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ثالثاً: هناك فرق بين وجهة نظر أولياء المحافظات المدروسة في تأثير كل من العوامل الثمانية الفعالة المؤثرة علي نشر التفكير البحثي للطلاب.

التأثير الرئيسي لعامل المحافظة علي أربع مكونات من المكونات الثمانية المؤثرة على نشر التفكير البحثي عند الطلاب هامّ و تلك هي:

١. الإدارة والهيكل.

٢. الفضاء التعليمي، والمرافق، والمعدات (البيئة).

٣. المعلمون.

٤. المجتمعات الأكاديمية للطلاب والمعلمين.

الكلمات الرئيسية: التفكير البحثي، المكونات الثمانية، أولياء الطلاب، النمط. الطلاب.

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التصميم وكسبُ تأييد نمط نشرِ التفكير البحثي في طلاب المدارس الثانوية (استنادا إلى المبادئ النفسية والتعليمية)

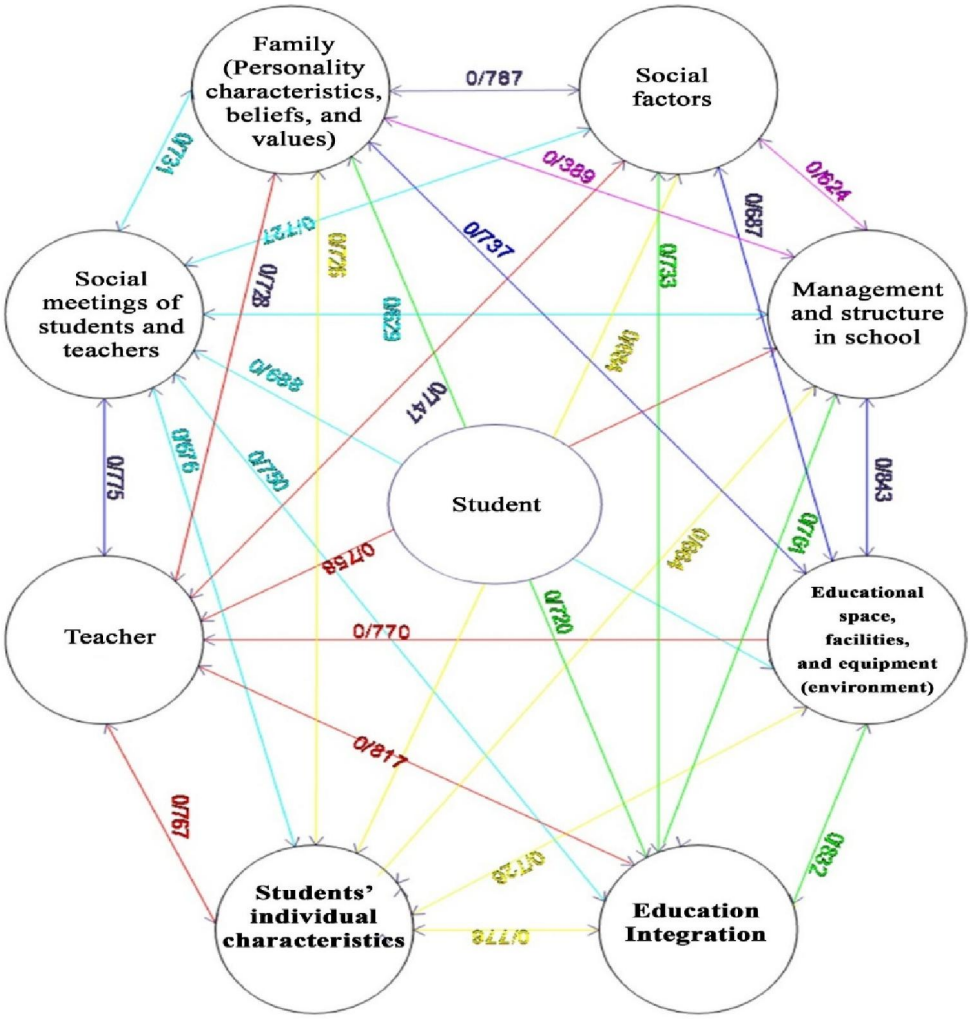
طاهرة خليلي
طالبة مرحلة الدكتوراه في فرع فلسفة التعليم والتربية
جامعة بيام نور - طهران - إيران
مهران فرج اللهي
أستاذ في فرع فلسفة التعليم والتربية
جامعة بيام نور - طهران - ايران

الملخص:

الهدف الذي تتبعه هذه الدراسة هو التصميم وكسب تأييد نمط نشرِ التفكير البحثي عند طلاب المدارس الثانوية. ولهذا أولا استنادا إلى مبادئ النفسية والتعليمية للمنظورات الأربعة: البراغماتية والإسلام والسلوك و المعرفية و نقاط قوتها؛ استُخرجت ٨ مكونات وبصفة عامة ١٠٣ مكونات فرعية. من ثمَّ قد تمَّ التحقق من الصحة لهذا التصميم المطروح بناء على آراء أولياء التلاميذ في محافظة آذربايجان شرقي، كهكيلوية وبوير احمد، ومركزي. قد حللت ودرست البيانات التي تم الحصول عليها من أجل التحقق من صحة النمط. في التحليل الوصفي للبيانات استُخدم التردد (التكرارات)، النسبة المئوية، المتوسط والترتيب (الترتيب) وفي التحليل الاستدلالي للبيانات استخدم اختبارُ T وتحليل التباين في اتجاه واحد، ثنائي الاتجاه وتحليل التباين متعدد المتغيرات (ANOVA). وتشير نتائج البحث إلى النتائج التالية.

أولاً: قد أيد أولياء الطلاب (المدير، النائب، المستشار، المعلمون) النمط المطروح لنشر التفكير البحثي.

ثانياً: ليس هناك فرق كبير بين وجهة نظر الأولياء المختلفة بالنسبة إلي أرجحية العوامل الثمانية الفعالة المؤثرة علي نشر التفكير البحثي للطلاب.



The model of developing research thinking among second-period high school students

2. There is no significant difference between the views of different school authorities toward prioritizing the total of 8 components affecting research thinking development among students.

Conclusion:

In order to develop research culture in the society, it is necessary develop research thinking among the students, which is an essential goal in the education system. In so doing, based on psychological and educational foundations of schools of thought like pragmatics, Islam, behaviorism, and cognitivism, a model was designed to develop research thinking. This model has 8 components including 1. Management and structure, 2. Educational environment, facilities, and equipment (environment), 3. Integration of education, 4. The students' individual characteristics, 5. Teachers' effect on research thinking development, 6. Scientific meeting of students and teachers, 7. Family (personality characteristics, beliefs, and values), and 8. Social factors.

Afterwards, the designed model was validated according to the views of some school authorities. The descriptive analysis of the data included frequency, percentage, mean, and order (ranking), and the inferential analysis was carried out through t-test, one-way, two-way, and multiple-way ANOVA, and correlation coefficient. The present study led to the following results:

- According to the school authorities, each of the 8 components has an effect of research thinking.
- Research thinking development model is valid and confirmed by the school authorities.
- The correlation among the components of research thinking development show that there is a profound relationship between the components of the model.

Designing and validating research thinking development model among second-period high school students (based on psychological and educational foundations)

As seen in the above table, the mean of all 8 components affecting research thinking development is about 2.4. In the beginning, it can be concluded that all of the 8 components affecting research thinking development have high priority.

Table 3. The results of ANOVA (one-way variance analysis) in order to examine the effect of the view of different school authorities toward the 8 components affecting the development of research thinking

The 8 components affecting research thinking development	Comparison of groups	Sum of squares	Df	Mean of squares	F	Sig.
Management and structure	Intergroup	0.579	3	0.193	0.698	0.554
	Intragroup	128.895	466	0.277		
	Total	129.474	469			
Educational environment, facilities, and equipment (environment)	Intergroup	0.129	3	0.043	0.154	0.927
	Intragroup	135.785	489	0.278		
	Total	135.913	492			
Integration of education	Intergroup	0.277	3	0.092	0.369	0.776
	Intragroup	120.671	481	0.251		
	Total	120.949	484			
The students' individual characteristics	Intergroup	0.266	3	0.089	0.355	0.786
	Intragroup	124.607	498	0.25		
	Total	124.873	501			
Teachers' effect on research thinking development	Intergroup	0.191	3	0.064	0.257	0.856
	Intragroup	118.104	476	0.248		
	Total	118.295	479			
Scientific meeting of students and teachers	Intergroup	0.552	3	0.184	0.603	0.613
	Intragroup	151.27	496	0.305		
	Total	151.822	499			
Family (personality characteristics, beliefs, and values)	Intergroup	0.11	3	0.037	0.143	0.934
	Intragroup	125.582	490	0.256		
	Total	125.691	493			
Social factors	Intergroup	0.35	3	0.117	0.397	0.755
	Intragroup	147.49	502	0.294		
	Total	147.841	505			
The total effect of the factors	Intergroup	0.032	3	0.011	0.049	0.986
	Intragroup	79.575	364	0.219		
	Total	79.608	367			

Results:

1. There is no significant difference between the views of different school authorities toward prioritizing the 8 components affecting research thinking development among students.

6. In problem solving, there is an emphasis on attempt, cognitive error, or substitute, i.e. thinking.

Results

A. Demographic characteristics of the school authorities

Table 1. Frequency distribution and percentage of the school authorities according to their gender

Frequency distribution	Gender		Total
	Male	Female	
Frequency	274	290	564
Percentage	48.6%	51.4%	100%

B. Examining the status of the components affecting the development of research thinking according to the school authorities

Table 2. Analysis of the components affecting the development of research thinking

The effect of components affecting research thinking development	N.	Min	Max	Mean	SD
The effect of management and structure on research thinking development	510	1	3	2.42	0.53
The effect of educational space, facilities, and equipment (environment) on research thinking development	534	1	3	2.43	0.54
The effect of education integration on research thinking development	526	1	3	2.39	0.50
The effect of the students' individual characteristics on research thinking development	546	1	3	2.41	0.50
The effect of teachers on research thinking development	518	1	3	2.45	0.50
The effect of scientific associations of students and teachers on research thinking development	545	1	3	2.37	0.56
The effect of family (personality characteristics, beliefs, and values) on research thinking development	537	1	3	2.44	0.51
The effect of social factors on research thinking development	551	1	3	2.41	0.54
The collective effect of the above factors on research thinking development	398	1.03	3	2.42	0.47

4. Learning requires stimulus, and learning does not take place until sufficient response is not given to the stimulus in question. Therefore, learning is a connection between stimulus and response, and conditioning is the basis for learning (Shalchian, 1994: 167).
5. Almost all human behaviors are acquirable, and paying attention to objectivity is the main goal of psychology.
6. Behaviorists recommend methods, and state that the individual's behavior is stabilized and guided according to the boosted environmental experiences.
7. Topics and issues are predetermined, and are presented to students through a certain system and structure.
8. Students are encouraged to learn by taking advantage of external stimuli.
9. Teacher has a decisive role, because he/she is responsible for presenting, controlling, administrating, and evaluating the materials.

Psychological and educational foundations and principles of research thinking development based on cognitivism are:

1. The students' cognitive development, intelligence, problem solving, thinking, and the concept of creativity and innovation need to be paid attention.
2. Insight is the main element of learning. Thinking is based on insight, understanding, and knowledge. The basis for creative and scientific thinking is holism. Based on this theory, problem solving happens through test and trial.
3. The materials should be based on the students' mental change, and measuring their intellectual growth happens by posing consecutive questions in a free space.
4. Teacher plays the role of a facilitator; therefore, there is an interaction among teachers, students, and the environment.
5. Students are active and dynamic researchers.

Educational principles of research thinking development based on pragmatism:

According to scholars regarding research thinking and based on pragmatists' view about this type of thinking, 15 important and effective principles can be drawn that affect research thinking. They are as follows:

1. Integration in curricula, 2. Problem solving method, 3. Group research, 4. The principle of aesthetics, 5. The principle of activity, 6. The principle of question, 7. Experience, 8. Thinking, 9. Scientific methods, 10. Research method, 11. Consideration of social environment, 12. The principle of change, 13. The principle of freedom, 14. The principle of social control, and 15. The principle of purpose.

Psychological foundations of research thinking development based on Islam are 1. Correspondence of science with human needs and 2. Different levels of correspondence of science with human needs.

Psychological principles of research thinking development based on Islam are 1. Relation with needs and issues and 2. Comprehensive view of human needs and guidance.

Educational foundations of research thinking development based on Islam are 1. Exploratory nature of science, 2. Correspondence of science with reality, 3. Innovative nature of science, and 4. Science being dynamic.

Educational principles of research thinking development based Islam are 1. Relation with issues under study, 2. Reliance of evidence, 3. Developing hypotheses, and 4. Continuous criticism of lessons.

Psychological and educational foundations and principles of research thinking development based on behaviorism are:

1. Learning is the result of sensory experiences, and experience is the only factor of learning.
2. Concepts and imaginations are acquirable only through senses.
3. Complex imaginations are a combination of simple imaginations and can be divided into their components.

Answer to the questions

Answer to the first question: What are the psychological and educational foundations of developing research thinking based on pragmatism and Islamic training views and behaviorism and cognitivism paradigms?

Psychological foundations of research thinking according to pragmatism school of thought:

Dewey states: Instead of beginning with motivation, we need to start from habit. Although motivations are prior with regard to time, in reality they are not prior at all, they secondary and dependent

In fact, education is a sort of measured coping with human motivations and smart directing innate activities using facilities and requirements of social conditions (Scheffler, 2009: 305).

Dewey points out that motivation has a mediator role in behavior. It provides a "situation" for smart reconstruction, which should be constant if we want to replace explosive renewal with constant and centralized change (Scheffler, 2009: 309).

The psychological principles of research thinking development based on pragmatism:

1. The principle of continuity, 2. The principle of interaction, 3. The principle of motivation, and 4. The principle of experience continuation (Shari'atmadari, 1999).

The educational foundations of research thinking development based on pragmatism:

1. There is an emphasis on active school and active student. 2. The main role of school is to select activities that lead to essential understanding and knowledge. 3. Teacher is responsible for conducting experiences in the form of individual and group activities which cause knowledge and understanding. 4. Class atmosphere should be in a way that nurtures the spirit of democracy in students and direct their attention toward their individual and intellectual values.

framework of the model based on their development, analytical method was used.

Type of research

Since the results of the present study are utilized in education and make grounds for scientific and research thinking among students, it is an applied study. In order to utilize its results, a part of available grounds in educational system such as course and educational books, evaluation system, teachers' features, and so on need to change, i.e. a change in processes, because the study is also a developmental one.

Data collection instruments

The required data in the present study were collected using a questionnaire and library studies.

In order to develop the psychological and educational foundations effective in development of research thinking, library studies were utilized.

In order to examine the effective factors in development of research thinking among students and design the model of developing research thinking, 8 components were taken into account, and some subcomponents were considered for each one.

Validity of the questionnaire were confirmed though the field experts' views.

Reliability of the questionnaire was calculated using Cronbach's Alpha for each question.

Assessment of the validity and reliability of the questionnaires

In order to determine the reliability of the questionnaires, their Cronbach's Alpha was calculated after a number of questionnaires were completed in East Azerbaijan Province. The calculated Cronbach's Alpha was 0.973.

In order to determine the validity of the questionnaire, educational experts' views were utilized.

Data analysis methods

ANOVA and T-test were employed to analyze the collected data.

Research questions

1. What are the psychological and educational foundations of developing research thinking based on pragmatism and Islamic training views and behaviorism and cognitivism paradigms?
2. What model can be proposed based on the strengths of the four mentioned views in order to resolve the barriers and develop research thinking among second-period high school students?

Statistical populations and sample

Specifying the population and sample size

The statistical population included school authorities (i.e. teachers, principals, vice-principals, and counselors)

The sample size was determined to be 571 based on Morgan Table.

Sampling method

Multistage cluster sampling was used in the present study. In the first stage, three provinces were selected from among all provinces of Iran, and Kohgiluyeh and Boyer Ahmad Province was selected from among unprivileged provinces, Markazi Province from among semi-privileged ones, and East Azerbaijan from among privileged ones. In any of the abovementioned provinces, three regions were randomly selected, which are presented in table below.

Province	Privileged region	Semi-privileged region	Unprivileged region
East Azerbaijan (privileged)	District 4 of Tabriz	Maragheh	Malekan
Markazi (semi-privileged)	District 2 of Arak	Khomein	Sarband
Kohgiluyeh and Boyer Ahmad (unprivileged)	Yasuj	Darkouh	Dishmok

Methodology:

The present study was descriptive-survey (background) and analytical. In order to develop the foundations and extract the

Certainly, one of the aspects that requires attention from education authorities is the set of measures that can bring about development and spread of research and research thinking among students.

In other words, scientific delay in Iran needs to be resolved by the talented youths. Research entities should provide the youths with appropriate opportunity to develop research culture and expand production, education, and science. Today's Iranian generation should take lessons and gather experience by reviewing the history of science in Iran, and they should take step in the way of scientific progress and development of scientific culture by understanding historical gaps in it and acquire positive experiences from other countries through historical and comparative studies.

Education philosophy is based on a theoretical framework and plays an essential role in the practical field of education, and this role guarantees conduction and reconsideration of issues in the field of education. In this regard, the philosophy of education is like a scale stone which shows the weight of scientific activities of education and acts like a criterion that specifies the increase and decrease in these activities.

The present study was aimed at proposing and validating a model based on the psychological and educational foundations pragmatism, Islamic training, behaviorism, and cognitivism in order to develop research thinking among second-period high school students.

Therefore, based on the abovementioned issues, the importance and necessity of exploring psychological and educational foundations of developing research thinking among high school students and also proposing a model to develop research thinking is clear.

Research objectives

1. Exploring the psychological and educational foundations of developing research thinking based on pragmatism and Islamic training views and behaviorism and cognitivism paradigms
2. Proposing and validating a model to resolve the barriers and develop research thinking among students based on the strengths of the four mentioned views

space, facilities, equipment (environment), Teachers, and Scientific meetings of students and teachers.

Keywords: research thinking, 8 components, school authorities, teachers, model, students

Introduction:

There is no doubt or exaggeration to consider education as one of the most difficult human crafts. Those who cannot accept this reality easily, in fact, do not understand human and his complexities and secrets well.

Since human is the subject of education, the main agenda of education is to comprehensively nurture human in all aspects or in other words to recreate him after his first creation. It is obvious that this issue cannot be carried out by accident, trial and error, or any other method that does not have necessary intellectual basis. In other words, the more complex an aspect of human life is regarded, the farther the decisions need to be from being temporary, emotional, imaginary, and irrational. Undoubtedly, research is one of the main approaches in achieving this goal. Along with academic research, which determines the traditional scope of educational research, research at teacher level has emerged in the form of researcher teacher. Nowadays, another field has been proposed, which completes the other two fields and covers the field of educational research in a comprehensive way. That third field is the field of student research or research at student level. In order for the Education to be well-established, there should be an attempt to create researching spirit, grant necessary research capabilities and skills, create scientific insight and thought, and give the students an opportunity to conduct research, because developing scientific thought is the major goal of education. Therefore, curricula and educational methods should be changed in a way that helps students achieve the determined goals. Moreover, by providing students with special programs, grounds for research can be developed in them, and it is possible to administer the second approach as a limited but effective way before a comprehensive change in different aspects of education in order to achieve these goals.

Designing and validating research thinking development model among second-period high school students: Based on psychological and educational foundations

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Abstract:

The present study aimed to design and validate a research thinking development model among second-period high school students. In so doing, first, psychological and educational foundations of pragmatism, Islam, behaviorism, and cognitivism and their strengths, 8 components and 103 subcomponents were extracted. Afterwards, the designed model was validated based on the views of school authorities in East Azerbaijan, Kohgiluyeh and Boyer Ahmad, and Markazi Provinces. The collected data were analyzed in order to specify the validity of the model. The descriptive analysis of the data included frequency, percentage, mean, and rank, and the inferential analysis was carried out through t-test and one-way, two-way, and multiple-way ANOVA. The results of the study indicated that: First, the designed model of research thinking development was approved by the school authorities (principals, vice-principals, counselors, and teachers). Second, there was no significant difference between different school authorities with regard to ranking the 8 components that affect the development of research thinking among students. Third, there was a significant difference between the views of school authorities in the provinces under study regarding the effect of each of the 8 components in developing research thinking among students. The main effect of province on four components of developing research thinking was also significant, which are: Management and structure, Educational