Identifying curriculum components based on increasing environmental literacy of first grade high school students

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Abstract

The purpose of this study was to identify the components of the curriculum based on increasing environmental literacy in junior high schools. The present study is of mixed type (qualitative-quantitative). The qualitative stage of the research is based on the data method of the foundation and the grounded theory and Glazer-Strauss method. The statistical population of the qualitative section is 10 experts, professors and faculty members of the university with doctoral studies, including a specialist in the field of curriculum planning and an expert in the field of environment by theoretical sampling method until saturation, by conducting semi-structured interviews. Initials were re-collected during the coding process and categories were extracted from them; Then, in the axial and selective coding stage, the relationship between these categories was determined under the headings of causal conditions, axial phenomena, strategies, context, intervening conditions and its consequences in the form of coding paradigm. The statistical population of the quantitative section was all teachers and experts of the first secondary school of Varamin city in the academic year 1399-1400 (569 people) and based on Cochran's formula, 229 people were selected by stepwise random sampling method. The research tool was semi-structured in the qualitative part of the interview and a researcher-made questionnaire in the quantitative part, which was compiled by reviewing theoretical and practical principles as well as the results of the interviews. The basis of content validity and construct validity were calculated. The results of the present study led to the identification of main categories and 14 sub-categories in the form of a paradigm model including a curriculum based on increasing environmental literacy as the main category, elements of curriculum planning as causal conditions (curriculum goal, curriculum content, process Teaching curriculum learning and curriculum evaluation), contextual factors (teacher education and culture building), intervening conditions (environmental education policy-making, environmental budgeting in textbooks, teachers' attitudes and knowledge about environmental issues, evaluation of issues Strategies (strategic planning, infrastructure enrichment) and consequences (culture optimization, decision optimization and environmental performance improvement) were analyzed.

Key Words: Environmental Curriculum, Environmental Literacy, Environmental.

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Introduction

High school is a period in which students in the age group of thirteen to sixteen (adolescence) study. This period is a very important period in terms of philosophical, biological, psychological and social foundations and is one of the important, sensitive and effective periods in individual and social life. It is a course that, due to the biological, social and psychological status of students, has similarities and distinctions with other study courses and has a wide range that includes adolescence. It reaches its peak, their curiosity finds a certain direction. In this period, the adolescent is in a very sensitive situation and needs to be provided with educational and healthy relationships and appropriate and effective content for him. In this period, the event of maturity and comprehensive changes occur in the person and a kind of imbalance in The psyche and emotions of young people are created. The content of the curriculum should help to gradually establish his / her mental, biological and social balance while providing the necessary knowledge. Considering the sensitivities and concerns created in the field of environmental crisis and considering the special place of education systems, the education system can play a unique role in promoting students' environmental literacy by developing a coherent and comprehensive environmental curriculum. Be. (Safi, 2015)

Environmental literacy requires individuals to understand the relationship between nature and human impact on nature and to understand the complexities of natural systems. The comprehensive Wikipedia encyclopedia states: "Environmental literacy is the ability to understand the natural systems that make our lives on planet earth possible; and an environmentally educated society is one that does not destroy its natural environment "Slow because he knows his life depends on this environment."

The importance of paying attention to the components of the curriculum based on increasing environmental literacy is that it helps the decision makers so that by fully understanding the effects of these variables and considering the dimensions of this problem, they can play the role of providing suitable platforms and infrastructures to increase it do. The most important thing about humans and the environment is how to make the environment productive while still protecting the environment. One of the answers can be education .(Kian, 2017, quoted by Firouz Rezaian2020)

Being literate in its broadest form means having knowledge or expertise. When we bring this

concept to the field of environment, based on the definitions of the Environmental Education Association of North America, knowledge and expertise include points such as understanding that the earth as a biological system and a living environment includes humans and human communities within it, having a correct understanding of The ideals, principles, and experiences of citizenship in order to participate in solving problems related to the environment, having the motivation and ability to act, understanding what people can do to make a change and, in short, understanding, solving the problem, Civil participation and action. (quoted by Saltan and Divarshi, 2017).

Coyle defines three levels in relation to environmental literacy:

First level: environmental awareness

The second level: environmental knowledge, which includes a combination of awareness and activity, which is called knowledge of personal behavior. For example, how to store electricity, water, diesel, etc.

The third level is environmental literacy, which is different from the second level due to the depth of information and skills.

People who have more awareness about the environment are also more sensitive to the environment around them. So most likely these people have a more positive attitude towards the environment, and their behavior will be in the direction of preserving the environment. Therefore, it can be said that environmental protection is influenced by people's level of awareness and environmental self-awareness is also affected by many factors (Hoshmandan Moghadam Fard, 2015).

Today, the environment and its preservation is one of the most important challenges of human societies. Environmental disaster not only affects the peace and security of human life, but also exposes health and existence to a serious threat. In the meantime, education can be considered as a factor that helps people to create a correct understanding and sensitivity towards the environment and related issues (Paitakhti Eskoi, 2018).

Knowing the environment from the dimensions of scientific, artistic and technological literacy and responsible participation in its preservation and education is an undeniable necessity. Environmental literacy education, like other educations, requires planning from childhood and adolescence. Environmental literacy, which is also referred to as ecological literacy, refers to close familiarity with natural landscapes and intimacy with natural life. This familiarity requires a holistic approach to the surrounding environmental issues. Environmental literacy

includes methods, activities and feelings that are rooted in familiarity with the environment and a detailed knowledge of it. Just as for literate people, the ability to read and write internalizes the identity of the benefit of the environment (Zokaei, 2016).

Environmental literacy, which is sometimes referred to as ecological literacy, refers to familiarity with natural landscapes and natural life. This importance and familiarity requires a holistic approach to the surrounding environmental issues. Holism in environmental issues means that problems can't be analyzed without connection with other issues. Although it seems attractive to see environmental problems separately from the entire chain of the global ecosystem due to its clarity and simplicity, nevertheless this simplicity is deceptive and teaching it will not be very effective. In this way, environmental literacy includes methods, activities and feelings that are rooted in familiarity with the environment and a detailed knowledge of it. Just as for literate people, the ability to read and write affects their identity, environmentally literate citizens also internalize the ability to interpret and act for the benefit of the environment (Mohammadjani et al., 2017).

In the current situation, the level of knowledge and information of primary school students about the environment is at a minimum. However, concepts such as protecting the environment and preventing its degradation and teaching the correct ways to consume it in adolescence and in the first year of high school will be much more effective and effective and will lead to raising the next generation based on the principles of sustainable development. Considering that the biggest weaknesses are related to the inadequacy and inefficiency of the existing curricula in the field of environment and the lack of attention to the importance of environmental issues and its role in breeding generations, and finally the lack of coherent planning and policy in relation to Environmental issues in junior high school, environmental education needs to be included in the curriculum of this degree and the curriculum should be more than ever to develop environmental knowledge, environmental protection, optimal consumption and protection of natural heritage Show attention.

In this study, since environmental literacy is the ability to understand environmental issues in a large and interrelated context and allows individuals to analyze, conclude, evaluate, and ultimately make accurate and informed decisions, and includes methods, activities, and emotions. Rooted

in familiarity with and knowledge of the environment, it seeks to enhance students' environmental awareness, attitude, skills, and performance, and thus environmental literacy through curriculum inclusion. So that one understands the values of the environment and strives to protect it and to support it by thinking and meditating on biological processes.

The importance of paying attention to the components of the curriculum based on increasing environmental literacy is to help decision makers to fully understand the effects of these variables and given the dimensions of this issue can provide the role of providing appropriate contexts and infrastructure to increase it.

Due to the fact that environmental education information is in the textbooks of general students and lacks local and regional needs, and the lack of facilities and equipment for educational assistance, etc. to provide environmental education and the lack of scientific and information resources in the field of environment at the level Schools and in junior high school and the lack of information and weakness in environmental information for the curriculum planning system of the Ministry of Education and with regard to the state of environmental education of teachers and school teachers as one of the effective levers in achieving goals Environmental education has not received much attention through the implementation of curricula. Also, the study of the situation of our graduates after leaving the education system, which is often considered as the input of other social, political and economic systems of society, shows that they have the necessary and expected abilities and skills. Environment, environmental behavior, problem solving, environmental initiatives and innovations, environmental responsibility and participation, etc.) and it can be said that education has not been able to respond to these competencies to meet the needs of students. Slowly and most of the problems and inadequacies of other social systems of the country also originate from the shortcomings of this institution (aghayari, 2016).

Environmental education experts and planners around the world believe that the main problem with the environment is the low level of public awareness and attitudes about the environment and the lack of sufficient information about it. Students in schools act as ambassadors who carry these environmental teachings with them to family and community. Therefore, attention to environmental education and environmental literacy is considered as a basic need of the

21st century (Farmahini Farahani, 2017).

In the legal basis of formal and public education, the National Vision Document, one of the educational rights of citizens is the right to a healthy, safe and hygienic educational environment. In this document, attention is also paid to the environment in the field of biological and physical education goals. This field is responsible for maintaining and promoting physical and mental health of oneself and others, strengthening physical and mental strength, combating the causes of weakness and disease, environmental protection and respect for nature, which is considered an integrated approach. Understanding biological characteristics, striving to maintain and promote the health and safety of people at the local, national and global levels, continuous efforts to protect the environment and respect for nature based on the standard system are some of the things that can be mentioned (document National Education, 2009).

Human concerns about environmental challenges force him to pay more attention to this issue and to adopt laws and regulations to address environmental problems. In this regard, education can play an important role in the realization of this culture by carefully implementing educational programs. And educate a generation that protect the environment as part of their concerns and be able to strike a balance between meeting their needs and protecting the environment. (Taqiyya, Narjes Khatoon; Gholtash, Abbas; Fallahi, Vida, 2012).

The level of environmental literacy of children before this education based on the evaluation of their knowledge, attitude and behavior, having a training course based on perspective, quality control and documenting the educational process and reviewing environmental literacy indicators after education, shows the significant impact of this education. have been; So that the ratio of means in the comparison of pre-test and post-test has almost doubled in all four test hypotheses. Findings of the study According to quantitative and qualitative analyzes and documents and review of the educational process and its quality and the author's continuous presence in educational centers of Alborz province, showed that children achieve such literacy that their attachment to all living and non-living factors and their active participation Shows in environmental protection. (Pour masoum et al,2017)

Although high school students are in a good position in the emotional dimension of environmental literacy, but in terms of environmental knowledge and related skills and

practices do not have the necessary conditions and indicators. In addition, this study showed that the most important administrative problems of secondary schools in the field of environmental education are lack of necessary equipment, lack of time and lack of communication and interaction of educational centers with environmental institutions and centers of society. (Salimian Rizi et al,2020)

What constitutes the present research is: "What are the components of a curriculum based on increasing environmental literacy in junior high schools?"

Method

The present study was a mixed (qualitative-quantitative) type. The qualitative stage of the research was based on the data method of the foundation and the grounded method of Glaser-Strauss theory. Due to the fact that our knowledge in the field of research is limited and there was no significant theory in Iran on which to formulate a hypothesis for the test, grounded theory method was used to develop the theory during the research and through continuous interaction. Between data collection and analysis. Grounded theory or data theory is a qualitative research method that is used to identify the underlying categories of the phenomenon under study. This method was introduced by two sociologists named Barney Glaser and Anselm Strauss in 1967. The statistical population of the research consists of two parts:

In the qualitative section, information was collected through documents, books, articles, Internet resources, dissertations and journals studied, articles and specialized texts from which files were taken.

The statistical population of the qualitative section includes experts and thinkers, and interviews with them (using semi-structured interviews) continued until the theoretical saturation of the data. These experts include faculty members of the university with doctoral degrees in curriculum planning and environmental disciplines. In this study, semi-structured interviews were conducted with 10 experts (experts in the field of environment and experts in the field of curriculum).

Frequency	class	variable	
3	40 to 45 years	Age	PhD (curriculum planning and environment)
5	46 to 50 years 10		
2	Over 50 years old		
2	to 15 years	work experience	
2	16 to 20 years		
2	Above 20		
10	Total		

The statistical population of the quantitative part of the present study was the teachers and experts of the first secondary school of Varamin city in the academic year 1399-1400, whose number was 569 and included 303 women and 266 men. Using the sampling volume formula from limited communities (Cochran's formula), the number of samples was 229. Considering that in this study, the research basis was used based on the qualitative method of data theorizing of the foundation, the sampling of the qualitative part was also subject to the rules of the same method and was performed in a theoretical manner. In other words, in theoretical sampling, it is not possible to plan in this case before starting the study, but specific sampling decisions are formed during the research process. Therefore, non-random sampling is focused on producing a theory, and what is certain is that the sample size in this approach is determined during the work and sampling continues until saturation of the data is achieved; That is, the researcher concludes that the new data is a repetition of the previous data and no new conceptual information is needed that requires a new code or expansion of existing codes and classes.

In order to be informed by the experts, semi-structured interviews were conducted. After each interview, the data were analyzed to identify the factors raised by the initial experts, and these factors were followed up in subsequent interviews.

In the quality section, both curriculum and environmental experts were used. Also, the number of interviewees was determined based on the principle of theoretical saturation, so that the researcher continued his interview and question to the extent that the new interviewees did not add a new indicator to the previous indicators. In the quantitative part of the present study, the method was cluster random sampling. Cluster random sampling is a sampling method used for large communities. Using the concept of clustering, society was divided into different clusters. Then, individuals were randomly selected based on the ratio of each cluster to the whole population. In this study, the method of data collection in the qualitative part of the library study and in the quantitative part was the use of a researcher-made questionnaire, which is as follows:

The data collection tools used in this research were semi-structured interviews, note-taking of specialized books and articles, and documents that were collected and the data were collected and analyzed through open, axial, and selective coding. A semi-structured interview is an interview in which the interview questions are identified in

advance and all respondents are asked the same questions; But they are free to respond in any way they want. In the quantitative part of the data collection tool, a questionnaire was developed and the use of factor analysis was developed to measure the degree of appropriateness of the proposed model, which contained content that included components related to the model. The method of data analysis in the qualitative part was based on data-foundation theory.

The foundation data theory consisted of three parts:

1 -The researcher collects data. Data from the study and study of theoretical foundations (philosophical, social, psychological, etc.) of the curriculum of high school students, components of environmental literacy in Iran and other countries and the study of needs through interviews, review of documents and study in sources Library and internet science, etc. are obtained, collected. The data collection process continues until the researcher is sure that no new data will be obtained and will reach saturation point.

2 - Analyzes the collected data; Data analysis was performed by coding. Because the researcher uses data foundation theorizing, he used three methods of free, axial, and selective coding in the coding stage. Also at this stage, in addition to collecting library data (foundation data), through semi-structured interviews, data collection will be done in parallel with library data. If at any stage of the coding and analysis the researcher discovers new angles and needs to be re-examined, he or she will return to the data collection stage and continue the study or interview to reach a saturation point.

3- Obtains the desired design by using components and categories derived from the coding process (data foundation and interviews with experts) and connections that are extracted. What is done at this stage is to adjust the elements of the curriculum (objectives, methods). , Content and evaluation) based on the information collected. Qualitative analysis was performed through open, axial and selective coding. Coding is an operation in which data is analyzed, conceptualized, and put together in a new way, during which theory is formulated based on the data. For this purpose, three techniques of open coding (to identify concepts and structures), axial coding (to compile categories based on identified concepts and structures) and selective coding (to select the main paradigm and formulate the theory) were used. Analysis of interview data from Through structural analysis, an interpretation will be made. Through in-depth review of the content and concepts of the interview, the concepts were extracted and categorized, and

coded and categorized. This type of coding of concepts within interviews and documents was categorized based on their relevance to similar topics. The result of this stage is the distillation and summarization of the mass of information obtained from interviews and documents into concepts and categories, and this card continued the theoretical stage of data saturation. Data analysis method in a small part of descriptive statistics was used to analyze the data obtained from the researcher-made questionnaire and the findings were presented in the form of graphic representation and numerical indicators of the central tendency.

The present research questionnaire is the result of interviews with a number of prominent professors in the field of curriculum planning as well as the environment regarding the composition and general outline of the questionnaire and its design and in the general form of research hypotheses and questions. School education has been provided on the necessary infrastructure in the implementation of curriculum components based on increasing environmental literacy.

In order to ensure the research tool and check its accuracy, 10 questionnaires were distributed among the professors on an experimental basis and after solving its problems with the help of respected professors and advisors, the final questionnaire was designed.

In the next step, the graph was used to display graphically. After collecting the data, descriptive statistics were used to analyze the data and based on the statistical analysis, the application validation of the curriculum designed for junior high school students was drawn.

In this study, the following statistical methods were used to analyze the obtained data:

A- Descriptive statistics: To analyze the demographic questions of the questionnaires, the research tried to present the characteristics of the statistical sample in a descriptive manner using tables and graphs. B- Inferential statistics: Kolmogorov-Smirnov (KS) test for parametric and non-parametric tests (according to data distribution), T-test, factor analysis technique (confirmatory) to determine the degree of appropriateness and modeling of structural equations were used to investigate the distribution of research data. SPSS v = 22 software was used for these tests.

In selective coding, the foundation data theorist selects an open coding step category and places it at the center of the process under consideration as the central phenomenon. And then, it relates other categories to it. These other categories are: causal, contextual, mediating conditions, central phenomena, and related

strategies and consequences.Causal conditions are categories (conditions) that affect the main category and lead to the occurrence or spread of the phenomenon. Causal conditions in data are often expressed in terms such as when, while, since, because, because and because. Even when there are no such signs, the researcher can find the causal conditions according to the phenomenon itself and by regularly looking at the data and reviewing the events and happenings that precede the phenomenon in time.

The main category (pivotal) is the main phenomenon (core) studied, the desired phenomenon, the central idea and thought, the event, the coincidence with the event to which the flow of actions and reactions are directed to manage, control and step into Answer it. The central category is the phenomenon that is the basis and axis of the process. This category is the same title (the name or label is a concept that is considered for the framework with the resulting design). The category that is selected as the central category should be abstract enough to be able to relate to the other main categories. Interfering conditions Structural conditions that belong to a phenomenon and affect any action and reaction strategies. They facilitate or limit strategies within a particular context.

Strategies are based on actions and reactions to control, manage and deal with the phenomenon. Strategies are purposeful, purposeful, and done for a reason. There are always interventionist conditions that facilitate and limit strategies. Consequences The results that emerge as a result of strategies. Consequences are the results of actions and reactions. Consequences are not always predictable and are not necessarily what people intended. Consequences can be events, they can be negative, they can be real or tacit, and they can happen now or in the future. The context is a set of special characteristics that indicate a phenomenon; That is, the location of events and happenings belonging to the phenomenon, the context represents a set of specific conditions in which strategies of action and reaction take place .

Validity and reliability of research tools Validity:

To determine the validity of the questionnaire used in this research, the content validity method was first used. Therefore, the questionnaire developed in this research was given to the relevant experts and experts, and their opinions were obtained to obtain the best possible validity and corrections. In addition to content validity, construct validity was also used to check the validity of the questionnaire. For this purpose, the results of exploratory factor analysis were used, which

showed the construct validity of the instrument. Reliability: In this research, retest reliability and intra-subject agreement method were used to calculate the reliability of the conducted interviews. To calculate the retest reliability, a few interviews were selected as samples from among the conducted interviews and each of them was coded twice in a short and specific time interval. Then, the specified codes were compared in two time intervals for each of the interviews, and the findings indicated the appropriateness of the retest reliability. Also, in order to calculate the reliability of the interview with the inter-coder reliability (ICR) method, one of the lesson planning professors familiar with coding was asked to participate in the research as a secondary coder. He coded three interviews and calculated the percentage of agreement within the subject which is used as a reliability index of the analysis. The reliability of the two coders was obtained according to the calculations of 82.8, which indicates its appropriateness. Also, after confirming the validity of the content and structure of the research tool in order to ensure the reliability of the questionnaire, it was implemented on a sample of 30 people from the statistical population and the resulting data were analyzed using two methods (alpha coefficient and retest) and the results showed The reliability of the questionnaire was. The results related to the confirmatory factor analysis of the items and components related to the curriculum based on increasing environmental literacy, as can be seen in the diagram, all the items have a factor load above 0/5 and significant values above 1/96, so the items are exactly the predicted variables are measured.

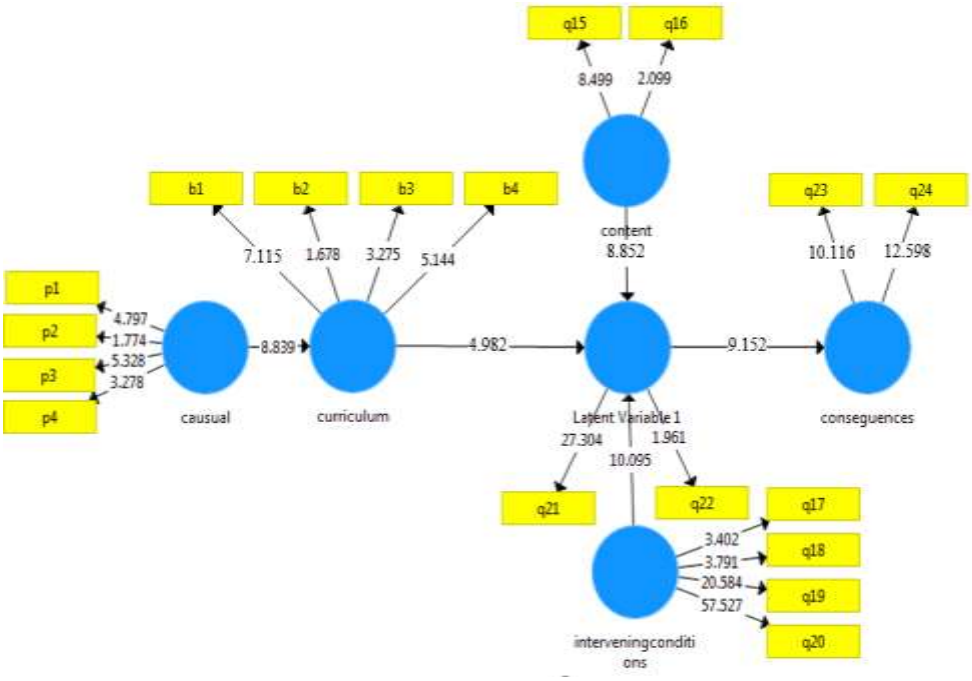

Figure 1. results of confirmatory factor analysis of curriculum research structures based on increasing environmental literacy

You are looking at the factor analysis model of the curriculum model based on increasing environmental literacy. If the factor load is less than 0/3, the relationship is considered weak and it is ignored. A factor between 0/3 and 0/6 is acceptable, and if it is greater than 0/6, it is very desirable.

Path coefficient	Components	operational burden	dimension
0/569	Knowledge attitude Skill Function	0/324	purpose
0/851	Consciousness Change of perspective Skill content Behavior	0/724	content
0/772	Dissemination of knowledge positive attitude skill training	0/596	Teaching learning process
0/778	Knowledge evaluation Attitude evaluation Performance evaluation	0/605	evaluation

Factor analysis model table of curriculum factors based on increasing environmental literacy

As shown in the above table, among the 14 components, all components have a factor loading higher than 0/3, so they are not removed from the factor analysis process and remain in the analysis process.

The proposed model for the curriculum based on increasing environmental literacy is as follows:

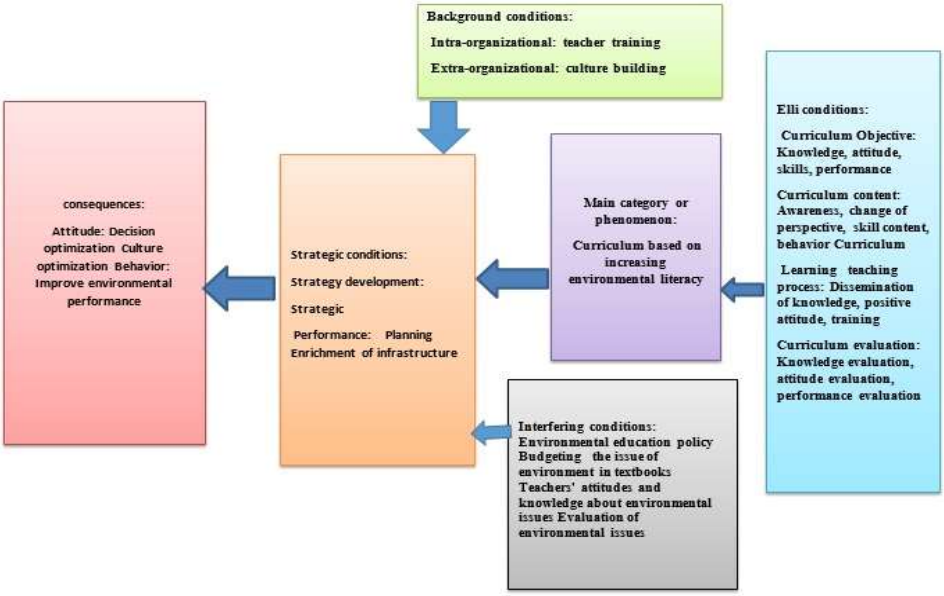

Figure of Environmental curriculum model

Discussion and Conclusion

In this research, after performing the coding steps, the purpose of the curriculum (knowledge, attitude, skills, performance), curriculum content (knowledge, change of perspective, skill content, behavior), the teaching process of curriculum learning (knowledge dissemination, positive attitude, skills And curriculum evaluation (knowledge evaluation, attitude evaluation, performance evaluation) were considered as causal conditions of the curriculum based on increasing environmental literacy. Strategic planning and infrastructure enrichment were considered as curriculum strategies based on increasing environmental literacy. Teacher education and culture building were considered as the basis of the curriculum based on increasing environmental literacy. Policy-making, textbook structure, teachers' attitudes, and the structure of the evaluation system were considered as intervening conditions of the curriculum based on increasing environmental literacy. Culture optimization and decision optimization were considered as curriculum outcomes based on increasing environmental literacy.

The results of the present study led to the identification of one main categories and 14 sub-categories in the form of a paradigm model including a curriculum based on increasing environmental literacy as the main category, elements of curriculum planning as causal conditions (curriculum goal, curriculum content, process Teaching curriculum learning and curriculum evaluation), contextual factors (teacher education and culture building), intervening conditions (environmental education policy, environmental budgeting in textbooks, teachers' attitudes and knowledge about environmental issues, evaluation of issues Strategies (strategic planning, infrastructure enrichment) and consequences (culture optimization, decision optimization and environmental performance improvement) were analyzed. Since the decisions made in the curriculum design section and in relation to the elements of the curriculum should be more homogeneous and consistent so that the curriculum design is of higher quality and more effective.

Teacher education and culture building were identified as two underlying categories. Teachers, as the guides of the next generation who spend the most time educating students, have a significant role to play in this regard. Act against the environment and during the lessons, by emphasizing environmental points, teach students that they should respect their environment and be diligent in maintaining this divine trust. In the field of creating environmental culture, it can be said that one of the highest goals in promoting the environmental culture of individuals in society is to create knowledge about human interaction with the environment and the effect of his performance in a negative or positive way on the environment. Having literacy as a valuable ability is the cultural richness and inevitability of living with the growth of human values. Today, the growing life of societies is linked to literacy and knowledge, and promoting environmental culture requires increasing the productivity of human resources in the field of environmental issues and the expansion of environmental education on a larger scale.

Creating an environmental culture is in fact creating a kind of behavior and way of life that not only considers nature and its resources as a way for economic and social development but also it is necessary to achieve both and also a necessity for maintaining human survival. Therefore, by educating and creating environmental beliefs among the culture of society and students and teaching environmental ethics, it leads to having a proper culture to protect the environment, followed

by economic, social, cultural and environmental benefits, all preserved and the survival of the generation. Humans and resources are created for the next generation and the next generation. Environmental education policy, environmental budgeting in textbooks, teachers' attitudes and knowledge about environmental issues, environmental issues evaluation were identified as four intervening categories. In this century, which is the century of knowledge, environmental policy is of great importance. Because environmental literacy is based on ecological models and the ability to understand natural systems in a way that leads to work that leads to the protection, improvement and modification of natural systems.

Curriculum developers should develop a roadmap for environmental literacy in collaboration with the Environmental Protection Agency, Ministry of Science, and Education, with appropriate curricula, professional development, training frameworks, and assessment methods that can be used to envision an environmentally literate community in Iran. . In this study, strategy development (strategic planning) and implementation (infrastructure enrichment) were recognized as strategies that if curriculum planners pay attention to it, they can be more successful in increasing environmental literacy. Textbooks are the most important educational resource for students in all systems, and given the environmental concerns and the emergence of fundamental problems in this area, it is very important to create the infrastructure to teach environmental concepts.

The provision of infrastructure is so important that as long as the problems and problems of the environment in the form of educational programs and curricula at different levels of education, are not considered seriously and in principle, and through this students do not gain the necessary knowledge and insight. The continuation of human life and the future of human life will be in trouble. Environmental education infrastructures should seek to promote knowledge and perceptions and students 'interest and positive attitude towards the environment, and seek to develop the power of understanding, practical experience and students' appreciation of the material and biological systems on earth, interdependence They, the scientific and human dimensions of environmental issues and the evaluation of positive and negative results resulting from the interaction of human and natural systems. The main category of attitude and behavior was identified as practical behavior

and outcome of the curriculum based on increasing environmental literacy, which is sub-categories of attitude dimension (with components of decision optimization and culture optimization) and behavior dimension (improving environmental performance) Composed.

Many environmental problems are due to a lack of awareness and cultural weakness that begins in schools. In this rapidly changing world, one of the most important changes in contemporary thinking is a rethinking of people's understanding of the relationship between man and nature. Culture building in the field of environment should be done by supporting the holding of exhibitions, specialized conferences and applied environmental training courses. In the end, it can be said that in terms of the currency of the environment and related issues, we can create and improve opportunities to obtain the necessary information, values, attitudes and skills to protect the environment. In order to increase the level of awareness and curiosity of the public, including educators such as teachers about the environment, provide the ground for their active participation in solving environmental problems, so that people in the community, especially educators, the ability to understand basic concepts. Have the environment. Teachers are one of the main pillars of the education system without which no educational transformation will be truly successful. Informed and dominant teachers should try to acquaint students with the high values of advanced and humane society by emphasizing that particular culture and considering the historical conditions of the society, and be effective in teaching them, It should be noted that today the environment is exposed to serious threats at the global and national level and the changes that humans make in the environment and irresponsibility and lack of awareness about environmental issues have caused many problems in the environment and adverse effects. It is increasing, so having environmentally literate citizens is an undeniable necessity. One of the most important ways to achieve environmental literacy is environmental education, which plays a fundamental role in formal and informal education. Environmental education is a learning process that connects natural and man-made elements to each other and different scientific disciplines. One of the most important institutions that can train people with environmental literacy by creating and developing curricula and education in the field of environment is education.

In order to increase environmental literacy, students should be

familiar with the environment and its importance should be shown in written and weekly programs. Extracurricular curriculums should be taught to increase students' environmental literacy. Students should participate in various research issues related to the environment. To improve students' skills in dealing with environmental issues and to evaluate the change in students' attitudes after having the curriculum.especially in the field of effective issues.

Suggestions based on research findings

According to the dimension of the identified curriculum goal, the following suggestions are presented:

With financial and spiritual support in the field of increasing environmental literacy in the curriculum goals, positive beliefs and the level of interest of students should be strengthened.

Giving students independence of action in the goals of the curriculum to participate and make decisions in important research projects in the field of environment that will increase their environmental literacy.

The inclusion of the program to improve the professional qualifications of teachers in the goals of the curriculum to increase their scientific and research capabilities in the environmental field.

According to the dimension of the identified content, it is suggested:

In schools and in textbooks, the necessary grounds for the cooperation of teachers and students in environmental scientific and research projects should be provided.

In order to improve the scientific level of textbooks in the environmental field, the necessary platforms for the cooperation of domestic and foreign professors should be provided.

The opinions of expert professors should be used in important scientific and research decisions in the field of environmental content of the curriculum.

Evaluation of teachers' performance should be done periodically and continuously, and appropriate evaluation tools and criteria should be used to evaluate their performance in the field of increasing environmental literacy.

With the structural and content changes in the existing regulations and laws, favorable conditions should be provided for improving the environmental literacy of teachers.

According to the dimension of the identified learning process, it is suggested:

The field of study opportunities and the presence of students in environmental conferences should be provided.

In the country, seminars and conferences should be held to

acquaint students with scientific achievements in the environmental field.

According to the identified curriculum evaluation dimension, it is suggested:

Incentives and rewards should be done to carry out scientific and research work, which will increase the motivation of students to improve their abilities.

According to the consequences of the curriculum based on increasing environmental literacy, it is suggested:

Use of correct and precise international educational models for bio-environmental educational programs.

Development in educational and research bases for proper understanding of the concepts and basics of environmental protection in students' textbooks

Increasing the power and role of environmental education in school curricula with behaviors that support the environment and sustainable development at the national and global levels.

Creating appropriate scientific infrastructures for the development of environmental programs in schools

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