



*Research Paper*

## Prerequisites for a problem-based teaching-learning strategy tailored to the generational characteristics of undergraduate students of educational sciences and social sciences

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### Abstract

**Aim:** The aim of the present study was to identify and explain the prerequisites of a problem-based teaching-learning strategy tailored to the generational characteristics of undergraduate students of educational sciences and social sciences. The research design is exploratory mixed-methods. Grounded theory was used for the qualitative phase, and descriptive survey was used for the quantitative phase. The statistical population in the qualitative phase included experts in the two fields of educational and social sciences, and that of the quantitative phase consisted of professors and undergraduate students from the two faculties of educational sciences and social sciences at Tehran University and Isfahan University. Data was collected through semi-structured interviews in the qualitative phase, and through a researcher-made questionnaire in the quantitative phase. Based on the findings, “integrating lesson concepts with real-life issues” topped the eight major prerequisites identified. Hence, currently students’ academic motivation and scientific development depends on the application of these components. Therefore, it is suggested that professors use the said methods in order to make the best use of educational opportunities.

**Keywords:** Higher education, Undergraduate, Problem-based teaching-learning, Generational characteristics, new generation

## **Introduction**

Traditional teaching approaches currently prevail Iran's higher education system. As such, student apathy and passivity in learning cast doubts on the effectiveness of such approaches. Experts believe that the biocultural norms of the new generation mandate the shift from teacher-centered teaching-learning paradigms to creative student-centered teaching strategies such as problem-based teaching methods (Seibert, 2019). Problem solving is an active creativity-oriented teaching method. Undoubtedly, students' scientific growth and progress results from the correct application of its characteristics in line with the requirements, interests, and skills of students. Despite the available opportunities and favorable circumstances, professors neglect this important issue (Shalini, 2021). Many researchers such as Mingla (2020), Tan (2021), and Djabbarova et al. (2020) have mentioned the characteristics of the current generation of students, like pragmatism, reasoning and questioning, and have deemed it necessary to apply problem-based teaching methods for them. With a new perspective on the subject, the present study also endeavors to answer the following questions:

1. What do experts think of the most central prerequisites of the problem-based teaching-learning strategy suited to the generational characteristics of undergraduate students in the fields of educational sciences and social sciences?
2. What do faculty members think of the extent each prerequisite of the problem-based teaching-learning strategy fits into the generational characteristics of undergraduate students in the fields of educational and social sciences?
3. What do undergraduate students in the fields of educational sciences and social sciences think of the extent each prerequisite of the problem-based teaching-learning strategy fits into their generational characteristics?

## **Methodology**

Since answering these questions has a functional aspect, the research was therefore designed as an exploratory sequential mixed method. Grounded theory was used for the qualitative phase, and descriptive survey was used for the quantitative phase. The statistical population in the qualitative phase included experts in the two fields of educational and social sciences. Targeted snowball sampling continued until data saturation with 29 participants. The statistical population of the quantitative phase consisted of professors and undergraduate students from the two faculties of educational sciences and social sciences at Tehran University and Isfahan University. A sample of 121 professors and 349 students was selected based on the

Cochran's formula with the proportionate quota sampling. Data was collected through semi-structured interviews in the qualitative phase, and through a researcher-made questionnaire in the quantitative phase, which was developed based on the indicators extracted from the analysis of interviews in the qualitative phase. Eight experts confirmed content validity of the questionnaire and interview questions. Reliability of the questionnaire was confirmed with Cronbach's alpha coefficient of 0.90. The construct validity of the questionnaire was also confirmed by confirmatory factor analysis in the Amos 24 software. The four criteria of credibility, dependability, confirmability and transferability were used to enhance the rigor of the qualitative data. Thematic analysis (Interpretive Structure Modeling) was used in the qualitative phase to analyze the findings. The quantitative phase applied descriptive-inferential statistics in the SPSS 25 software for data analysis. Descriptive statistics were used to describe the demographic characteristics of the study population, and inferential statistics of one-sample t-test, independent samples t-test, and the Levene's test and Friedman's test as deemed appropriate.

## **Results**

After analyzing the views of experts in the qualitative phase, 153 initial concepts were identified in open coding, which yielded eight main categories on the different dimensions of problem-based teaching-learning strategy in axial coding. The interviewees emphasized their relevance to students' generational characteristics and the necessity of their application by professors. In order of priority, these eight categories are 1) Integrating lesson concepts with real-life issues, 2) Identifying and explaining the main topics of each lesson, 3) Presenting lesson concepts as a problem, 4) Giving problem-based assignments, 5) Analyzing the various proposed solutions to each problem, 6) Elucidating the optimal situation for each problem, 7) Prioritizing thoughtful efforts over consequentialism, and 8) Guiding students in formulating and testing scientific hypotheses.

In the quantitative phase, all the components of problem-based teaching-learning (extracted from the qualitative phase) were rated by the respondents as "significant" or "particularly significant". According to the results of the independent samples t-test, professors, as compared with students, considered the following categories more relevant to students' generational characteristics: "identifying and explaining the main topics of each lesson," "giving problem-based assignments," "analyzing the various proposed solutions to each problem," and "guiding students in formulating and testing

scientific hypotheses". This difference was not significant in other categories.

## Discussion and conclusion

The qualitative and quantitative findings clearly indicate the need to shift the views of professors from traditional teaching methods to active and creative approaches, such as problem solving, in line with the generational characteristics of today's students. Students are currently more interested in learning topics which are more relevant to their real lives. Professors should make the main topics of each lesson understandable for students in practice. Presenting lesson concepts and activities in a problem-based manner and examining the various solutions presented by the students analytically will promote their critical thinking and, consequently, their deeper learning. Currently, students are less familiar with solving problems scientifically and their efforts are more oriented towards obtaining grades and certificates. This attitude distracts them from the main academic goals. Overall, it can be concluded that professors using the problem-based teaching-learning prerequisites mentioned in the present study will create motivation and self-confidence in students to learn. Hence, the following are proposed in teaching: 1) Highlighting the main concepts of each lesson and integrating them objectively with tangible applications to life in a problem-based manner, 2) Avoiding repetitive stereotype tasks that lack thoughtfulness, 3) Considering the solutions suggested by students in problem-solving, and 4) Considering the students' scientific evaluation criteria and their scientific efforts to solve academic problems.

One of the limitations of the present study is that the statistical population in the quantitative phase was restricted to undergraduates of educational sciences and social sciences. Therefore, it is recommended that similar studies be conducted in other fields in order to increase the generalizability of the findings.

## Reference

- Djabbarova, s., tadjieva, m., mardonova, r. N., & turaeva, g. (2020). Problem based learning and its efficiency in teaching process. *European journal of molecular & clinical medicine*, 7(2), 291-296.
- Mingla, L. (2020). *Proofs Methods and Logical Reasoning in Mathematics promote critical thinking, real-life problem-solving, and creativity skills to the new generation.*
- Seibert, S. A. (2020). Problem-based learning: a strategy to foster generation Z's critical thinking and perseverance. *Teaching and Learning in Nursing*, 16(1), 85-88. <https://doi.org/10.1016%2Fj.teln.2020.09.002>

Shalini, S. (2021). A Study on the Effectiveness of Problem-based Learning in Legal Education in India. *Asian Journal of Legal Education*, 8(1), 95-109. <https://doi.org/10.1177/2322005820984418>

Tan, O. S. (2021). *Problem-based learning innovation: Using problems to power learning in the 21st century*. Gale Cengage Learning.



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