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## Presentation of the MOOC prediction model at Payam-e-Noor University based on management / scientific / professional competence components

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### Abstract

**Purpose:** The purpose of the present study was to present a predictive model of MOOC at Payam-e-Noor University based on the components of management and professional competence.

**Methodology:** The research method was by purpose, applied; in terms of data type, (quantitative); in terms of data collection method or nature, and the research method was non-experimental - correlation. The statistical population of this study was 900 faculty members of Payam Noor University in Tehran. Due to the different nature of Payame Noor University, 270 people were selected as the subjects using Cochran formula and simple random sampling. The research tool consisted of a researcher-made questionnaire with 37 questions related to MOOC and two standard questionnaires of 20 and 15 questions for management variables (Wiele & Boselie Questionnaire, 2002) and professional competence (Molaeinejad questionnaire, 2012). The reliability and validity of the questionnaire were confirmed by Cronbach's alpha and reliability coefficient (MOOC, management and scientific / professional competence) of 0.7. Structural equation modeling (confirmatory factor analysis) was used to analyze the data.

**Findings:** The results showed that the components of management, scientific / professional competence, were effective factors on the implementation of the music in Payam-e-Noor University.

**Conclusion:** With the presence of mock-ups, it facilitates the access of institutions and organizations to inclusive learning and facilitates the virtual learning process. In the field of MOOC management, the university can be effective in providing MOOCs courses by preserving and developing fair behavior and speech.

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## 1. Introduction

Each service system has two dimensions of supply and demand, in the higher education system, universities and higher education centers as providers of educational services in different forms on the supply side, while learners with different individual and group characteristics. Are in demand. The type of service offered in this system has changed over time in line with evolving trends such that traditional classes, teaching and learning, lesson content, and even time and course lengths are not as adapted to what was seen in previous decades. Developing educational theory, especially distance learning and virtual education, and providing a theoretical gap in the type and quality of education provided alongside the changing lifestyle paradigm of emerging information paradigm in different aspects of modern citizens with different tastes and needs on demand It has defined that meeting their fully personalized demands is not in line with prior operational mechanisms (Admiraal et al., 2019).

The diverse preferences of learners and stakeholders have made the need to pay attention to new educational models and technologies. On the other hand, the use of human experience as the basis for testing any hypothesis and utilizing similarities in research can contribute to the accumulation of science and make it unnecessary to go the wrong ways (Tofighi Darian, 2009). The most controversial method of teaching under the heading of e-learning has many interpretations, but it is at its simplest to use e-technology for education. This does not mean that the teacher does not use lectures, books or face-to-face notes directly from the teacher, but also through electronic tools and technologies. Common forms of computer-based instruction are web-based lessons or online lessons. With the advent of advanced technology, lessons may be used anytime and anywhere. These lessons can be made more interesting using multimedia, a combination of text, graphics, sound and animation. Lessons can be delivered to the learner in various ways (Bhandari, 2017). In other words, today's business has more locations in different geographical locations and more students with different cultures and backgrounds than in the past. Using e-learning, learners can work part-time or even full-time. In addition, educational administrations can also evaluate teaching and student performance. Adults usually receive training to improve their profession or income level. In the modern economy, even older employees whose retirement is nearing need training (Rajkomar et al., 2018).

The decline in production rates and the lack of specialist staff have made it possible for educational systems to identify the needs of adult education departments. It is worth noting that the fastest growing Internet users in the US belong to people over the age of fifty. In today's world, there is a non-traditional view of time and space, and the task is more important than observing its place and time. Most traditional education systems are not capable of addressing challenges such as maintaining their workforce and eliminating their competitors, and traditional education has nothing to do with new business innovations and technologies. Training in modern educational systems is a long and permanent process. These educational systems consider only cross-sectional education (such as an undergraduate degree) for general information only, and that education on how to apply information to occupational needs using modern educational methods is required alongside formal education. (Sandoval et al., 2016).

The academic world is clearly affected by the information and communication technology revolution. It is said that the existence of information and communication technology and distance education and other innovations born of technology will completely abolish the traditional university. In our opinion, traditional university will not disappear anytime soon, but there is a fundamental change in the way that will be one of the key parts of 21st century academic change. Distance learning has become a major player in some disciplines, such as management studies and information technology. The Open Educational Resources movement was dramatically inaugurated by the Massachusetts Institute of Technology's Free Learning Materials Innovation, and was highly significant (with much of its content being freely available online) and a significant improvement. In other words, the Internet has transformed the way knowledge is transmitted (Moeinikia et al., 2016).

E-mail has become one of the pervasive forms of scientific communication. Electronic journals have become popular and are highly regarded in some disciplines. Such a process has widened the gap between the "rich" and the "poor", although it is worth noting that in the process, with much lower capital costs, it is able to obtain human resource development capabilities. Some parts of the world, especially Africa, have been relatively deprived of high-speed Internet access. Traditional "scientific powers", especially those using English, have maintained a high level of influence (Dortaj et al., 2016). With a growing access to the Internet and ease of use for its users, a gateway has opened up to a global marketplace where barriers such as language and geographical barriers to education have been eliminated. In recent years, the service-based economy has replaced the manufacturing-based economy. In the old economy, surplus-value was mainly financed by finance, whereas in the new economy, surplus-value or brainwashing was provided. As the level of human knowledge and skills is rapidly expanding, the need for knowledge and skills throughout the working life is increasing (Zeinabadi & Mousavi, 2017).

On the other hand, given the mission of universities and educational institutions in the higher education system and the training of human resources and the synchronization of the training provided with the nature of adapting to the labor market needs in an economical, inclusive and new course-based format (rather than traditional sections) And traditional flexibility in dealing with developments in different arenas. New educational approaches in universities seem to be essential for the survival of these institutions in new formats. In this regard, considering the vital importance of higher education for the growth and development of Iran, the most important solution for the success and effectiveness of Iranian universities in educational, research, cultural, specialized and scientific approach to these issues and utilizing technology and methods. It's new. This is because most universities in the country have dealt with this issue in a non-scientific manner and with traditional methods and with the lack of proper management in education and research, the country has not been able to make use of these sectors despite the many resources and opportunities (Jordan, 2015).

MOOC (Massive Open Online Courses), in fact, a special type of online training that includes the following features: 1) No entry requirements 2) Mostly free. 3) Completely online. 4) Thousands of users can participate at the same time. 5) It is possible to use virtual reality in laboratories and workshops. 6) Has demonstrated higher educational performance than in-class classes. 7) It is possible to personalize exams and evaluate the quality of teaching and audience perceptions of classroom content. 8) It is possible to use complementary teaching media in the classroom. 9) It is possible to evaluate audience learning at any given hour (García-Peñalvo et al., 2018).

MOOCs are available to anyone worldwide who have internet access. They have a specific start and end date, but unlike traditional courses that must be registered by a specific date, they can be registered even after the start of the course. Each MOOC period lasts from 12 to 18 weeks. MOOCs allow people all over the world to use the best professors in the world. MOOC is one of UNESCO's dreams: to educate everyone everywhere, without any restrictions, regardless of race, religion or gender (Margaryan et al., 2015). Here, it is important to point out the importance of the professors' role in the creation of mocks. He put the professor's seat at the top of the universities. Universities will not be successful, educated, and committed without effective teachers. However, the professors are under unprecedented pressure. In many countries, the growing need for higher education and the rapid preparation of more teachers has reduced the average level of qualifications of teachers. The wages of college professions are rarely comparable to those of off-campus professions with the same level of literacy. In many countries, and especially in developing countries, teachers' salaries are hardly responsive to the costs of middle-class living, and in some countries they are not fully responsive. The diversity of wages between countries is quite remarkable and is effective in escaping the minds and professors of countries that pay more.

An example of this is the average salary of Canadian university professions, which is six times more than China. The global displacement of professors is on the rise and yet becomes another important trend. With the growth of English as an international academic language, the Internet and the relative ease of aviation, a large number of academics have been working overseas. The incentives include better pay and working conditions, academic freedom, the stability of academic jobs, the lack of high quality universities in the country of origin, a weak domestic labor market, etc. Some countries including Singapore, the Gulf States, some from Western European countries, Canada and the US have adopted policies to attract foreign scientists and researchers. Not surprisingly, the trend is from developing countries to countries with more advanced economies (Jafari et al., 2016).

Given the issues raised, the expansion of universities and the increasing social demand for higher education, the preservation of the traditional approach based on the creation and management of previous structures of higher education has multiplied the need for funding and facilities for universities and the participation of students and applicants for education. Excellent in securing part of the cost by paying tuition fees or receiving public charity donations worldwide has become an inevitable necessity. On the other hand, with the development of e-learning and "virtual" educational technologies, there have been major changes in the way educational services are delivered such as the development of "distance education" and the use of the Internet. This highlights the need to create virtual museums in the higher education system, and in particular Payame Noor University. The increasing demand for flexible educational options by students who are involved in highly diverse and complex fields (Conole, 2013) means that universities are increasingly interested in expanding their online curriculum and using it. Technologies are more efficient. Likewise, in recent years, they have taken the lead in developing the use of new tools, with the advent of Open Educational Resources (OER) the possibility of having an Open Courseware system and eventually MOOCs created (Valverde Berrocoso, 2013). The presence of MOOCs has surprised many institutions and organizations with access to cheap, inclusive education for many managers and universities (Liorens, 2015).

The country's higher education system, from which Payam-e-Noor University is also not separate, has never faced criticism and dissatisfaction with macro-evaluations over the past few decades. Labor market documents and analyzes, especially in the context of high unemployment rates for university graduates, have always been cited by observers as the main cause of the above unemployment rate, the inadequacy of university education with labor market needs. Accordingly, and with the advent of new information and communication technologies, virtual education and MOOC deployment to improve the way we teach and integrate with the surrounding world, it seems imperative that there be barriers to MOOC development at this university. Has encountered. Based on the aforementioned, the present study seeks to answer the fundamental question by examining MOOC at Payame Noor University, what model can be proposed for predicting MOOC at Payam Noor University based on the components of management and professional competence?

## 2. Methodology

Since the present study was based on the predictive model of MOOC at Payam-e-Noor University based on the components of management and professional competence, so the research method was purposeful, applied; data type, quantitative; The study was non-experimental - correlation. The statistical population of this study consisted of all faculty members of Payam-e-Noor University in Tehran. Due to the different nature of Payam-e-Noor University, 270 people were selected as the subjects using Cochran formula and simple random sampling. To collect the required data by performing the necessary synchronization, Questionnaires were distributed and collected among the statistical samples and the sum of data collected was analyzed and analyzed in two ways. The research tool consisted of a researcher-made questionnaire of 37 questions related to MOOC and two standard questionnaires of 20 and 15 questions

for management variables (Boselie and Wiele questionnaire, 2002) and professional competence (Molaeinejad questionnaire, 2012). To determine the validity of the questionnaires, Faced Validity, Content Validity and Construct Validity were used. After confirming the content validity and construct validity of the research instrument to ensure the reliability of the questionnaire, it conducted a pilot study on a sample of 40 people from the statistical population and the data were analyzed using the method (Cronbach's alpha coefficient).

**Table 1.** Questionnaire information and tool validity and reliability calculation

Component	Cronbach's alpha	CR	AVE	MSV	ASV	1	2	3
MOOC	0/72	0/800	0/65	0/40	0/26	0/78	.	.
Management	0/76	0/825	0/63	0/43	0/31	0/53	0/76	.
Scientific and professional competence	0/82	0/847	0/59	0.28	0.26	0/48	0/53	0/85

According to Table (1) it can be said that the reliability of the dimensions is confirmed because the Cronbach's alpha and the composite reliability coefficient are above 0.7 and  $AVE > 0.5$ . Convergent validity is confirmed because  $CR > 0.7$ ;  $CR > AVE$ ;  $AVE > 0.5$  and divergent validity is also confirmed because (Maximum Shared Squared Variance)  $MSV < AVE$  and  $ASV < AVE$  (Average Shared Squared Variance). In analyzing research data, Descriptive and inferential statistics were used for data analysis. Percentage, frequency, table, figure and graph were used to describe demographic characteristics and mean, standard deviation, skewness and elongation were used to describe the research variables. In the inferential section, factor analysis (confirmatory) and structural equation modeling and single-group t-test were used to test the research questions.

### 3. Findings

In this section, the research data are analyzed using quantitative methods, using scientific methods, but before data analysis, the data are pre-processed.

**Table 2.** Characteristics of research components

Structure	Component	Number of Item
Components of MOOCs	Target selection	3
	Determining the audience	3
	Needs Assessment in MOOCs	3
	Feasibility in MOOCs	3
	Choose the right title	3
	Select the type of MOOC	3
	Creating a platform and its features in MOOCs	4
	Content preparation	3
	Support	3
	Interactive platform	3
	Involvement	3
	Evaluation strategy	3
	Predictive components	Management
Professional / scientific competence		15

The data in Table (3) show statistical characteristics such as mean, standard deviation, skewness, and elongation for the influencing factors (management and scientific / professional competence) on MOOC at Payam Noor University. Also, given the skewness and elongation values that are within a reasonable range to assume that the data are normal, one can assume and accept the data as normal.

**Table 3.** Statistical characteristics such as mean, standard deviation, skewness and elongation

Structure	Component	Mean	SD	Skewness	Elongation
The constituent factors	Target selection	3.33	0.83	0.10	-0.10
	Determining the audience	3.59	0.85	0.49	0.35
	Needs Assessment in MOOCs	3.01	0.91	0.08	-0.04
	Feasibility in MOOCs	3.51	0.81	0.39	0.11
	Choose the right title	3.34	0.81	0.14	-0.10
	Select the type of MOOC	3.23	0.92	0.14	-0.29
	Creating a platform and its features in MOOCs	3.23	0.91	0.21	-0.55
	Content preparation	2.99	0.90	0.14	-0.09
	Support	3.19	0.87	0.01	-0.16
	Interactive platform	3.45	0.84	0.18	-0.06
	Involvement	3.32	0.78	0.08	-0.04
Factors Affecting	Evaluation strategy	3.23	0.73	0.04	0.55
	Management	3.20	0.72	0.06	0.53
	Professional / scientific competence	3.36	0.77	0.18	0.21

T-test was used to answer the desirable status of management, professional / scientific competence and mock dimensions at Payame Noor University. In this section, given that the scale is 5 degrees, we consider the numerical value to be compared with the t-statistic of 3.

**Table 4.** One-sample t-test to check the status quo

Variable	Component	t	Sig.	Average difference	Test value =3	
					95% confidence interval of difference	
					Lower Line	upper line
The constituent factors	Target selection	6.535	0.000	0.330	0.230	0.429
	Determining the audience	11.470	0.000	0.593	0.491	0.694
	Needs Assessment in MOOCs	0.178	0.859	0.010	-0.099	0.119
	Feasibility in MOOCs	10.264	0.000	0.507	0.410	0.605
	Choose the right title	6.973	0.000	0.343	0.246	0.440
	Select the type of MOOC	4.135	0.000	0.232	0.122	0.343
	Creating a platform and its features in MOOCs	4.153	0.000	0.231	0.121	0.340
	Content preparation	-0.158	0.875	-0.009	-0.116	0.099
	Support	3.634	0.000	0.193	0.088	0.297
	Interactive platform	8.918	0.000	0.454	0.354	0.555
	Involvement	6.690	0.000	0.317	0.224	0.411
Factors Affecting	Evaluation strategy	5.227	0.000	0.233	0.145	0.321
	Management	4.518	0.000	0.198	0.112	0.284
	Professional / scientific competence	7.689	0.000	0.361	0.269	0.454

As can be seen in Table (4), the significance level in all components (except for needle mock-ups and content-generating factors) is less than five hundred, thus assuming zero with 95% confidence for these components. The rejection and assumption of the research are confirmed. For the components needed in the mock-ups and the content of the constituent factors, given that their mean is not significantly different from the number 3 (theoretical mean), it is inferred that the condition of these two components is in the optimal and undesirable state. For the other components, considering the mean difference, which is positive, it is inferred that the dimensionality condition is in the desired condition.

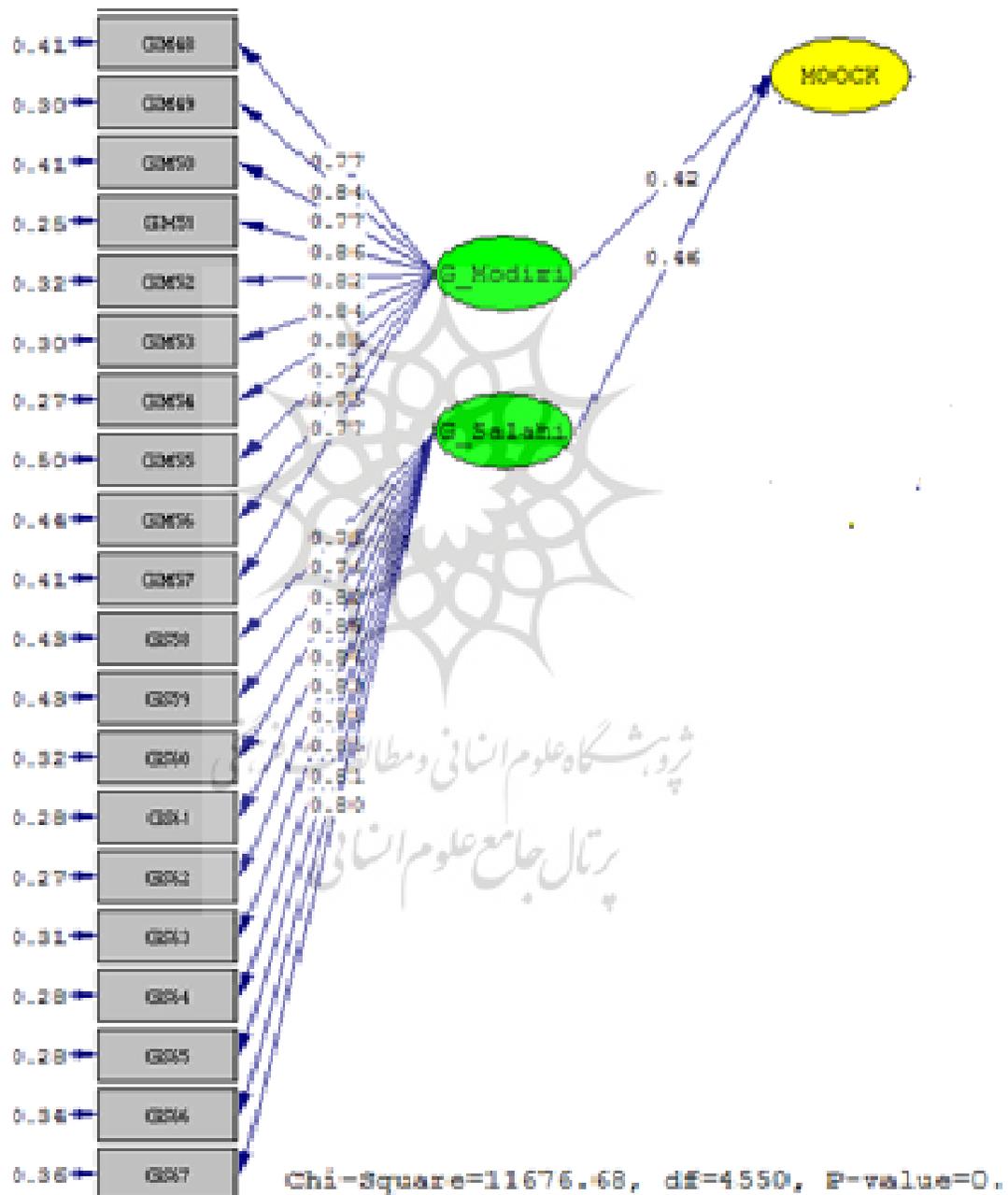


Figure 1. Conceptual model of research in standard coefficient estimation mode

Three values of 0.01, 0.25 and 0.36 are reported as weak, medium and strong values for GOF (Davari and Rezazadeh, 2013). Since calculated values of GOF in both models were greater than 0.36, showed good fit of research models, all path coefficients were significant and acceptable explained variance and internal consistency of structures were above 0.05. Therefore, the conceptual model of the research has a good fit and was approved.

#### 4. Discussion

Investigating the research hypotheses of presenting the predictive model of mock at Payam-e-Noor University based on the management and scientific/professional competency components, it was found that the management and scientific/professional qualification are the influential factors on the implementation of mock at Payam-e-Noor university. As noted earlier, with the fundamental changes resulting from the development and development of new communication technologies along with the effects of accelerating globalization, all social, economic, and even political areas of societies face numerous challenges from the transitional period. have become. Education is no exception to this rule. In our age, science and technology are intertwined and one cannot be achieved without the other. Virtual space with enormous resources and knowledge available to its users in the field of science and technology. provides users with features such as timelessness, location, interactivity, and so on. Education such as wall-free classrooms, smart schools, virtual universities And ... refers to a new and perhaps more unusual type of e-learning that is being incorporated into the education systems of disadvantaged countries in contrast to traditional education today In traditional education because of the physical presence of time and place, the student, the teacher, the content and the teaching resources, face-to-face interaction and interaction are intertwined and the main feature of education is the interactions through which knowledge And information is exchanged between individuals and is added to, or changes in, the volume and content of knowledge. This training feature is also prominent in the new form of e-learning or e-learning and, depending on the environment in which it operates, uses the features and capabilities of the cyberspace for its performance. The advanced type of ICT-based virtual education, benefiting from statistical and computer science such as artificial intelligence, neural network and virtual reality, is known as MOOC.

This explosive educational tool is infiltrating educational structures in many countries and, due to its limitless components, can disrupt the country's higher education system if it does not pay close attention to it. Understanding this phenomenon and controlling its global implications, along with using world-class experiences with Payam-e-Noor University as the parent university and comprehensive as the deployment platform for Mock, the researcher sought to develop a suitable deployment strategy. Follow up on the basis of strategic analysis and presenting the optimal model. On the other hand, management plays a strategic role in selecting the method and supporting the implementation of approved programs. In the field of museums, university management can also provide effective mock courses by maintaining and developing fair behavior and speech. To act. Proper distribution of resources, equity based on people's competence, commitment and commitment of university management to the law and efforts to comply with the rules in implementing courses, utilizing new leadership styles appropriate to the era of high technology utilization ▯ Information, responsibility for management of malware performance, management's commitment and sensitivity to providing appropriate malware content, utilizing management's full potential and capability to provide technological capabilities for the use of defined periods. Mapping and implementing continuous evaluation of course performance by management is one of the university's management tasks.

It is effective in producing content for students and in the scientific and professional competence of the professors to their skill and knowledge of the students. In addition, the mastery of the production and organization of knowledge can be another subject of activity. Conducting research by professors in the administration of MOOCs is another suitable solution in this field. Time management is one of the

valuable features of MOOCs. Consideration of time management and the use of modern time management techniques in the design of rockets is an important principle and should be taken into consideration. In the area of professional competence and in the field of teaching, faculty feedback on the practices they have presented and the belief and commitment to the need for lifelong learning, the courage to make rational decisions, the courage to participate in student decision making and The realization of professional ethics is one of the most influential measures in the realization of successful museums.

This research, like any other research, was limited. This study is limited to Payam Noor University units and does not cover other universities in other parts of the country. It has studied only faculty members and the generalizability of the present study is to faculty members only. Suggestions can also be made regarding the findings of the study. The target audience for MOOC should be identified by the planners and teachers in order to develop a curriculum for them. University management will consider the possibility of implementing a mock. It is up to the administrators and professors to choose the type of mockup according to the users' needs. Provide a platform with explanations for the facilities provided and to the stakeholders.



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