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Designing a Problem-Solving Skills Model Among Students in Khorramabad City (A Grounded Theory Study of High School Students)

Ali. Minaee[1], Zahra. Tanha[*], Razieh. Jalili[3]

[1] PhD student of educational management, Khorramabad Branch, Islamic Azad University, Khorramabad, Iran
[2] Assistant Professor, Department of Psychology, Khorramabad Branch, Islamic Azad University, Khorramabad, Iran
[3] Assistant Professor, Department of Educational Sciences, Khorramabad Branch, Islamic Azad University, Khorramabad, Iran

*** Corresponding author email address**: Tanha_zahra@yahoo.com

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A B S T R A C T

Objective: Nowadays, problem-solving skills have become one of the most critical components of educational systems. Therefore, the present study aimed to design problem-solving skills among high school students in Khorramabad city.

Methods and Materials: The present study was qualitative and applied in terms of its objective. The research population included specialists, experts, elites, and university professors. Through purposive sampling, 17 individuals were selected. The research tool was semi-structured interviews, whose validity was assessed using face validity and reliability through the inter-coder agreement coefficient, which was found to be 0.88. Data analysis was conducted using the Grounded Theory strategy (three-stage coding method).

Findings: The findings showed that causal conditions included the suspension of skill-oriented plans, lack of knowledge and specialized workforce, and neglect of verbal and communication skills. Contextual conditions included uniform education, weaknesses in educational leadership, the gap in critical education, and organizational and knowledge adaptability issues. Intervening conditions comprised viewing skills as leisure, lack of subject-specific knowledge, and weaknesses in verbal and communication skills. Strategies identified were creating environmental awareness, guided participation, and decentralizing formal learning. The outcomes identified were an incoherent and need-based self-concept, the inferiority and non-productivity of the educational system, and deepening quantity-oriented memorization.

Conclusion: The results indicate that strong leadership groups should be established, and formal education should be decentralized to pave the way for the emergence of students' creativity.

Keywords: *Text-based Prescriptive Policy, Critical Education, Decentralizing Formal Education.*

1. Introduction

In the education system, problem-solving and its associated skills are highly emphasized and are regarded as a crucial approach in curricular programs. Most educational experts believe that the poverty of thinking among individuals results from the dominance of traditional methods in schools. Schools should teach children how to think, and based on this, students need to learn thinking and problem-solving skills to face the astonishing transformations of contemporary society (Janbaz Laily et al., 2021; Mahzoonzadeh Bushehri, 2017). Thus, traditional methods need to be reconsidered. From this perspective, "methods play a significant role in achieving educational goals and organizing the educational situation. Effective methods can teach learners how to use knowledge and skills," (Brijlall, 2015) one of which is problem-solving skills, which combine practical and mental learning.

When cognitive sensitivity and problem-solving skills among students are weak and lacking, it leads to issues such as "the inability to adapt to social situations, negatively impacting students' understanding and relationships, resulting in difficult and weak social interactions. This situation compels students to give up on important people or issues in their lives" (Iranmanesh et al., 2020; Jacobs et al., 2008). In other words, these individuals, to avoid daily challenges and concerns that exacerbate cognitive deficits, try to escape certain conditions rather than address and solve problems (Nikpay et al., 2016; Rahimi & Dorbidi, 2019). Consequently, students face reduced behavioral and emotional adaptability (Entwistle et al., 2000; Iranmanesh et al., 2020; Jacobs et al., 2008), decreased motivation, and academic decline, and issues in completing tasks and other activities (Brijlall, 2015; Khalatbari et al., 2021; Rahimi & Dorbidi, 2019). Therefore, students with low problem-solving skills have a "negative cognitive style" (Jacobs et al., 2018) and cannot understand that having problems is a natural part of life. Instead, they see problems as something that only happens to them and, with a cognitive bias towards threats (Veisi & MacLeod, 2020), perceive the world as a dangerous and anxiety-filled place.

One of the most reputable and comprehensive models of problem-solving and its skills is from Marzano. This model is based on structural philosophy, which activates both the teacher and the learner. Additionally, it presents education as an investigative process aimed at helping learners understand what is happening around them (Al Rowais, 2019). Marzano assumes that the learning process involves interaction between five types of thinking, known as the dimensions of learning, reflecting how the mind works to change planning, curriculum design, and evaluation practices (Mahanal et al., 2022).

The first dimension, "positive attitudes and perceptions about learning," includes two aspects: classroom climate and classroom tasks, which engage and stimulate students to learn. The second dimension, "acquiring and integrating knowledge," includes declarative and procedural knowledge, where students engage in activities that help them gain new knowledge and relate it to prior knowledge. In the third dimension, "developing and refining knowledge," students respond to open-ended questions and engage in activities that expand and refine their knowledge. The fourth dimension, "meaningful use of knowledge," allows students to meaningfully use what they have acquired. The fifth dimension, "productive mental habits," involves creating situations and problems that enable students to apply thinking skills to acquire new information for use in life situations and problems (Mahanal et al., 2022).

Another significant approach is the deep and surface learning approach, first introduced by Marton and Säljö. They used the concepts of deep and surface learning approaches to show students' tendencies toward learning and how they tackle learning tasks. Students employing a deep approach aim to understand the material and construct meanings from the content they learn. Conversely, the surface approach refers to students whose goal in learning is merely to memorize the exact content for reproduction (Mahanal et al., 2022). In the surface learning approach, there is an emphasis on memorization and recall strategies, whereas the deep approach focuses on meaningful and effective learning (Rahimi & Dorbidi, 2019; Wu, 2024). In the deep approach, searching for meaning and understanding the material is crucial, while in the surface approach, rote memorization and reproducing it during exams is important (Entwistle et al., 2000). Thus, in deep learning, the learner focuses on understanding and connecting existing ideas within the material or task, aiming for long-term learning. However, in surface learning, the learner seeks to memorize and reproduce facts without focusing on the coherence of facts or discovering new relationships between learned concepts (Mahanal et al., 2022; Mahzoonzadeh Bushehri, 2017; Moradi & Mirbod, 2020; Nikpay et al., 2016; Onwuegbuzie, 2004).

Several studies have been conducted on the research topic. Janbaz Laily et al. (2021), using a quantitative semi-experimental pre-test-post-test design, showed that problem-

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solving and communication skills training in class had different effects on the negative and positive academic emotions of the experimental group students (Janbaz Laily et al., 2021). Mahanal et al. (2022), in their quantitative study, showed that active learning models improve students' problem-solving skills, increasing problem identification, solution construction, problem-solving, solution evaluation, and solution expansion (Mahanal et al., 2022). Choi et al. (2022), in their quantitative study using questionnaires, demonstrated that factors influencing problem-solving ability were age, communication competence, and metacognition, with metacognition having the most significant impact (Choi & Jeon, 2022).

In conclusion, it should be noted that the research is experimental, quantitative, and predictive. Most research in this field has attempted to evaluate the effectiveness of problem-solving skills among students using a semi-experimental pre-test-post-test design. However, the teaching of these skills has often been neglected. Despite various problem-solving models being used in the education system of Lorestan province and Khorramabad city for years, traditional approaches still dominate. These traditional approaches, similar to the instructions provided in textbooks, lack a specific meaning of problem-solving skills and continue to encourage memorization and rote learning. Studying the reports on behavioral-emotional problems, conflicts, anxiety, health, internet addiction, lack of creative and critical thinking, academic decline, low grades in core subjects, provincial exam rankings, opioid addiction, low marriage rates, and high divorce rates, it becomes evident that traditional methods have failed to support and guide students in addressing these issues. Therefore, the present study, using a qualitative approach and Grounded Theory strategy, seeks to answer the question of what is the optimal model of problem-solving skills among Lorestan students?

2. Methods and Materials

The present research approach is qualitative, using the Grounded Theory strategy for data analysis. The research population includes specialists, experts, elites, and university professors in the fields of educational sciences, psychology, sociology, and education, who are active in education, educational research institutes, provincial universities, and relevant organizations. These individuals, considered key informants, have experience and scientific and specialized knowledge, managerial and executive experience, experience in problem-solving among students, and leadership experience. Sampling was done purposefully and theoretically. Accordingly, in-depth individual interviews were conducted with 17 specialists. Interviews ceased based on the criterion of "theoretical saturation," meaning that similar data repeatedly emerged, ensuring empirical sufficiency and saturation. In this study, data collection was halted when no new data emerged from the interviews to expand or deepen the "categories" further. Data analysis was conducted in three stages (open, axial, and selective coding). Initially, line-by-line coding of the raw text was performed. Basic concepts were extracted from the codes, and concepts were categorized based on their relation to similar topics, referred to as "categorization" or "theming." The categories were then described based on their characteristics. Subsequently, the central category was selected, and the main categories were studied in a model-like relationship with causal and contextual conditions. The systematic and regular selection of the main category with other categories, validating relationships, and filling gaps with categories needing refinement and expansion were conducted in the final stage. To ensure the validity of the data, participant review, auditability, transferability, and peer review (method specialists) were employed. Finally, to ensure ethical considerations, the names and surnames of individuals were omitted, and in cases where individuals did not consent to recording their statements, recording was avoided.

3. Findings and Results

The age range of the participants varied from 31 to 61 years. The youngest participant was 31 years old, and the oldest was 61 years old. Among the 17 participants, four were women, and thirteen were men. The work experience of the participants ranged from 6 to 27 years, with the shortest being 6 years and the longest being 27 years. Regarding job positions, one participant was a researcher at the Educational Research Institute, three were educational leaders, eight were university faculty members, two were counseling teachers, two were deputy heads in the Education Department, and one was the head of the Educational Research Institute. In terms of specialization, two participants were in the field of educational psychology, one in educational sciences, three in educational management, two in child psychology, two in education, one in educational technology, two in sociology of education, two in educational policy, and two in educational planning.

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In the process of data analysis, initial open coding of the data was conducted. Then, concepts were constructed, and in the next stage, by aggregating the concepts, key categories were extracted. These categories were obtained based on the overlap between the basic concepts. The following is an example of the open coding process.

Table 1

Open Coding Process

Open Codes	Main Category
Traditional practices in education, inconsistency with modern experiences, lack of school infrastructure, repetitive teaching patterns, top-down approach in education	Organizational and Knowledge Incompatibility
Attention to the role of family, learning within everyday issues, consideration of the position of school, teacher, and family, issues outside of school, sensitivity to society and living environment	Creating Environmental Awareness

After extracting the basic concepts, the conditions for entering the axial coding stage were prepared. The most important feature of this stage was conceptualization. Conceptualization is derived from the similar ideas and experiences of the studied individuals about the phenomenon in question. We selected a name for these similar ideas and experiences, called a concept. In this coding stage, we identified initial concepts and sought to find examples for the concepts by delving into the data. Thus, by analyzing the data and reading it line by line, the text was streamlined. Then, open codes, concepts, and categories were identified. As a result, 443 initial open codes were extracted. Considering the open codes and their semantic aggregation, 81 basic concepts and 17 main categories with the highest level of abstraction and conceptual richness were identified. Table 2 lists the main categories of causal conditions, contexts, intervening conditions, strategies, and outcomes.

Table 2

Main Categories of Causal Conditions, Contexts, Intervening Conditions, Strategies, and Outcomes

Main Categories	Elements
Prescriptive Text-Based Policy	Central Phenomenon
Fear of Failure and Subjectivity	Causal Conditions
Undefined/Uninstitutionalized Problematization	
Utilitarian View of Education	
Low Resilience of Schools	
Uniform Education	Contexts
Weakness in Educational Leadership	
Lack of Critical Education	
Organizational and Knowledge Incompatibility	
Skills as Leisure	Intervening Conditions
Weak Subject/Contextual Knowledge	
Weak Verbal and Communication Skills	
Creating Environmental Awareness	Strategies
Guided Participation	
Decentralizing Formal Learning	
Incoherent and Need-Based Self-Concept	Outcomes
Inferiority and Unproductiveness of the Educational System	
Deepening Quantity-Based Memorization	

The central phenomenon is prescriptive text-based policy, meaning that transitioning from what is prescribed and presented in textbooks is not easily possible for schools, teachers, and students. Educational policies are such that all schools must adhere to them. Educational texts are designed without considering the cultural and social conditions of the students and the cultural geography of the schools. In these conditions, the emergence of educational creativity and students' talents is minimized. Prescriptive text-based policies, developed from a top-down perspective, have prevented teachers from expressing their ideas in teaching. Students are also faced with texts designed with minimal space for their creativity. Consequently, the interaction between teachers and students and between schools and

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parents has decreased, making school activities repetitive and something that must be merely passed through.

In our educational system, there is no room for maneuver for schools and teachers because certain lessons must be taught throughout the year and completed. What is the role of schools and teachers? The fundamental principle is that everyone in the country must follow it (Participant No. 11).

Prescriptive text-based policies have a classical view of school and education, meaning that talent and creativity are only valued within the framework of what has been developed. Here, we also witness a type of educational conservatism, and differences and identities are ignored. This situation prevents the emergence of critical thinking, referred to as the "lack of skill-based/critical education" in the contexts. Here, the power of selection and choice by teachers and students is minimized, and efforts are made to achieve the closest proximity to educational standards through various levers. Thus, an organic interaction between schools and educational policies does not occur, and the environment shifts towards mechanical and prescriptive interactions. From this perspective, education and designed content must be consumed, and success is considered in its light.

In a province like ours, education and school are different from those in Tehran. The quality of schools and teachers, the income level, and the family culture are thousands of things. The things taught here and the motivation and talent of students should not be measured with the same yardstick. Both the educational system and the school and students are sacrificed here. Unfortunately, differences are not considered (Participant No. 14).

Causal Conditions: Causal conditions consist of four categories: "fear of failure and subjectivity," "undefined problematization," "utilitarian view of education," and "organizational non-resilience." Each category is elaborated below.

Fear of being stigmatized and ridiculed by classmates, negative views from family, and being ignored and punished by teachers and school administrators are the most important factors that have led to the infiltration of subjectivity among students. In these conditions, students prefer to hide the problem rather than face failure and become the subject of others. Thus, between the dichotomy of hiding the problem and revealing it and the fear of failure and subjectivity, they choose the former and avoid expressing and revealing it. Participant No. 4 states:

Punishing students when dealing with their problems is an important factor. They are anxious about being punished while going through the steps [with the problem and the process of solving it]. Moreover, they are ridiculed by their classmates.

Problem-solving skills become important in schools and among students when the boundaries and value of skill acquisition based on problems are specified and institutionalized in policies. When this gap exists between theory and practice, the possibility of establishing the semantic and conceptual implications of problem-solving skills disappears. Therefore, defining what is a problem for the student and how they can be equipped with skills to help them overcome problems is an important issue whose requirements have not been defined. The creative power and flourishing of students' inner capacities are not considered significant in the school context, and fostering creativity and improving problem-solving skills are not institutionalized based on specific mechanisms. Thus, students focus more on the text and the teacher who teaches them than on representing problems and trying to solve them. Participant No. 16 states:

Problem-solving and its skills are not institutionalized in schools, and it is not handled correctly. I am an educational leader and I see that this dynamism is not yet established and is only given lip service.

With the technicalization resulting from a utilitarian view, the performance evaluation of schools and teachers is based on grades and averages. In this situation, no plans or programs show how much teachers and schools focus on students' self-awareness and creative and critical thinking. As a result, the input and process of education are sidelined, and the output is considered important and becomes the evaluation criterion. Economic expenditures by parents and schools create the perception that high grades equate to high performance and quality. Thus, quantity is always emphasized.

Creativity and value and skills are overshadowed by grades and averages. Schools are looking to build resumes, parents are looking for good grades and averages, and teachers are looking to get by (Participant No. 5).

Traditional teaching methods and the teacher-student relationship, along with the lack of efficient human resources, have rendered schools lacking in optimal resilience. In this situation, the school mainly becomes a place where students must learn textbook content and teachers must teach what has been prescribed. Thus, psychological-social acceptance occurs with difficulty. This environment reduces students' emotional and social adaptability, and as a result, students perceive that when they

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face their own issues and challenges, they cannot rely on the school, and even if they do, they cannot receive appropriate solutions. Participant No. 9 states:

Our schools do not have the capacity to solve students' problems. As a deputy, I see the situation in schools. Some city schools do not even have proper heating and cooling systems, let alone solve students' problems. There are not enough quality teachers.

Contexts: Contexts consist of four categories: "uniform education," "weakness in educational leadership," "lack of critical education," and "organizational and knowledge incompatibility." Each of these contextual components is elaborated below.

Considering a series of circulars and regulations without the context and background of schools deprives students of the opportunity to display their abilities. Additionally, top-down laws remove the management of schools from a democratic and participatory state, reducing the motivation for their extracurricular activities by decreasing the power of teachers and school administrators. In this situation, the school environment does not lead to creating desired environmental awareness.

Problem-solving skills and creativity are largely dependent on the environment. When you are forced to work within a specific standard that is not related to your teaching environment, you become exhausted, and the student gains nothing (Participant No. 17).

Educational leaders guide the educational activities of their group at each academic level in specific situations, structuring them and preventing arbitrary and scattered actions. Thus, when leaders are weak and no integrated legal frameworks balance their responsibilities, confusion, and parallel work arise, making it difficult for them to understand students' problems. Therefore, educational leaders, as intermediary links, play an important role in reducing academic disruptions and overcoming students' problems.

Leaders should remove the everyday layers and focus on the depth of education. But they lack both the knowledge and the motivation. They only visit schools repeatedly and report some routine issues. Here, there is no room for problem-solving skills, creativity, sustainable interactions, and such things (Participant No. 15).

In the absence of critical thinking and keeping students quiet and forcing them to repeat content, conditions are created that not only do not encourage students to think but sometimes even strengthen the belief in teachers that thinking disrupts the educational flow. Therefore, the educational system, particularly in schools, should provide conditions where students can engage in mental efforts to solve problems with independent and free thinking, evaluate the type, method, quantity, quality, validity, and value of the educational content presented, and recognize the truth through reasoning to make logical decisions in challenging situations.

Teachers do not allow students to express their opinions freely because they might say something against the rules or political. This has not been established, and creativity is suppressed. A good student is one who operates within strict educational frameworks (Participant No. 17).

Intervening Conditions: Intervening conditions are manifested in three categories: "suspension of skill-oriented plans," "lack of knowledge and specialized workforce," and "neglect of verbal and communication skills." Each of these conditions is interpreted below.

Usually, when a student faces a specific problem or parents or teachers feel the student is facing a challenge, measures are taken to solve that problem. In these conditions, problem-solving skills are defined as a temporary matter, not a process within the students' educational cycle. The result of a temporary and remedial view of problem-solving skills is a pessimistic view of this category, meaning the problem is considered negative, and a student facing a specific problem is sometimes stigmatized and looked down upon. From this perspective, problem-solving skills, which students should be familiar with regardless of having a problem, become an individual and pathological issue with a high negative load.

There should be a specific structure and design for this issue so that students get familiar with problem-solving skills throughout the week, otherwise, it will not have any specific outcome and will remain just as a slogan (Participant No. 8).

Lack of contextual adaptation with specialized knowledge is one of the most important challenges of human resources in this field. In some cases, active school personnel have good specialized knowledge and subject knowledge, but due to a lack of lived experience and sustainable interaction with the cultural and social context of schools and parents, they do not have the desired contextual knowledge. This leads to a gap in practice, making it difficult to align specialization with the students' lifeworld to address their issues and provide appropriate skills. From this perspective, when subject-specific and specialized knowledge does not align with contextual and cultural knowledge, problem-solving skills either do not occur or happen with difficulty. Students analyze and imagine in the

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context they live in, so they must be made to understand that the problem and its solution are possible in that same context. However, when faced with challenges in understanding subject knowledge, their cognitive order is disrupted, and they tend to avoid or remain silent about the problem. Participant No. 10 states:

An academic perspective on students' everyday issues does not work everywhere. A connection must be made between living context and educational context for effective results. It is not possible to enter children's world academically and theoretically.

Strategies: Three strategies are identified that direct problem-solving skills among students towards flourishing: "creating environmental awareness," "guided participation," and "decentralizing formal learning." Each strategy is examined below.

By gaining comprehensive awareness (understanding the positive and negative aspects of the living environment), students learn that all thoughts, feelings, and troubling issues are part of their natural life, and the way to overcome them is through creative engagement and acquiring necessary skills to solve them. Students who develop good mindfulness are capable of viewing issues as stimuli for new opportunities because mindfulness constantly creates experiences for them, helping them find potential solutions for their problems. Additionally, environmental awareness sensitizes students to how they can use the emotions and feelings of others and, in turn, share their own emotions and feelings. This plays an important role in reducing what we referred to as "weak verbal and communication skills."

Students must learn that their life is not just about school and home, and they also live in a community and need to be aware of it; they need to be aware to interact, not be indifferent, think about problems, and such things (Participant No. 7).

Problem-solving skills are developed through active engagement and teamwork by systematically establishing participatory frameworks. In places where cooperation and collaboration are needed, students learn to communicate with others. This not only reduces negative and dependent self-concept (refer to outcomes) and fear of failure (refer to causal conditions) among them but also strengthens their sense of responsibility and social commitment. In guided participation, small working and study groups are organized, where each student depends on others and each responsibility depends on the responsibilities of others. In these conditions, they strive to help the group by finding the best paths and acquiring newer skills, balancing individual values and group values. Participant No. 1 states:

A significant part of students' skills emerges in group and participatory work. Individual activities should be reduced and teamwork should be strengthened.

Outcomes: The outcomes are closely related to the strategies adopted. The outcomes of the strategies taken are: "incoherent and need-based self-concept," "inferiority and unproductiveness of the educational system," and "deepening quantity-based memorization."

When students face a closed environment without environmental self-awareness and with the highest level of authority in school, they lose the possibility of achieving a coherent identity and self-awareness because the perception is created that they are tools in the hands of the environment and others, depriving them of the power to choose and select, and they cannot share their feelings and emotions with others or be part of daily life events. In these conditions, they face dependency and a constant need for others (family and teachers), challenging their ability to express creativity, share emotions, prioritize tasks, and complete their assignments.

It is evident that when there is no opportunity to choose, no quality school, no role in participatory activities, and they cannot talk to others, they cannot become independent and skilled to solve their problems (Participant No. 10).

One of the significant outcomes that have stifled students' problem-solving skills is the unproductive educational system. Due to the lack of organic and contextual connection with the cultural and social structures of geographical and cultural regions of the country, the educational system has failed to achieve its goals. Adopting text-based and quantitative policies, along with not considering students' role in choosing what they study, has created a disconnect between input, process, and output. In this situation, self-concept weakens, and learning motivations drastically decrease. Additionally, what is learned is overshadowed by past experiences and forgotten, making students feel that their effort and study are futile and worthless.

I would just say that in the school where I teach, the student says, "I just want to get a grade and move on. What happened to those who studied? I want to work; school is a waste of time!" This is the mindset our educational system has instilled in students, bringing them to a dead end (Participant No. 17).

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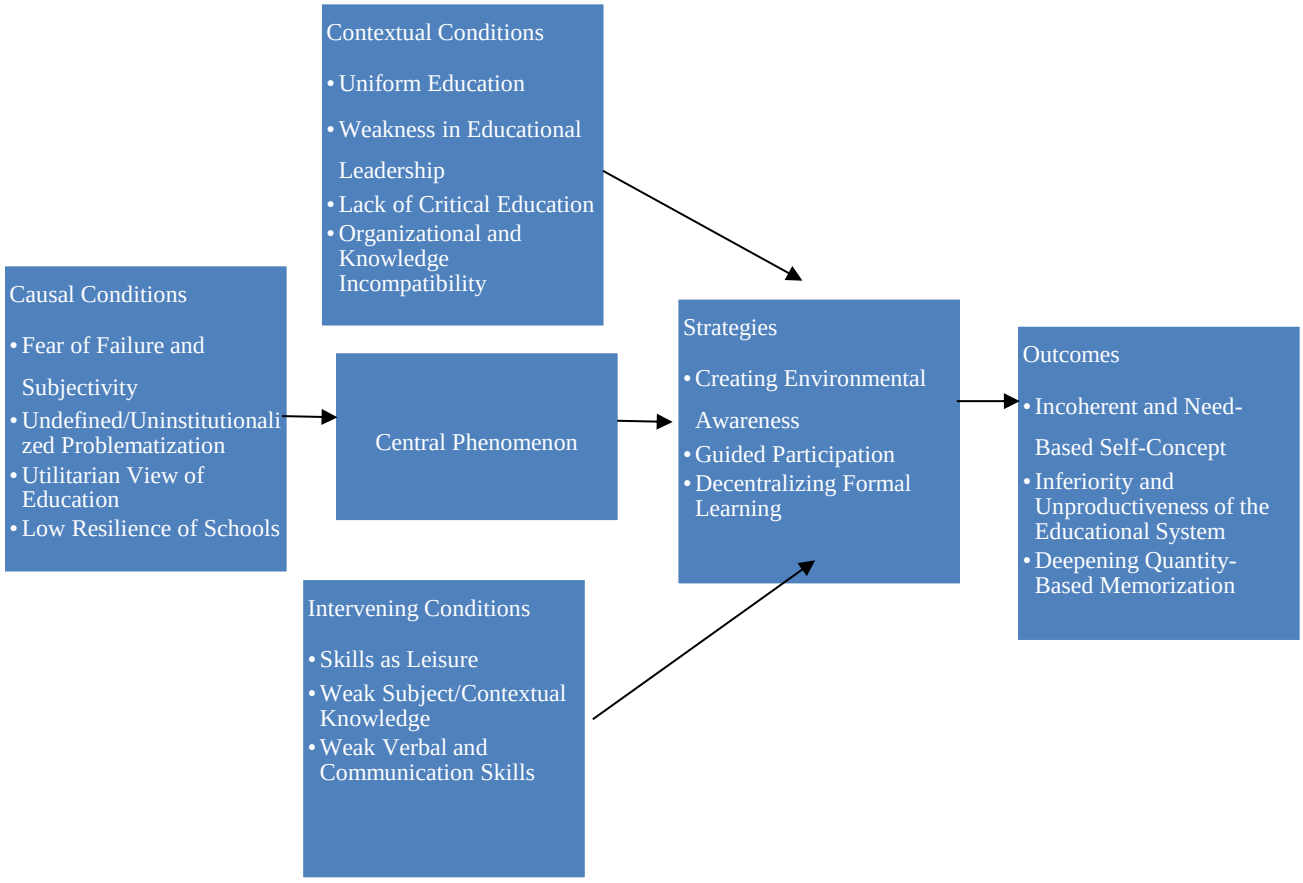
Figure 1

Paradigmatic Model of Problem-Solving Skills Among Students



4. Discussion and Conclusion

This study aimed to design a problem-solving skills model among students in Khorramabad. Using the Grounded Theory strategy, we attempted to achieve a coherent understanding of this issue by organizing categories based on open and axial coding stages. Through data analysis and coding, prescriptive text-based policy was identified as the central phenomenon. The causal conditions governing this central phenomenon include fear of failure and subjectivity, undefined problematization, a utilitarian view of education, and organizational non-resilience. Uniform education, weakness in educational leadership, lack of critical education, and organizational and knowledge incompatibility are the contexts for the growth of this phenomenon. These, combined with intervening conditions such as the suspension of skill-oriented plans, lack of knowledge and specialized workforce, and neglect of verbal and communication skills, have created conditions for the weakness of problem-solving skills. By creating environmental awareness, guided participation, and decentralizing formal learning, this weakness can be somewhat overcome. Otherwise, we will witness an incoherent and need-based self-concept, the inferiority and unproductiveness of the educational system, and the deepening of quantity-based memorization.

Despite the long-standing use of various problem-solving models, traditional approaches still dominate Khorramabad and Lorestan province. This traditional approach, similar to the instructions provided in textbooks, lacks a specific meaning for problem-solving skills and continues to encourage rote memorization. In Khorramabad, due to the text-based focus, the content is not compatible with current conditions and cultural and social needs. One of the main reasons is the authoritarianism in education. Teachers and schools, as the driving forces of education, have the most power in the educational process. This has turned education

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into a top-down process where students must study without considering environmental awareness and with the least possible curiosity (Jacobs et al., 2008; Janbaz Laily et al., 2021). Given that the existing social and cultural structure is based on authoritarian parenting styles, this has institutionalized a sense of inferiority and a weak self-concept among students. A weak self-concept is associated with a fear of failure, and thus, with the authority of the teacher and family, the student tends to prefer passivity over critical engagement, aiming to achieve higher grades and GPA.

The results of this research are consistent with prior studies (Choi & Jeon, 2022; Jacobs et al., 2008; Janbaz Laily et al., 2021; Mahanal et al., 2022). Analyzing the findings, it can be said that problem-solving skills are learned sustainably throughout the education period. If these skills are appropriately taught, especially during early education in elementary school, students are expected to be more successful in later education stages (Jacobs et al., 2008). Additionally, problem-solving skills provide students with a way to challenge life situations. When problem-solving skills are well taught, they will be helpful in various situations. Today, schools strive to teach problem-solving skills effectively, as these skills prepare students to tackle life's challenges as well as they solve problems (Mahzoonzadeh Bushehri, 2017).

5. Limitations & Suggestions

The present research faced limitations such as a lack of cooperation from schools, recent unrest in schools (poisonings), difficult access to specialists, achieving participation from a diverse range of interviewees (specialists with different perspectives as mentioned in the method), and the requirements of coding and data analysis. However, it is suggested that to enhance students' problem-solving skills, their environmental awareness should be increased. By creating procedures to decentralize education, verbal and communication skills of teachers (school staff) and students can be developed, enabling them to engage in problem-solving discussions. Additionally, institutionalizing and embedding a problem-solving skills course can reduce the pressures of failure among students and cultivate a more critical mindset.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed to this article.

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