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## Evaluation of the Quality of provided Instruction in E-Learning Center of Tarbiat Modares University (TMU) from Students' and Educational Experts' Point of View

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### Abstract

The present research was carried out with the aim of evaluating the quality and the extent of desirability of provided educational courses in TMU e-learning center. The method of this research is quantitative and in the nature is descriptive and analytical. Statistical population are divided into different parts: they are all students of e-learning center that are studying in the year 2015-2016 in free training center TMU, all teachers and PHD students of educational science department. Sampling was done in various stages by random sampling and purposive sampling. In order to gather the data, three questionnaires were conducted that their validity and reliability was confirmed. For analyzing the gathered data, one sample T-test was chosen. The results showed that the students were dissatisfied with the quality of the courses and evaluated the quality level of these courses as undesirable. Besides, the instructional specialists also evaluated the quality of the educational system, as well as the quality of the courses undesirable. So it can be resulted that the quality of the provided education does not have a desirable condition in this center and rejuvenation and development of the center needs a complete support from authorities in the university.

### Keywords

Educational Quality Evaluation, Desirability, E-Learning, Virtual Instruction.

### Introduction

Today the demand for higher education is increased to a considerable extent. The raising demand for higher education requires the beneficiaries to acquire a complete information and a highly responding manner from these institutes. For demanding assurance of quality from higher education institutes they are asked to accountable for the evaluation of beneficiaries and to offer varied information concerning their sources, processes, outputs and results, and report responsively what they do [1]. The promotion and improvement of educational quality, research and supplying professional services are the chief aim of every educational system and in the case of failure to achieve this aim results in waste of economic resources, lack of confidence, losing sense of individuality and sociability of learners. A body of evidence emerged suggesting that increasing the costs in higher education and in other words, assigning more resources to higher education in terms of lower returns and products is due to poor quality in higher education and its activities. Quality of education and research is one of the concerns that academic system always tries to achieve. Significant efforts in promoting higher education quality and the achievement of the goals of the university system in recent decades have been made in many countries [2]. Bazargan [3] believed the main philosophy for existence of

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evaluation mostly for developing countries is the continuous and endogenous improvement of education, research and professional services in universities and higher education and research institutes. He also claimed that evaluation is one of the functions of academic management system or higher education and should be considered as a separate activity but as a sequence of management and planning and without evaluation cannot move towards improvement and continuous promotion by action and planning. On the other hand, Mohammadi, Parand and Pourabbas [4] considered evaluation as a tool for increasing social returns of higher education and a mechanism for qualification certification, allocation of rational credits, public accountability, informing beneficiaries, ensuring of the realizing goals and continuous improvement, So according to the importance given to evaluation, this is regarded important to almost all of the academic systems in all over the world and virtual education is not an exception. By expansion of computer and internet applications in various dimensions of human life, a new concept called e-learning or virtual education in teaching and learning area has emerged. Oztekin, Kong and Uysal [5] know e-learning as a modeling system for teaching and learning that is designed especially to be used remotely by electronic connection such as internet that is recently generalized all over the world. The process of using virtual education system in universities and educational systems are growing. But usage of these systems cannot equal success of educational systems in achieving their goals. Otherwise the thing that increases the extent of success in those systems is how it is applied according to the scientific standards. This application of principles concludes a wide range of scientific standards that in one side is the principles and technical standards of environment design of e-learning and in the other side is the teaching principles regarding modeling and educational design [6].

In the area of e-learning, there are a lot of obstacles that impede the achievement to effective learning that this in itself assigns a duty to think beforehand about the design of the courses and to try to remove them, both for learners and educators. One of the main concerns in this area is the quality of education, learning and learning materials that are presented. According to the complicated structure of learning and various components involved in it, if the aim is to produce qualitative and stable learning outputs, all the learning components like goals, content, design of presentation environment and engagement, measure evaluation, student support, teacher support, and should be evaluated with each other coherently. In addition, to create an e-learning environment, a lot of factors are involved that systematic knowledge of them can help to produce an environment that is opened learning, flexible and effective participatory for different learners and will help universities and higher education institutes that are going to have e-learning, to consider these components for designing system and performing e-learning programs. Evaluation with the help of complete knowledge of effective factors and elements will aid to make e-learning more fruitful in universities and institutes that perform this kind of learning and seek for productive factors and a new design or removing ineffective factors in this area [7]. Entering information technology to the realm of education and learning does not change automatically. The aim of e-learning is not just to convey knowledge, but to make learners to some creative people and to producers of science and technology [8]. To achieve this, e-learning courses should be designed by a standard and special factors. One of these factors is the usage of instructional design models. Creating a successful e-learning course is obtained by four main factors of instructional design, they are: software engineering, media design, and economy, that each have its own special characteristics in the creation of course. Instructional design requires choice, organization, and determination of necessary learning experiences for some things to the people [9]. Instructional design is the tool for teaching and education and causes the teaching material to be more effective and efficient. In fact, weak design of e-learning courses is often one of the main problems. For course designers, without prior knowledge in instructional course design, it is so tough to use effective instructional strategies for e-learning courses. Paying too much attention to technology and technical aspect

and paying not enough attention to instructional design is regarded as one of the main problems in e-learning course design that should be thought about. One of the solutions is to use instructional design and its related models. To lead training to lasting learning, it requires the design and organization of training. Effective learning requires a prior program. This prior program can be called instructional design. Instructional design can be used not only in a traditional learning environment but also in e-learning environments. While teaching and web based education in higher education is common, design and creation of electronic instructional environments were more observed especially when web based education is recalled as a way to achieve high quality education [10].

In addition to the above mentioned it can be said that educational quality is the most important goal for managing the educational system that expects universities are proficient and prepared to evenly and thoroughly provide an educational service to its student. The instruction that they receive must be up to standard and satisfy all requirements for student properly and effectively. Actually, assessment is not only central to the learning experience - it results in a summative judgement that impacts a student's future life chances. For this reason, assessment practices in colleges and universities are subject to rigorous quality assurance mechanisms. So, it can be said that one of the goals of this research is to assist university administrators in improving the quality of education offered at the TMU e-learning center.

### **Research Background**

In the field of research that studies the quality of virtual courses, as well as factors affecting the quality of these courses, we can point out these studies [6]; [11]; [12]; [13]; [14]; [15]; [16].

Kamkar, Nili, and Aliabadi [6] in their research evaluated e-learning system of executive universities for e-learning in Tehran according to usage model in learning. The results showed that the users were more satisfied with the factor of visibility, and they had the lowest extent of satisfaction for flexibility of websites. Also TMU website has a more appropriate situation than other universities. The result of comparison among the universities showed that the difference is significant in the factors of error avoidance, visibility, instruction course management, consistency and functionality, memory strategies, integrity, physical beauty, reduction of redundancy, but the difference was not significant in the factors of interaction, feedback, aid, accessibility.

Trichkova and Stoilova [11] Conducted a study entitled an approach for quality assessment and efficiency of a web-based system for distance learning that the aim of this paper was to propose an approach for quality assessment and efficiency of the web-based system for distance learning. This system has useful options for on-line creation and use of Web-based courses by other medical disciplines in Medical University – Sofia. An approach for quality assessment and efficiency of a web-based system for distance learning was proposed. The idea of the presented approach for assessing the quality and efficiency was to optimize the web-based educational system on the basis of the results obtained and to meet the user requirements. The results of the assessment were used to improve the functionality of the processes in the system to meet the user's requirements. This approach can be applied not only to the proposed system but to various web-based software products, taking into account the specifics of each of them.

Momenirad and Aliabadi [12] evaluated the quality of e-learning course of Information Technology major at K. N. Toosi University of Technology. In the last analysis, the average of the overall research question was 2.71. In T-test it is significant and it is considered as desirable. The results of this research gives useful data for design and production of content, instructional strategies, learning of the course and also decision making of performers and users of this kind of learning.

Rastegarpour and Gorjizadeh [13] in a research assessed the functionality of e-learning courses from user point of view at TMU, the results statistically showed that users of e-learning

system had a desirable accessibility to the system, had an appropriate support, an appropriate test and assessment, did not have appropriate exercises and homework, had appropriate resources, did not have appropriate e-learning content, did not have a suitable interface and finally had an appropriate presentation of lesson.

Hakimzadeh and Afandideh [14] did a research to evaluate the quality of e-learning in the major of medical education at medical science university and its results showed that the quality of course content and individual learning opportunity is desirable, instructional design and course evaluation is fairly desirable, interaction field is undesirable. There was not a significant difference among the comments of teachers and students about the quality of the five areas of interest. They concluded that the quality of learning for MA of the major of medical education of medical faculty of Tehran medical science university is to the extent desirable due to the average evaluation of the five domain. Therefore, the research questions are as follows:

How satisfied are the students regarding the provided teaching in TMU e-learning center?

How is the quality condition of learning management system of TMU e-learning center from professional point of view?

How is the quality of electronic courses in the TMU e-learning center, in terms of content, instructional design, teaching method, and evaluation method from the viewpoint of instructional specialists?

### **Method and Materials**

Type of research method

This research is descriptive and analytical according to the gathering data and in terms of purpose, it is applied research.

Population, sample and sample size

According to this research, it evaluates the quality of performed instruction from the view point of students, and instruction specialist, so the population is divided into two, first all the students that were studying in the year 2015-2016 in free training center TMU. Second, all teachers and PHD students of instructional technology of TMU. Sampling and sample size is also divided into two, they are:

Students: sampling in this part was done by random method. The questionnaire was sent to all entering students of the year 2014-2015 by email that after several follow-ups finally fifty-seven students gave back the questionnaire and the same number were reviewed as a sample size.

Experts: for sampling of educational experts, five PHD students of educational technology were chosen purposefully. The reason for the selection of individuals in this section was their expertise and experience in the field of study. This five of the students who have research and teaching and executive experiences related to virtual training were determined.

### **Research methodology**

To do the research, first questionnaire and tools were provided. to do evaluation from different views, it was necessary to make some tools available for executers. For this purpose, crucial coordination was done via evaluation office and performance optimization. During coordination, username and password were put for some of the subjects available for the supervisor. Also some needed information was available for the research by open education office to begin evaluation. Then the questionnaires of satisfaction measurement were sent to the students' emails to the students' satisfaction from the quality of courses and after follow-up, the returned questionnaires were analyzed. After this, the needed information for entering the system and electronic courses were given to the educational experts to enter the learning management system and complete the provided checklists according to the course quality.

### Tools

1. Student satisfaction measurement questionnaire: this questionnaire is adopted from Hao and Borich [17] and Khan model [18]. it had twenty-eight questions of five degree Likert scale from extremely disagree to extremely agree. Grading of the questionnaire were five for extremely agree, four for agree, three no idea, two disagree and one for extremely disagree. Maximum grade out of this questionnaire was 140 and the minimum grade was 28. the more sum of grades, the more is the extent of satisfaction of courses. After providing and setting up, the present questionnaire was given to the experts to validate the face validity and content validity of it. After doing this, it was determined that some questions can be merged to similar ones and some do not aim for this research and after removing inappropriate questions and merging similar questions, the questionnaire was validated by experts for face validity and content validity. In order to examine the reliability of the questionnaire, some returned questions of twenty-three students were calculated by Cronbach's alpha formula and the alpha coefficient of the questions is 0.73, suggesting that the questionnaire is reliable.

2. Evaluation checklist for the quality of e-learning courses: to examine the overall quality of e-learning courses, a checklist by Hao and Borich [17] was used. This checklist has sixty-six questions that checks the quality of e-learning from four dimensions. They are: electronic content, educational design, teaching, and evaluation methods. The questions 1 to 15 checks the quality of e-content, questions 16 to 49 are related to instructional design, questions 50 to 62 are about teaching and finally the questions from 63 to 66 are allocated to evaluation methods. This checklist is ranked by five-point scale of Likert scale. The more points out of checklist, the more is the quality of courses. Hao and Borich [17] has proved the validity and reliability of the checklist. Also in this research to assess the reliability of this checklist, Cronbach's alpha formula was calculated and the value of 0.78 showed the reliable of it.

3. Learning system evaluation questionnaire: this tool is provided by Kim and Lee [19] and it contains 61 questions. This questionnaire consists of five factors. They are: instruction management, screen design, technology, interaction and evaluation. this questionnaire is also ranked by five-point scale and the more gained point of checklist, the more quality of courses. Kim and Lee [19] confirmed the validity and reliability of it. The reliability was assessed by Cronbach's alpha formula and it was 94%. In this research, it was 88% by using Cronbach's alpha.

### Results and Discussion

In order to analyze the data, the one sample T-test was used. To use one sample T-test that is a parametric test which test statistic would follow a normal distribution and requires the sample data to be numeric and continuous as it is based on normal distribution.

**Table1.** Result of one sample T-test for evaluation of students' satisfaction of the whole course

| variable                         | N  | mean  | test values | S.D  | T value | d.f | Sig   | Standard error of mean |
|----------------------------------|----|-------|-------------|------|---------|-----|-------|------------------------|
| Satisfaction of the whole course | 57 | 77.43 | 84          | 9.77 | -5.09   | 56  | 0.000 | -6.57                  |
| Pedagogical issues               | 57 | 41.19 | 45          | 5.36 | -5.12   | 56  | 0.000 | -3.81                  |
| Technical and support issues     | 57 | 19.25 | 21          | 3.44 | -3.85   | 56  | 0.000 | -1.75                  |
| Attitudinal issues               | 57 | 16.96 | 18          | 4.11 | -3.85   | 56  | 0.062 | -1.04                  |

According to the data in Table (1) and the test values, and the means for each of the variables, these means lead to different values of T in different variables. According to the data in the table above, students' satisfaction in each of the components is as follows:

Satisfaction of the whole course, quality of pedagogical issues (including content, teaching, instructional design and evaluation methods) and quality of technical and support issues is undesirable, Students' attitude toward the quality of courses has also been negative.

**Table 2.** Results of one sample T-test of management learning system quality and its variables

| variables                                      | mean | test values | S.D  | T value | d.f | Sig   | Standard error of mean |
|--|------|-------------|------|---------|-----|-------|------------------------|
| Learning management system                     | 70.8 | 183         | 0.84 | -32.61  | 4   | 0.000 | -12.2                  |
| face design                                    | 9.6  | 30          | 0.55 | -1.63   | 4   | 0.178 | -0.4                   |
| facilitation of performance                    | 1.8  | 39          | 0.15 | -14.69  | 4   | 0.000 | -7.2                   |
| system reciprocation                           | 0.6  | 21          | 0.70 | -0.33   | 4   | 0.757 | -0.4                   |
| instruction management facilitation            | 9.2  | 27          | 0.15 | 4.51    | 4   | 0.01  | 2.2                    |
| flexibility in creation of various engagements | 5.2  | 36          | 0.15 | -1.63   | 4   | 0.178 | -0.8                   |
| different kinds of exams                       | 6.6  | 18          | 0.55 | -5.71   | 4   | 0.005 | -1.4                   |
| accessibility of specific users                | 8.4  | 12          | 0.55 | -14.71  | 4   | 0.000 | -3.6                   |

According to the data in Table (2) and the test values, and the means for each of the components, these means lead to different values of T in different variable. The data showed that all variables, except for instruction management facilitation, have undesirable. in the other words according to table above, the quality of each variable from experts' view point are: Learning management system, face design, facilitation of performance, system reciprocation, flexibility in creation of various engagements, different kinds of exams accessibility of specific users were undesirable. Instruction management facilitation it was of desirable quality,

**Table 3.** Results of one sample T-test related to the quality of electronic courses from the viewpoint of specialists

| Variable                 | N  | mean | test values | S.D    | T value | d.f | Sig   | Standard error of mean |
|--------------------------|----|------|-------------|--------|---------|-----|-------|------------------------|
| Total Quality of Courses | 11 | 31.2 | 1188        | 15.605 | -0.81   | 4   | 0.461 | -56.8                  |
| electronic content       | 28 | 8.2  | 270         | 50.2   | 0.81    | 4   | 0.463 | 18.2                   |
| Teaching method          | 20 | 8    | 234         | 24.72  | -2.35   | 4   | 0.078 | -26                    |
| Instructional design     | 58 | 3.6  | 612         | 75.62  | -0.84   | 4   | 0.448 | -28.4                  |
| Evaluation method        | 51 | 4    | 72          | 13.83  | -3.33   | 4   | 0.029 | -20.6                  |

According to the data in Table (3) and the test values, and the means for each of the components, these means lead to different values of T in different variable. The data showed that the variables of the total quality of courses, teaching method, instructional design, evaluation method are unsatisfactory from the point of view of the specialists, and that only the electronic content is of a desirable quality.

### **Discussion and Conclusion**

As Tarbiat-Modares University enjoys professional experts in the realm of Computer Sciences, IT and Educational Technology, it has considerable potential for excellence in performance of e-learning among all universities and higher education institutes. Evaluation of the quality of all courses can offer valuable information to experts in order to find strength and weaknesses of their universities. Then they can carry out effective actions against solving problems and increasing strengths. To achieve this, evaluation and optimization office of TMU, seeks to provide proper base for growing of e-learning and Open Education Center of TMU, consequently it causes significant growing of TMU in the realm of science and technology.

#### **Question one: How satisfied are the students regarding the provided teaching in TMU e-learning center?**

The findings revealed that students are not satisfied with the quality of received education in this center and the quality of services are undesirable. Evaluation of the extent of desirability of students that can effect e-learning were done by different dimensions; they are: pedagogical issues (including content, teaching, instructional design, and evaluation methods), technical and support issues and also issues related to students' views towards held courses. From their point of view, the quality of pedagogical issues and technical and support issues were undesirable and their view towards the whole course was lower than the average. These findings are consistent with those of Kamkar, Nili, and Aliabadi [6], Momenirad and Aliabadi [12], also it is Inconsistent with Hakimzadeh and Afandideh [14]. To explain the findings of this question, it should be said that teachings that are done virtually should be learner-centered to a high degree and students' needs should be the center of decision making; otherwise expecting successful courses and student satisfaction is not reasonable. Instructional design of virtual courses is one of the most important effective factors on the quality of courses and their effectiveness and as a result it has a considerable effect on audience satisfaction, so it can be seen that students' dissatisfaction comes out of not devoting careful attention to their educational needs, number of held classes and active teaching method. Bandwidth and internet speed are other problems that caused student satisfaction. Many students were dissatisfied with continuous disconnection while class performances.

#### **Question two: How is the quality condition of learning management system of TMU e-learning center from professional point of view?**

Findings related to this question indicated that the quality of learning management system from experts' view is undesirable. Quality of learning management system in e-learning enjoys high importance; that's because it connects students' to the educational experts, content, teacher and other classmates. In fact most of the engagement among students' happens via this system. In assessing theoretical foundations regarding learning management system, it was determined that various factors effect on the quality, from Kim and Lee [19] point of view, learning management system can be evaluated from various dimensions, including suitability of design in screen and system, easiness of course procedure, interoperability of system and suitability of academy administration, easiness of instruction management and appropriateness of multimedia use, flexibility of interaction and test and learner control, variety of communication and test types, and user accessibility. In this research we evaluated these dimensions and it showed that quality of LMS about Fit the appearance design is in lower level than average, about Facilitate the implementation of course is in an undesirable level, about system reciprocation to other systems is in a lower level than average, instruction management facilitation in a desirable level, flexibility in creation of various engagements is in a lower level than average, about different kinds of exams is in an undesirable level, and accessibility



of specific users is in an undesirable level. These findings are consistent with those of Kamkar, Nili, and Aliabadi [6], Momenirad and Aliabadi [12], also it is Inconsistent with Hakimzadeh and Afandideh [14]. In explanation of findings, can be said that the used software in this center is open source software (Moodle) and it was personalized and no extra modules were added to the open source. It is very simple and it is far from any attractiveness for the users. Open source modules have great opportunities if they are personalized and required modules are installed on them, otherwise it cannot have expected more of them. TMU enjoys professional IT experts that can easily and without any costs upgrade the system and help [it view as desirable in order to provide a proper area to perform high quality and attractive e-learning courses.

**Question three: How is the quality of electronic courses in the TMU e-learning center, in terms of content, instructional design, teaching method, and evaluation method from the viewpoint of instructional specialists?**

As mentioned, the findings of this question showed that, according to the instruction specialists, the total quality of courses, teaching method, instructional design, evaluation method were at an unsatisfactory level, and only electronic content was acceptable in terms of quality. These findings are consistent with those of Kamkar, Nili, and Aliabadi [6], Momenirad and Aliabadi [12], also it is Inconsistent with Hakimzadeh and Afandideh [14]. Since in this study we tried more from the perspective of educational issues explored and evaluated the quality of the courses. to explain the above findings, it can be argued that two main dimensions in e-learning are technological issues and pedagogical issues and when pedagogical issues are concerned, it includes all the levels of design, performance, organize and evaluation. Education is a deceptively simple process; it means that first it would be simple but in reality it would be difficult, mostly when it is virtual and its users are adults. So to achieve success in this system, there is a need for experts and professionals that know challenges, opportunities and limitations of this kind of learning to overcome problems and obstacles; and no one except educational technology experts and instructional designers can do it. In TMU e-learning center, there are not any educational technology experts and instructional designers to predict and identify possible problems and set out proper strategies. In this regard, of course beside pedagogical issues, technical issues are necessary and required for success and without facilities and foundations it cannot happen. The more importantly, is the role of pedagogical issues than technological tools and the results of this research showed that the quality of the courses are lower than the average (nearly undesirable from both technological and pedagogical issues.

In explaining the findings of the variable teaching method, we can say that in e-learning, teaching method of courses should be active and the teachers should have enough skillfulness at teaching. In addition, these courses should possess a high bandwidth and internet speed to prevent any technical problems while holding courses. For explaining the data due to this question, it can be said that in the examined samples, virtual classes usually had internet disorders and disconnections that this can make some problems for teaching process and also teachers used traditional methodologies that it does not have any compatibility to e-learning. on not observing the mentioned factors can be the reason for low quality of virtual classes from experts' point of view.

In explaining the findings of the instructional design variable, it can be said because in the beginning of the courses any students are not informed about explanation of courses, they are not informed about engagement in courses from performers and teachers. The only thing that students take part in are class activities, class scheduling, receiving assignments, in the beginning of the semester and also number of instructional sessions (virtually or face-to-face) are not proper to difficulty level of courses. So it can be expected that educational experts, evaluate the quality of instructional design as undesirable. In TMU e-learning center, there are not any educational technology experts and instructional designers to predict and identify possible problems and set out proper strategies. In this regard, Horton [20] in his book e-learning, notes that most of e-learning projects that fail results in poor instructional design or absence of it. The performers of these courses, attribute these failures to technology, inadequate budget, lack of time, lack of management support, but They are secondary reasons, the main determinant of the success of a training center is the educational factors and components.

It is important to note the findings of the evaluation method variable that the aim of educational evaluation methods is to achieve goals of the courses and reaching them by learners. Educational evaluations have various kinds, they are: initial evaluation, diagnostic evaluation, evolutionary evaluation, congestion assessment method. One of the evaluation methods that should be done not only by e-learning teachers but all is initial evaluation to determine the initial behavior of learners. Diagnostic and evolutionary evaluations are used for understanding of probable misunderstandings of subjects and also finding the problems in methodology. These kinds of evaluations are very important in e-learning courses because the face-to-face access to teachers are so limited and teachers cannot solve problems face-to-face. So the existence of these evaluation methods can bring about useful information for teachers to detect problems in courses and solve them. In explanation of findings of this question it should be said that not paying attention to various kinds of evaluation is the reason of low quality of evaluation methods from experts' view.

Finally, in explaining the findings of electronic content, it should be said that, Electronic content in electronic courses have a great importance and users of these courses expect the content to be scientifically and up-to-date desirable and also from attractiveness and organization point be favorable, to make of use of content in the highest level and in the shortest time. In explanation of the results, it can be said that material and spiritual properly of the produced contents belongs to the teachers of those contents. That is why the teachers designed and produced these contents with extreme delicacy and this increases the quality. Although most of these contents had minor defects, they had some problems due to their arrangements and organizing multimedia elements, that they would be solved if there was an expert.

### Suggestions

The following suggestions are necessary for change and facilitation of expansion in open education center and TMU e-learning center. Every change requires some preliminaries and supplies.

1. Recruiting professional experts in areas such as instructional design, designing and producing electronic content, educational technology, can guarantee the quality of instruction in this center.
2. Owning a host, independent server, high speed internet, band width proper to audiences and users of virtual training is a necessity for center.
3. Arranging a state of current affairs and increasing the quality of content and courses before any preliminaries is very necessary.

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