

## Modeling, Bedding and Planning in Flipped Learning Process in Educational System of Medical Sciences University of Babul

### Article info

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#### Authors:

Arsto Goran Orimi<sup>1</sup>,  
Abdullah Ali Ismaili<sup>2\*</sup>,  
Seyed Zahra Hosseini Daronolai<sup>3</sup>

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#### Affiliations:

1. PhD students in Educational Management, Faculty of Engineering and Humanities, Islamic Azad University, Babol, Iran.
2. Assistant Professor Educational Management, Department of Educational Management, Faculty of Engineering and Humanities, Islamic Azad University, Babol, Iran. (Corresponding author)
3. Assistant Professor of Educational Management, Department of Educational Management, Faculty of Engineering and Humanities, Islamic Azad University, Babol, Iran.

### Abstract

**Purpose:** The aim of this study was to Modeling, bedding and planning in Flipped learning process in educational system of Medical Sciences University of Babul

**Methods:** The research design was exploratory mixed type. Statistical population in the qualitative section of academic experts and members of the Education and Empowerment Committee of Medical Universities Babol and in the quantitative section; The staff of the Vice Chancellor for Management and Resources Development was the Health and Education Unit of Mazandaran University of Medical Sciences; In the qualitative section, in-depth interviews were conducted with 12 experts using the snowball sampling method, and in the quantitative section, a questionnaire was used to measure the model using the multi-stage relative class method among 310 samples. The validity of the questionnaire was confirmed by face and content method and the reliability was confirmed by Cronbach's alpha method. Data were analyzed by exploratory and confirmatory factor analysis with SPSS and Smart PLS software.

**Findings:** The results showed that the Flipped learning process has 12 dimensions in terms of learning motivation, individual factors, organizational culture factors, structural factors, the establishment of Flipped learning, facilitation measures, organizational barriers and challenges, non-organizational barriers and challenges, bedrock and planning, awareness, quality of education and quality of learning. The results of the quantitative section showed that all dimensions of the research paradigm model were confirmed.

**Conclusion:** It is recommended to the officials of Mazandaran University of Medical Sciences; to provide the necessary conditions for the establishment of Flipped learning, make the necessary arrangements according to the results of the present study.

**Keywords:** Educational system, Flipped learning, Mazandaran University of Medical Sciences

## Introduction

Teachers have been looking for ways to change traditional teaching methods for years, how to transform teaching methods using new and modern technology. The concept is referred to as (reverse class) (1). The world of education today has shifted its focus from teaching to learning. This approach places learning at the heart of all educational programs, policies, and guidelines (2). Increasingly evolving information and communication technology can positively affect education; transform its strategies and methods (3). One of the most important challenges of 21st century education is how to train learners who are prepared to face the changing society and complexities of the information explosion era (4). In the age of information and communication technology, educational systems are required to rethink and rebuild the curriculum to master computer literacy and revitalize and enrich the learning environment (5). In general, it should be said that in order to improve the quality of the teaching and learning process, methods should be chosen that stimulate the academic motivation of learners, help them to acquire professional competencies (6).

The use of information and communication technology in education has made possible a new type of learning so that learning is possible in environments other than the classroom environment. Inverted learning is a non-educational space from a large place to an individual learning space and the presentation of extracurricular content. Acquisition of new information and education at home and homework are done in the university (7). In the Flipped learning model; Teachers move from direct instruction in a large group learning environment to individual learning space with the help of one of several instructional tools and technologies. Teachers provide instructional materials by recording their work lectures on their computer screens or by filming their instruction or taking video lessons from the Internet and sites such as Ted and Khan Academy. Many educators have started Flipped learning in their classroom using readily available materials, such as videos and technological tools that are accessible to learners whenever and wherever they see fit. ; There is. Even in the hospital, at home, in the reading room, and on the bus, etc., they can view the material multiple times to prepare and empower them in the classroom (8). In the reverse classroom; Teacher in advance based on educational content; provides audio and video resources such as audio and video. These resources are made available to learners and they see educational resources at home and outside the classroom. In the classroom; Teacher based on educational resources previously seen by scholars at home; Designs homework assignments and learners practice in class to deepen their learning. In fact, because of the reverse process that occurs in such classes, they are referred to as reverse classes (9).

In reverse classes, the use of movies, animations, computers, and educational software is common, and these tools are effective in achieving the goals of reverse education. Many computer training programs today are used in the traditional form of multimedia. Computer-assisted multimedia training uses multiple senses simultaneously in the experience process. In this way, learning opportunities can be created for different people with different characteristics (10). It seems that the application of new methods in in-service training of employees in the subdivisions of the Ministry of Health, can lead the country's medical universities to the approach of the learning organization, which is a daily need of these universities. The researcher seeks to explain the "Flipped learning" approach in staff training by examining various aspects. However, due to the lack of practical models for explaining the Flipped learning process and not paying much attention to this issue to establish and implement it in educational settings, it seems to use a qualitative approach and interview with experienced experts on the subject of research, researcher. Helped to achieve its goals, which is to explain the Flipped learning process in the education of Mazandaran University of Medical Sciences. However, the present study seeks to identify the variables that explain "Flipped learning" and provide a practical, applicable and new model in the Ministry of Health and Medical Education and in particular; Mazandaran University of Medical Sciences in 2020.

## Method

The mixed research method and research design were mixed exploratory (qualitative-quantitative) research design. The statistical population of the study, in the qualitative part including a group of university experts in Mazandaran University of Medical Sciences and other universities of medical sciences (in Tehran, Babol, etc.) and members of the Education and Empowerment Committee of Mazandaran University of Medical

Sciences were selected and interviewed in depth. This selection and interviewing continued until the theoretical saturation was reached and then stopped. The characteristics required for individuals to be experts included: full mastery of the conditions of the University of Medical Sciences, complete mastery of the subject of learning and the approach of the learning organization, and complete mastery of the Flipped learning approach. In order to sample in the qualitative part, the "snowball" sampling method was used until the theoretical saturation was reached. In this section, 12 people were selected.

The statistical population of the study, in a quantitative part, included 1- staff of the University Management and Resources Development Unit (433 people), 2- staff of the health unit (405 people) and 3- staff of the educational unit (355 people). The sampling method in the quantitative section will be in the form of multi-stage relative class sampling, so that each of the three selected units will represent one class. In the next stage, due to the size of the University of Medical Sciences, some centers, hospitals, etc. were randomly selected and distributed questionnaires randomly in each class and in proportion to the population of that class. The number of research samples was determined using Cochran's formula and 310 people were determined. The research method in this study was a combination of: A- Qualitative part; To identify the research model, with in-depth interviews with experts and the application of grounded theory (GT) technique in the MaxQDA software environment (MAXqda2018).

A. Quantitative part; To test and quantify the identified model, by surveying statistical samples and using structural equations (SEM) in Smart PLS software environment.

### Findings

In the qualitative part of the research, the main focus of the research questions was related to exploring and exploring the factors affecting the dimensions, components and indicators related to explaining the Flipped learning process in education as the main concept. To achieve this, in the first stage, the main categories and sub-components are presented based on open and central coding of data from in-depth and exploratory interviews with key experts and refinement of conceptual codes. Accordingly, in order to perform open and pivotal coding in the first stage, the data at the sentence and phrase level for each of the interviews were examined and conceptual codes were extracted from the transcripts of the interviews. In the next stage, by refining and reducing, these components were organized in the form of sub-categories and named by continuous review. Copies of interviews were re-examined to ensure that each of the concepts and categories was properly organized; And by reviewing these categories in order to achieve logical saturation for the main categories and subcategories was done. Open and axial coding stopped when a significant classification was obtained after several reviews of interview transcripts. In general, from the analysis of qualitative research data in the coding stage 231, the initial conceptual code was obtained. After reviewing and matching these codes and removing duplicate codes, common codes were counted.

The most basic thing at this stage was open coding. Based on this, common concepts were counted from the recording units and common codes were counted. The following table shows the components and indicators of the paradigm model.

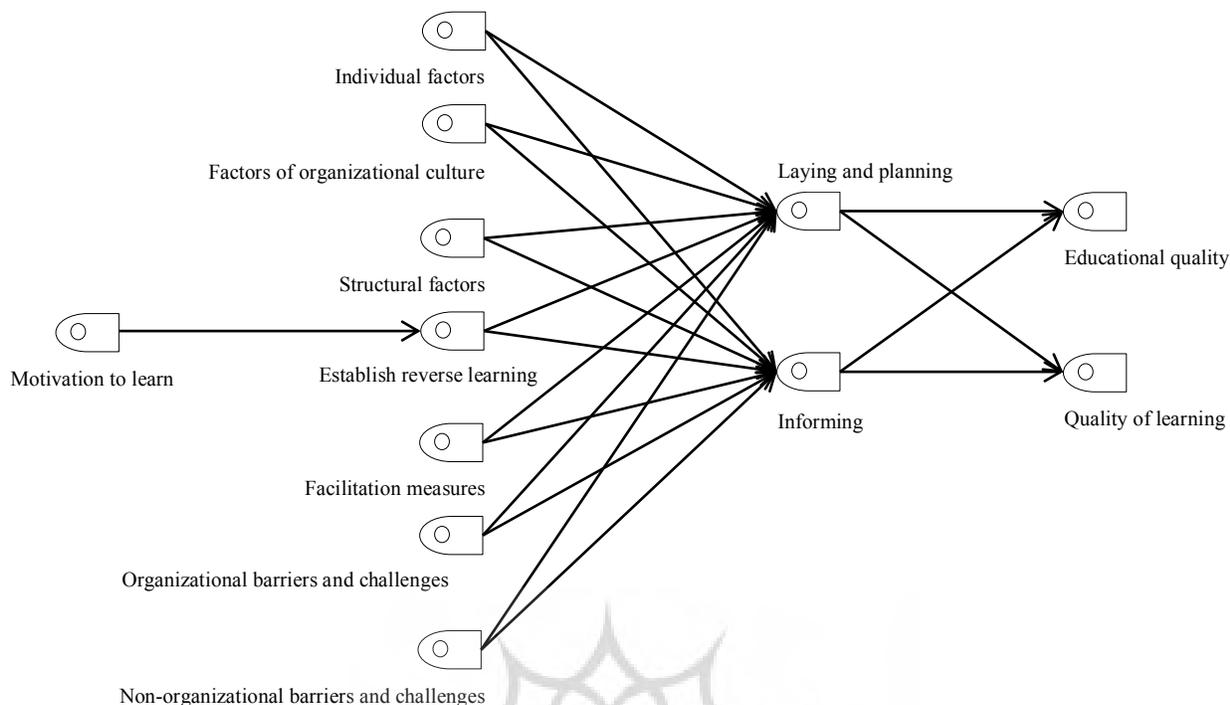
**Table1.** Components and indicators of the paradigm model

Component (Axial Coding)	Index (open coding)
Motivation to learn	Need to facilitate learning
	Existence of high flexibility of Flipped learning method
	Creating a system to motivate learners to learn at home
	Guide learners to research
	Creating engaging learning opportunities
	Attitudes and familiarity of managers with the learning model
Individual factors	Providing managerial capabilities through the admission of qualified professors
	Occupational conditions of learners

	Learners' computer literacy rate
	Build trust and confidence in the Flipped learning model
	Learners' desire to learn
	Social, cultural and economic status
	Existence of individual talent and ability of learners
Factors of organizational culture	Holding faculty and staff empowerment workshops
	Changing employees' attitudes to increase motivation
	Arranging the effect of criticisms and suggestions during and after the training course
	Giving more rewards and legal privileges to learners
	Use educational podcasts
	Creating a culture by identifying and informing the positive and negative aspects
	Encourage learners to take responsibility for Flipped learning
Structural factors	Staff training required in different departments
	Variety of quality educational videos to meet the needs of learners
	Necessary feasibility for all job fields
	Develop the necessary rules and regulations
	Having lesson plans and planning based on the Flipped learning model
	Need comprehensive support from senior executives to learners
	Efficiency of required infrastructure
	Training equipment and facilities
	Situation and learning environment
Establish Flipped learning	Acceptance of Flipped learning as an independent approach and material and spiritual support
	Use new and updated teaching materials and lesson plans
	Transform lecture-based (teacher-centered) teaching into inclusive
	Hiring sufficient and specialized manpower
	Creating the space and bed and the necessary facilities for learning
	Enabling Flipped learning in the workplace
Facilitation measures	Holding workshops and training staff to learn with the method
	Creating cultural and managerial attitudes to make employees aware of the benefits
	Not much training time
	Lack of rigor in homework and end-of-course exams
	Using the experiences of other universities
	Gradual implementation and use of traditional methods early in the process
	Generalized after implementation in a smaller community than the university
	Allow the learner to learn in a variety of ways
Organizational barriers and challenges	Lack of motivation of employees to learn and increase information
	Lack of teachers' advice on how to change and improve teaching methods
	The difficulty of the possibility of interaction and coordination between all departments of the university
	Resistance in changing the traditional teaching method to the new method

	Lack of support from higher level managers to implement the plan
	Lack of sufficient human resources to design and prepare content
	Lack of access to sufficient financial resources
	Lack of adequate bed and facilities
	Insufficient ability of teachers to teach in Flipped learning
Non-organizational barriers and challenges	Lack of awareness of families and not accompanying learners
	Lack of knowledge of the advantages and disadvantages of the method
	Most employees are reluctant to use non-office working hours
	Costly technical facilities required outside the office
	Need more time because of extra homework
	Lack of sufficient motivation, especially for older people
	Resistance to change in learning style in learners
	Lack of preparation in the field of production and production of video and multimedia files
Laying and planning	Supervisors support the establishment of this method
	Provide and increase the quality of virtual education facilities and infrastructure
	Allocate and provide sufficient resources for new teaching approaches
	Equal learning opportunities for all
	Creating a suitable training platform for employees and managers
	Strategic and operational planning for design and implementation
informing	Strengthen the sense of participation by making it inclusive
	Teachers' consensus on such teaching
	Increasing the awareness of professors and learners about the effectiveness and efficiency of this approach
	Proper information about the Flipped learning method and its benefits
	Paying attention to increasing the level of awareness and abilities of managers
Quality of education	Failure to fix problems while learning by the teacher
	The length of the training process and the lack of coverage of all content until the end of the semester
	Inadequate for some job fields and their quality decline
	Strengthen participatory group activities and exchange of experiences
	Classes are performed in different ways by the instructor
	Having active learners due to lack of congestion of common classrooms
	Ability to better assess learners by observing their activities by professors
	Save time and have more opportunities to study anytime, anywhere
	Reduce class interference due to the variety of programs for learners
Quality of learning	The possibility of some learners not having access to the content
	Learn the wrong topic and continue the process
	Possibility of continuous and multiple review of lessons by learners
	Learners' self-assessment while being active in learning
	More relaxation and concentration and avoidance of work stress
	Strengthen thinking and research-oriented thinking skills
	Strengthen curiosity, creativity and innovation
	Responsibility in learning
	Better understanding and higher engagement by studying the content in advance

The final model of the qualitative analysis is displayed as follows:



**Figure 1.** Modeling the Flipped learning process in education of the University of Medical Sciences

In the qualitative part of the research, in a descriptive study of the research subjects, 136 men (43.87%), 174 women (56.13%), 70 single people (22.58%) and 240 married people (77.42 Percent) have been. In the age groups of the subjects, 58 people under 30 years old (18.71%), 81 people between 31 and 40 years old (26.13%), 107 people 41 to 50 years old (34.52%) and 64 people (20.65%) have been more than 50 years. In terms of education, 91 were bachelors (29.35%), 158 were masters (50.97%) and 61 (19.68%) were doctors. In the history of service, 32 people under 5 years (10.32%), 54 people between 6 to 10 years (17.74%), 90 people between 11 to 15 years (29.03%), 83 people (77.26% were 16 to 20 years old and 51 people (16.45%) were more than 20 years old. In inferential statistics, first the face validity of the questionnaire from the qualitative stage was confirmed during a survey of several experts and their corrections were made. Based on the calculation of CVR and CVI for each item, the content validity of the questionnaire was approved by a group of 20 people. It consisted of academic and organizational experts, so that the CVR and CVI ranges for each item were obtained between 0.5 to 0.1 and 0.9 to 0.1, respectively. To evaluate the model, the questionnaire obtained from the qualitative stage after confirmation of reliability was distributed among 310 samples by relative stratified sampling method and data were analyzed by exploratory and confirmatory factor analysis by SPSS and Smart PLS software.

To determine whether the number of data (sample size and relationship between variables) is appropriate for factor analysis? Kaiser-Meyer fitness index and Bartlett test were used. The Kaiser-Meyer fit test is an indicator of sampling adequacy that examines the small partial correlation between variables. The KMO value (sampling adequacy) was equal to 0.888 and the significance level of Bartlett sphericity test was equal to 0.0009. Therefore, in addition to sampling adequacy, the implementation of factor analysis based on the studied correlation matrix will be justified. According to the results of the extracted factors and the percentage of variance explained in the research model, the eigenvalues of the 12 factors under study; Larger than 1, which together account for approximately 56% of the total change, among which the eigenvalue of the first factor is 19.68, the eigenvalue of the second factor is 5.39, the third factor is 3.95, the fourth factor 3.30, fifth factor 3.55, sixth factor 2.84, seventh factor 2.30, eighth factor 2.22, ninth

factor 2.10, tenth factor 1.85, eleventh factor 1.68 and twelfth factor 1.63 have been. Table (2) shows the results of the inverse learning model fit.

**Table2.** Convergent validity and mixed reliability in fitting the Flipped learning model in Mazandaran University of Medical Sciences

Model components	Cronbach's alpha reliability coefficient	Mixed reliability coefficient (CR)	Mean Extraction Variance (AVE)
informing	0/854	0/896	0/635
Establish Flipped learning	0/866	0/903	0/652
Facilitation measures	0/898	0/922	0/666
Motivation to learn	0/839	0/886	0/610
Laying and planning	0/925	0/944	0/771
Structural factors	0/915	0/931	0/628
Individual factors	0/904	0/926	0/677
Factors of organizational culture	0/899	0/926	0/714
Organizational barriers and challenges	0/874	0/905	0/615
Non-organizational barriers and challenges	0/902	0/923	0/632
Quality of education	0/915	0/931	0/628
Quality of learning	0/895	0/917	0/613

To examine the research model, a second-order confirmatory factor analysis was used, the results of which are shown in Table 3 as follows:

**Table3.** Second-order factor analysis of the explanatory dimensions of the research paradigm model

The path between variables	Path coefficients	Amara t	p-value	Result
Deploy Flipped learning Deployment -> Strategy	0/387	10/267	0/0009	significant
Learning Motivation -> Flipped learning Deployment	0/658	18/767	0/0009	significant
Strategy -> Consequences	0/440	9/775	0/0009	significant
Background conditions -> Strategy	0/353	9/608	0/0009	significant
Intervention conditions -> Strategy	0/278	6/988	0/0009	significant
Deploy Flipped learning Deployment -> Strategy -> Outcome	0/170	7/957	0/0009	significant
Learning Motivation -> Flipped learning Deployment -> Strategy -> Outcome	0/112	7/099	0/0009	significant
Background -> Strategy -> Consequences	0/155	7/096	0/0009	significant
Intervention conditions -> Strategy -> Consequences	0/122	4/957	0/0009	significant
Awareness -> Quality of education	0/349	6/605	0/0009	significant
Awareness -> Quality of learning	0/300	5/047	0/0009	significant
Establishing Flipped learning -> Awareness	0/142	2/269	0/024	significant
Establish Flipped learning -> bedding and planning	0/323	5/235	0/0009	significant
Facilitation measures -> Awareness	0/248	4/161	0/0009	significant
Facilitation measures -> Laying and planning	0/158	2/752	0/006	significant
Learning Motivation -> Flipped learning Deployment	0/669	20/148	0/0009	significant
Laying and planning -> Quality of education	0/225	3/824	0/0009	significant
Laying and planning -> Quality of learning	0/159	2/179	0/030	significant

Structural factors -> Awareness	0/196	3/337	0/001	significant
Structural factors -> bedding and planning	0/248	3/996	0/0009	significant
Individual factors -> Awareness	0/140	2/756	0/006	significant
Individual factors -> bedding and planning	0/152	3/024	0/003	significant
Factors of organizational culture -> Awareness	0/060	1/159	0/247	significant
Factors of organizational culture -> bedding and planning	0/043	0/784	0/433	significant
Organizational Barriers and Challenges -> Awareness	0/221	3/712	0/0009	significant
Organizational Barriers and Challenges -> Layout and Planning	-0/071	1/080	0/281	significant
Non-organizational barriers and challenges -> Awareness	0/047	0/791	0/429	significant
Non-Organizational Barriers and Challenges -> Laying and Planning	0/140	2/518	0/012	significant



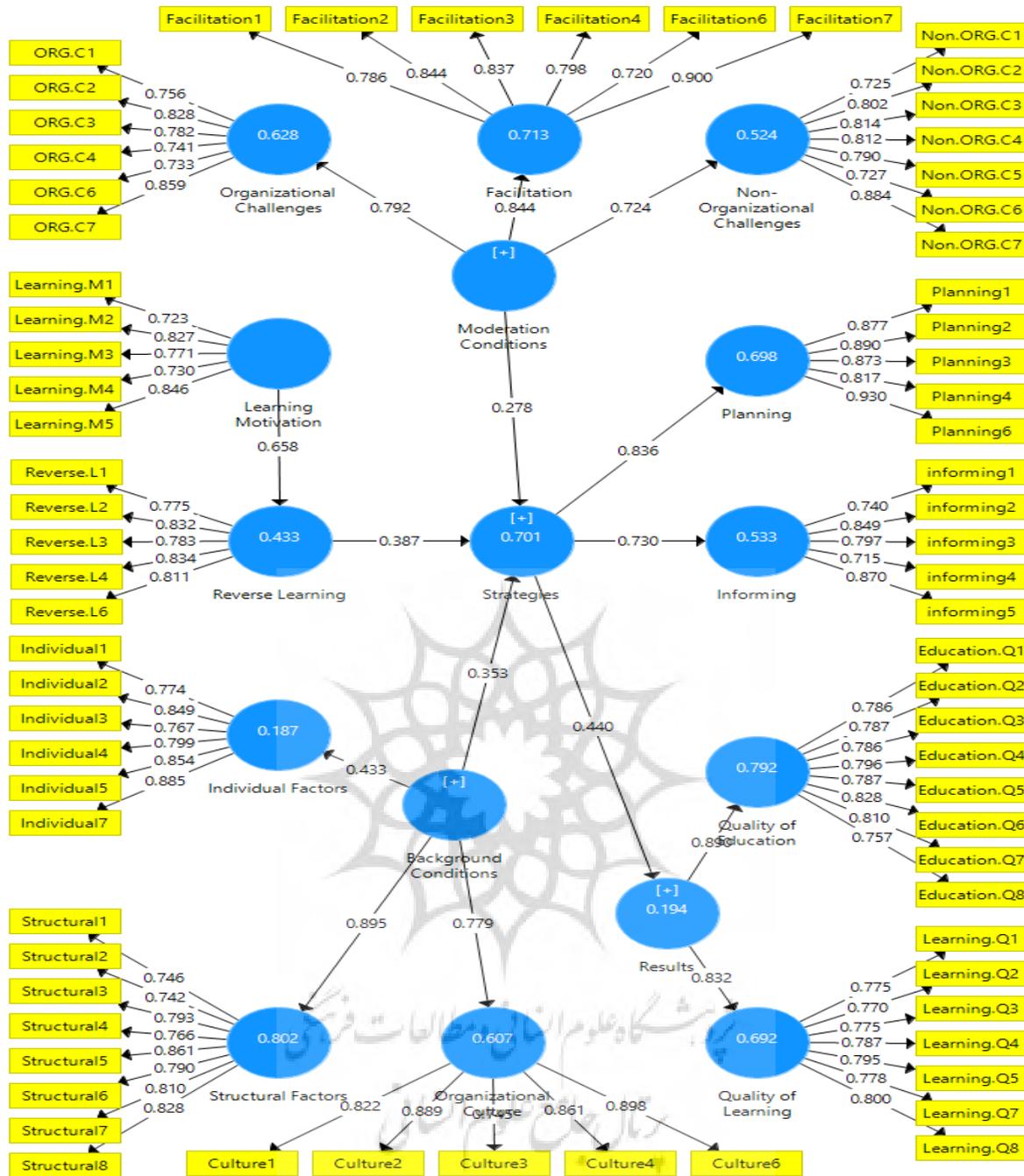


Figure2. Flipped learning deployment process model in standard coefficient mode

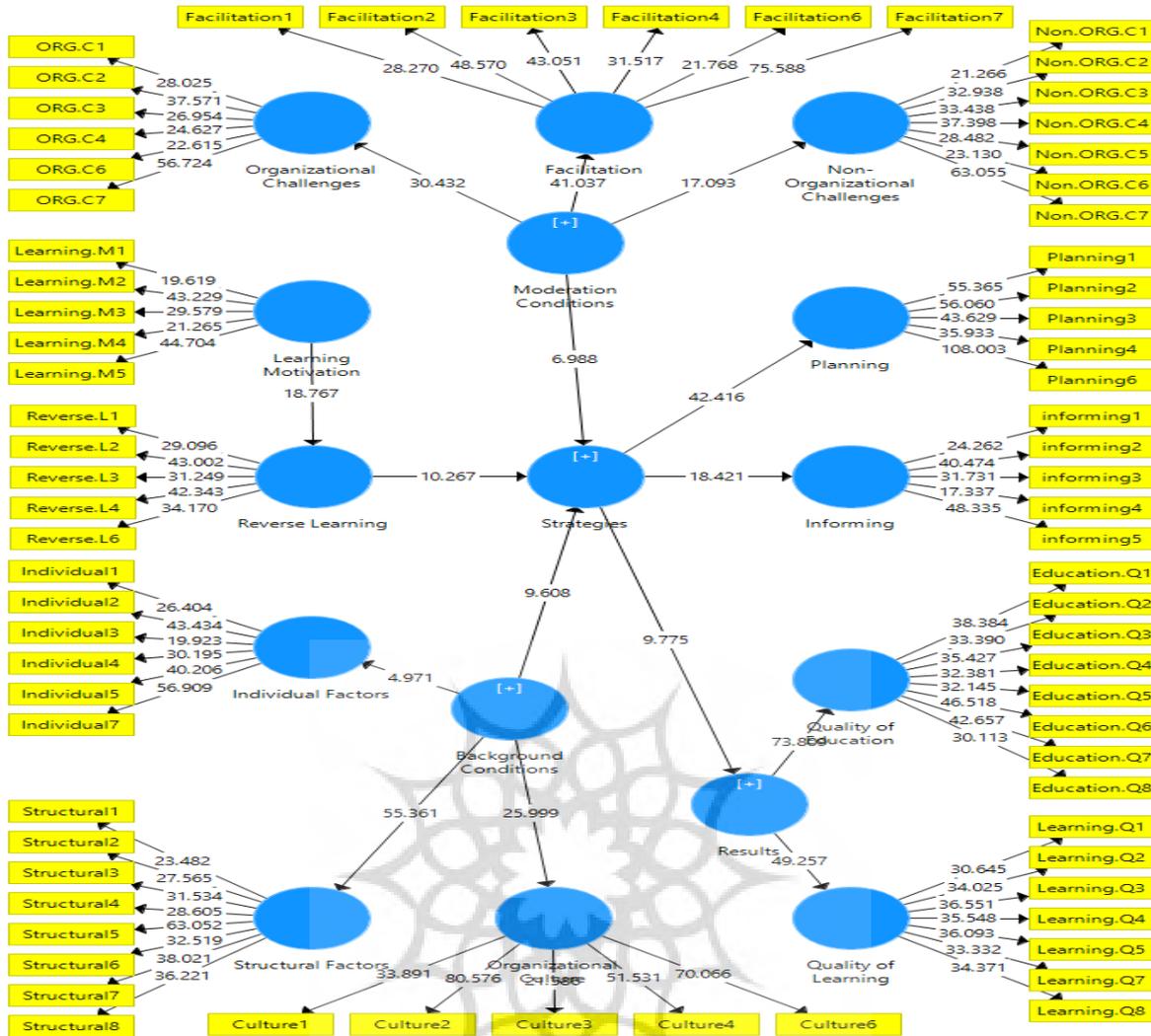


Figure3. Flipped learning process model in the mode of significance of coefficients

**Discussion**

The results of Moradi's research (11) showed that the Flipped learning approach can improve the interaction between teacher and student, facilitating deep learning through classroom learning activities and fostering learners' engagement. According to the results of the paradigm model, the dimension of "learning motivation" explained the causal conditions and the dimension of "learning quality" was one of the dimensions of the results. The result of the present study regarding the explanation of the mentioned dimensions is consistent with Moradi's research. The results of the research of Sadat Mehrizi and the trainee (12) showed that Flipped learning can change the traditional teaching methods and while having many benefits for the teaching-learning process, it requires various tasks and roles from the teacher. The dimension of "individual factors" has been the dimensions of environmental conditions. The result of the research in the mentioned street is consistent with the research of Sadat Mehrizi and the trainee. The results of Azizkhani et al. (13) showed that the Flipped learning approach had an effect on academic motivation and this effect was higher on external motivation. The result of the research in the dimension of "learning motivation" is consistent with the result of the research of Azizkhani et al. The research of Jafarkhani et al. (14) showed that the implementation of Flipped learning method in multi-grade schools has a positive effect on learning and motivation of multi-grade students. The result of the research in the dimension of "learning motivation" is consistent with the research of Jafarkhani et al.

According to the results of the research of Sahibyar et al. (15), the effect of Flipped learning on all components of reflective thinking (normal, comprehension, reflection and critical thinking) is positive and significant. The "quality of education" dimension has been one of the dimensions of the results. The result of the research in the mentioned dimension is consistent with the research of Sahib Yar et al. Azeri dolphin research (16) has shown that there is a significant difference between students' learning in reverse classes and normal classes. The result of the research in the dimension of "learning quality" is consistent with the result of the research of Azeri dolphins. The research of Musazadeh and Mahmoudi (17) showed that the reverse classroom method can have a positive effect on students' cognitive, emotional and self-monitoring learning. Then there was "awareness" of the dimensions of strategy. Therefore, the results of the present study on the dimensions of "awareness" and "quality of learning" are consistent with the research of Musazadeh and Mahmoudi. Amani Sari Begloo et al.

(18) showed that using this method increases students' academic performance. The result of the research in the dimension of "learning quality" is consistent with the result of Amani Sari Begloo et al. The research of Zahedi and Mohebbi Bahmani (19) pointed to the higher effect of reverse education on class dynamics and increase students' motivation and deeper learning than traditional methods. The result of the research in the dimension of "learning motivation" is consistent with the result of the research of Zahedi and Mohebbi Bahmani. According to Dinarvand (20), the reverse teaching method has had a positive effect on the educational and psychological aspects of high school students. The result of the present study in the dimension of "quality of education" is consistent with Dinarvand research. Shafiee and Shahbazi's research (21) showed that Flipped learning is influenced by factors such as causal conditions (external and internal motivations); Learning process strategies (participatory, exploratory, independent and in-depth); There are contexts (time management, teaching materials and lesson plans) and intervening conditions (individual, educational, organizational and cultural factors) that ultimately lead to improved student outcomes (individual and academic). The dimension of "organizational barriers and challenges" is one of the dimensions of intervention conditions. The result of research on the dimensions of motivation and quality of learning and organizational barriers is consistent with Shafiee and Shahbazi research.

According to Josheghannejad and Bagheri (22), the average academic motivation of students in reverse classes was higher than the traditional class. The result of the research in the dimension of "learning motivation" is consistent with the research of Joshqannejad and Bagheri. The research of Mubasar Maleki and Kian (23) showed that the reverse teaching method was more effective in students' learning than the traditional (explanatory) teaching method. The result of the research in the dimension of "learning quality" is consistent with the research of Mubasar Maleki and Kian. Tulabi Championship Research (24), It has been shown that reverse education has a significant effect on learning. The result of the research in the dimension of "learning quality" is consistent with Tolabi's heroic research. According to Moazami Goodarzi (25), the reverse class teaching method is effective in increasing students' overall, deep and superficial learning and is more successful than the traditional teaching method. The result of the research in the dimension of "learning quality" is consistent with Moazami Goodarzi's research. The research of Fazel Ashrafi and Sina (26) shows that the reverse class approach is more effective on learning and motivation in mathematics than the explanatory method. The result of the present study in the dimensions of "motivation and quality of learning" is consistent with the research of Fazel Ashrafi and Sina.

The research of Jafarkhani and Dehvari (27) showed that the use of reverse education method increased academic achievement and improved internal academic motivation and improved external academic motivation in students in work and technology. The result of the present study is consistent with Jafarkhani and Dehvari's research on the dimensions of "learning motivation" and "quality of education". Alavi, Keyvanpanah and Fazal Ali (28) showed that teachers were more engaged in the reverse class compared to the lecture-oriented class or the traditional class and teachers' attitudes toward the reverse professional development model were positive. The dimension of "bedding and planning" is one of the dimensions of strategy (strategy), the result of the research on the mentioned dimension is consistent with the research of Alavi, Keyvanpanah and Fazal Ali. According to the results of Kaviani et al. (29), learning is influenced by factors such as causal conditions (external and internal motivations); Learning process strategies

(participatory, exploratory, independent and in-depth); There are contexts (time management, teaching materials and lesson plans) and intervening conditions (individual, educational, organizational and cultural factors) that ultimately lead to improved student (individual and academic) outcomes.

The result of the research in terms of motivation and quality of learning and organizational barriers is consistent with the research of Kaviani et al. In Kiahosseini and Dosti (30) research, the research hypothesis that the reverse class teaching method is more detailed in students' learning than the conventional teaching method was confirmed. The result of the research in the dimension of "learning quality" is consistent with Kiahosseini and Dosti's research. According to the research of Van Alten et al. (31), the results emphasized the improvement of learning quality. The result of the research in the dimension of "learning quality" is consistent with the research of Van Alten et al. The findings of Awidi and Paynter (32) showed that adapting the components of the inverse design, such as pre-recorded lectures and the structure of classroom sessions, may enhance students' learning experience in this course. The result of the research in the dimension of "learning quality" is consistent with Awidi and Pinter research. Goh and Wang's research (33) showed that students' performance in the final exam was significantly higher in the reverse class group. The result of the research in the dimension of "learning quality" is consistent with the research of Gah and Aung. Research by Asaka et al. (34) has shown that facilitation measures have improved the Flipped learning process. The results of the research in terms of "facilitation measures" are consistent with the research of Asaka, Shinozaki and Yoshida. The results of Chang and Hwang (35) showed that the Flipped learning guidance approach not only benefits students in improving their project performance, but also improves learning motivation, critical thinking orientation and group self-efficacy.

The result of the research in the dimension of "learning quality" is consistent with the result of Chang and Huang's research. According to Zainuddin (36), Flipped learning has significantly affected learners' motivation and performance. The result of the research in the dimensions of "motivation and quality of learning" is consistent with the result of Zainuddin's research.

The final results indicate that the explanation of the Flipped learning process in the education of Mazandaran University of Medical Sciences has twelve dimensions, According to the results, providing managerial capabilities through the admission of qualified professors familiar with Flipped learning for teaching, Comprehensive support of senior, middle and operational managers of the University of Medical Sciences for the establishment and implementation of Flipped learning, Acceptance of Flipped learning by senior managers of the University of Medical Sciences as an independent approach and material and spiritual support for the establishment and implementation of Flipped learning. Providing and increasing the quality of e-learning facilities and infrastructure to implement the Flipped learning method with more speed was proposed, Appropriate information at the community level about the Flipped learning method and its advantages over traditional teaching and learning methods. According to the results of the qualitative and quantitative stage of the research, the final model of the Flipped learning process in the education of Mazandaran University of Medical Sciences was presented as follows:

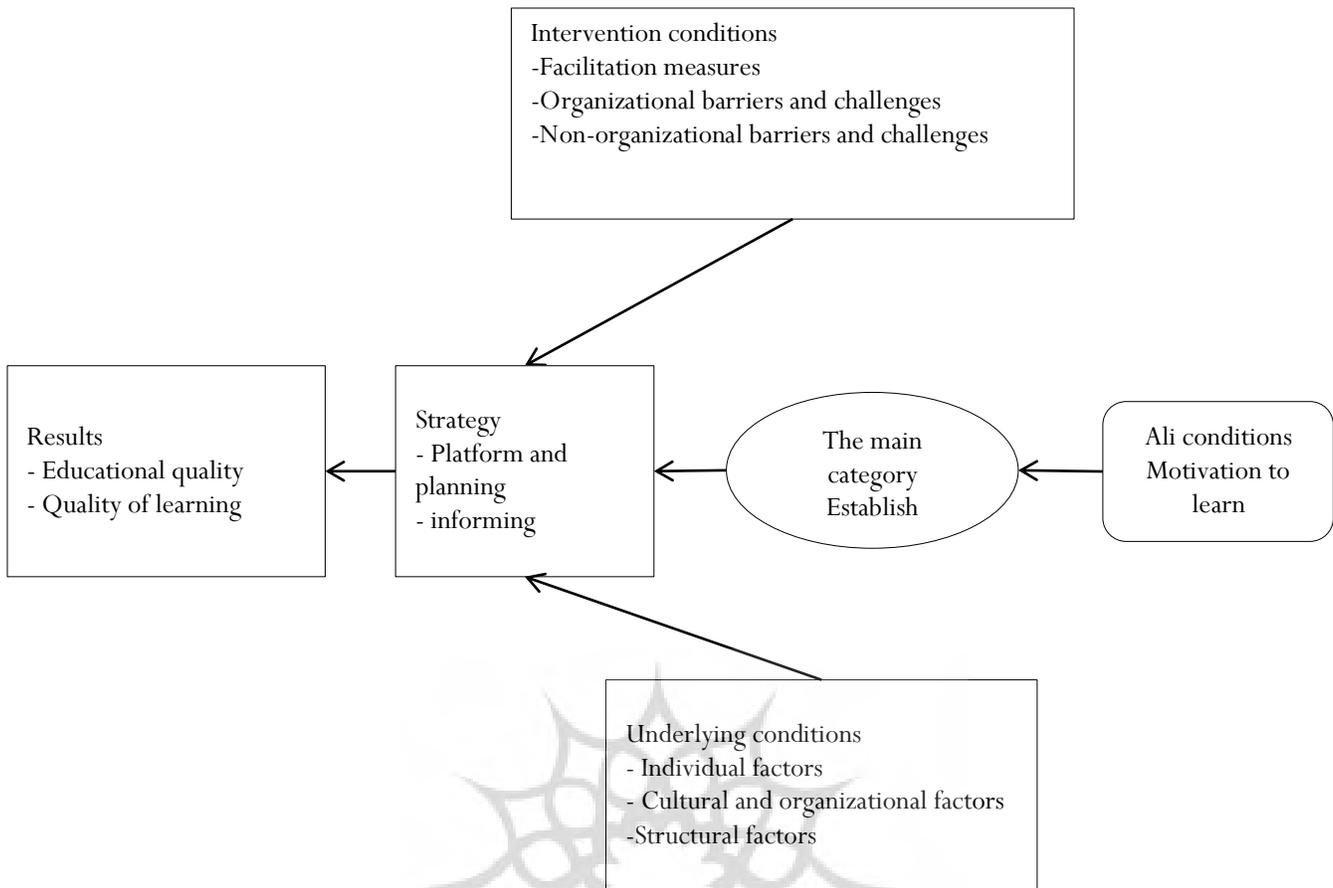


Figure 4: Paradigm model of research

پروپوزیشن گاه علوم انسانی و مطالعات فرهنگی  
 پرتال جامع علوم انسانی

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