rate
20	259.8	531.85	578	272.05	318.2	1.33

As table 4 shows that the rate of the modified profit for Blake reached 1.33, and it is a statistically significant value which means the effectiveness of the training program in developing performance is connected with required skills to recruit blended learning. Therefore, the second assumption could be accepted and may point to the following:

- The level of ability of information technology teachers from computer skills made the training on special skills easier through blended learning connected with E-learning
- The style of training information technology teachers on skills inside the training situation allows them to practice in appropriate time and led them to practice on the skills and mastering them. This goes with the study of Shawky (2004) which assured the effective results of the program, which was held in work locations, in improving the teacher's information and their skills about the programs which was held outside work locations.
- Designing a training program according to Rogers' theory at the various levels of adoption helped in improving the skills and acquiring them. It provided the following items: theory, model, scientific practicing, reference and renewing the skill, and come up with Mills (2000). This may refer back to the characteristics of blended learning skills which are connected with

E-learning which was practiced according to their needs and which helped in acquiring motivation and enthusiastic learning skills.

- Supporting technique which was presented by the program, allowing practicing time for the skills, relying on personal communication methods also helped in overcoming many obstacles.
- The decision to practice on the skills was optional and not obligatory from the higher authority and agreed with the study of both Beggs (2000) & Tolba (2001).
- The training program used the steps of module styles to adopt recruiting blended learning according to Rogers theory and was full of advantages in organizing work in educational situations and in developing performance skills connected with the goals required in recruiting blended learning; this result agrees with Tolba (2001) & Shawky (2004) All these studies combined indicated the effectiveness of these methods in developing skilled performances for learners.

8.3 Choosing the assumption connected with the training program's effect to the level of achievement of information technology teachers for the connected knowledge to recruit blended learning skills:

This assumption stipulates: The training program achieved a high effect (n2≥ 0.14) in cognitive achievement connected with the required knowledge to adopt recruiting blended education skills:

Table 6. ***shows the effect value on cognitive achievement connected with recruiting blended learning skills***

Training program	The value of **η**2	Level of effect
First module	0.92	High
Second module	0.95	High
Third module	0.95	High
Fourth module	0.98	High
Fifth module	0.97	High
Sixth module	0.98	High

As table 6 shows that the level of effect in all modules is high where the value of **η**2 in the first module is 0.92, in the second and the third they are 095, in the fourth and sixth module they are 0.98, and in the fifth module it is 0.97. This proves that the training program has achieved a high level of effect in the cognitive achievement connected with the required knowledge to adopt recruiting blended learning skills. Therefore, the third assumption could be accepted, also conjoining these results with the results of the program effectiveness concerning cognitive achievement connected with the required knowledge to adopt recruiting blended learning skills. Therefore, in case of considering the factors that affect the level of blended learning adoption which are identified by Rogers in the model of design and suggested educational development, which is added to the high-level effect, so the required effectiveness could be achieved. This result agrees with Shawky (2004) and Batty (2000).

8.4 Testing the assumption related to the effect of the training program about performance level of information technology teachers for the skill connected with recruiting blended learning:

This assumption stipulated that: The training program achieved a high effect level, (η2 ≥ 0.14), at the level of the required performing skills to adopt recruiting blended learning.

Table 7. ***shows the level of effect on the skilled performance related to recruiting the skills of blended learning***

Training program	The value of η2	Level of effect
First module	0.97	High
Second module	0.97	High
Third module	0.95	High
Fourth module	0.94	High
Fifth module	0.97	High
Sixth module	0.98	High

Itis clear from the precede table 7 that the effect level is high in all modules, where the value of n2 in the first, second, and fifth module reached 0.97, in the third module it is 0.95, in the fourth module it is 0.94, and the sixth module it is 0.98. This clarifies that the training program achieved a high effect level in the skilled performance related to the required skills to adopt recruiting blended learning. Therefore, the fourth assumption could be accepted, and this result could be joined with the program effectiveness result concerning performance skills required to adopt recruiting blended learning. Therefore, in case of considering the individual, social and organizing factors in a proposal educational design and developed model, adding to it the level of high effect, then the required effectiveness could be achieved, and this result agrees with shawky (2004).

Conclusion

The study aimed at designing a training program according to Rogers theory for recruiting the skills of blended learning to the teachers of information technology in Oman and knowing its effectiveness. The study results led to the existence of statistically significant differences, with a value of (T) for the difference between the average degrees of information technology teachers in both of dimensional applications for the achievement test and skill performance, it is a value with statistically significance of the level of (0.001), and the training program was effective, as the profit rate for Black was 1.33-1.41 respectively. It is a statistically significant value as it is more than 1.2. The effect of the training program was high in all models concerning both cognitive achievements and skills.

The study recommended using educational models as one of self-education techniques with information technology teachers training, with integration with other training styles which agree with it in characteristics, and the attempt to use Rogers Theory in publishing education technology innovations, preparing other models for designing, educational development to publish and adopting these innovations.

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