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Original Article

Explain the Key Informant Viewpoints on the Educational Transformation and Innovation Plan in Iran's Health System Using the SWOT Approach

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Abstract

Background: Modernizing education means taking an innovative approach to it and creating solutions towards meeting both the current and the future needs of society. Identifying the weaknesses and strengths, opportunities, and threats that exist in the way of implementing transformation and innovation packages at universities can have positive outcomes for improving the quality of medical education. Therefore, this study aims to explain the key informant viewpoint on the Educational Transformation and Innovation Plan in Iran's Health System using the SWOT Approach.

Methods: The current research is a qualitative study conducted using the directed content analysis with a structured matrix approach from February 2021 to June 2022. The participants in this study included policy makers, key informants, and those involved in implementing transformation and innovation packages in medical education, selected through snowball and purposeful sampling. To collect data, in-depth and semi-structured interviews were used, which continued until data saturation was achieved. To analyze the qualitative data, Graneheim and Lundman's method was used.

Results: After continuous analysis and comparison, 658 codes were extracted, 12 subcategories, and four main categories were identified: strengths (innovation, consistency with policies, and being evidence-based), weaknesses (executive and administrative problems, stakeholders' lack of awareness, lack of career pathways and incentives, and poor engagement), opportunities (institutional capacity, international relations, and technological advantages), and threats (improper supply/demand, and lack of resources).

Conclusion: The success of the Transformation and Innovation Plan requires specialized mechanisms. It is necessary to overcome this plan's weaknesses and threats through the optimal use of the opportunities and the strengths, ultimately leading to the improvement of organizational performance.

Keywords: Education, Transformation and innovation plan, Health system, SWOT analysis

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Introduction

The plan to integrate medical education with health services was first presented in 1983 by the Supreme Council of the Cultural Revolution and then again in 1985. According to Article 1 of the bill, the goals of the integration included expanding universities and increasing the number of medical students, using more clinical and educational facilities in the medical education system, participating in and engaging medical education with the real problems and needs of society, and uniting the sector that trains and employs human resources (1). In general, there is debate and disagreement about the advantages and disadvantages of the merger plan. Some believe that, although this plan has prevented the multiplicity of health system management, if viewed critically, the existing educational and treatment processes do not meet the necessary standards. Some claim that on the one hand, the integration of medical education with the fields of health and medical services has led to the development of specialized human resources and improved health indicators, but on the other hand, education has been overshadowed by the imposition of a large number of students and the participation of fewer clinical faculty members in education, leading to a decline in the quality of medical education and the provision of medical services in the country's teaching hospitals (2).

The concept of transformation in the higher educational system is a fluid, developable, and complex concept that can be revised or developed through rethinking regarding the internal and external forces affecting higher education and the experiences resulting from the implementation of the plan of transformation and innovation (3). Iran, too, is developing a transformation plan in the medical

science educational system as the fourth step in the health system transformation plan, emphasizing the country's priorities. In this regard, a project with 12 packages (eleven operational packages and one for monitoring of the transformational project) was developed in 2015. The implementation of these packages was entrusted to the universities of medical sciences across the country. The organization of the transformation and innovation plan in Iran's health system based on the PIOCC model is presented in Table 1 (4, 5). In this regard, different planning models have been used to codify the packages of transformation and innovation in medical science education; these packages have been codified through a futuristic approach, and are a solution to respond to the future challenges of the country's health system (6). Therefore, considering that these packages deal with current problems and look at the future of education in the country, a comprehensive review of these packages is required to identify their strengths and weaknesses so that the necessary changes can be made.

Strategic analysis is considered a crucial step in the strategic planning process. At this phase, the status of the organization is evaluated based on its internal strengths and weaknesses, as well as the opportunities and threats it is facing in the external environment (7). In this study, the conceptual framework of SWOT is used. SWOT stands for Strengths, Weaknesses, Opportunities, and Threats. SWOT analysis is a framework to help evaluate and perceive both the internal and the external forces that may create opportunities or threats for an organization (8).

Policy evaluation is critical as one of the stages of the policymaking cycle in all areas of governance because, without evaluation, there is no guarantee of implementing the effectiveness of policies and achieving the goals set for organizational policy programs. Due to the specialization of the concepts related to the field of higher education of the health system and their intangibility, policymakers must have visible outputs and achievements in the short-term, medium-term, and long-term frames in simple and understandable language.

Identifying the weaknesses, strengths, opportunities, and threats that exist in the implementation of transformation and innovation packages in universities can have positive consequences for improving the quality of medical education. In addition to this, a detailed and comprehensive evaluation and review of this plan can be helpful for the managers and the relevant officials to improve the quality of education and implement subsequent policies. This research was conducted to obtain in-depth findings. These findings were based on the lived experiences, culture, and current social and religious background of the aforementioned groups, who are the most important people regarding the education transformation plan. Therefore, using a qualitative approach, the basic concepts related to it were extracted from their perspectives. This approach helped the researchers to analyze the commonalities and differences in the perspectives of the stakeholder groups without introducing bias in designing directed questions in quantitative questionnaires. Therefore, this study was conducted to explain the key informant viewpoint on the Educational Transformation and Innovation Plan in Iran's Health System Using the SWOT Approach.

Materials and Methods

Study Design

The present study is a qualitative study conducted through directed content analysis with a structured matrix method from February 2021 to June 2022. Content analysis is an appropriate method for obtaining valid and reliable results from textual data to generate knowledge, new ideas, and practical guidelines. This method aims to provide a compact and comprehensive description of phenomena with descriptive concepts through this analysis (9).

Table 1. Transformation and innovation plan in Iran's health system based on the PIOCC model

Dimensions	Items
Content-oriented packages (provision of input programs)	Strategic, targeted, and mission-oriented development of higher health education programs
	Foresight and scientific authority in medical education
	Improving assessment and tests (the section related to the selection of postgraduate students)
Process-oriented packages	Internationalization of medical science education
	Development of virtual education in medical sciences
	Territorial purpose, mission orientation, decentralization, and enhancing the capabilities of universities
Output-oriented packages	Professional ethics improvement
	Responsive justice-oriented training
Contextual packages	Moving towards third-generation universities
	Development and improvement of medical science education infrastructure
	Responsive justice-oriented training
Focused monitoring and evaluation packages	Improvement of the evaluation system and medical science tests
	Accreditation of educational institutions and hospitals

Study Participants

The participants in this study were key informants, including policy makers, faculty members, and individuals involved in implementing transformation and innovation packages in medical education from all over Iran, who were selected through snowball and purposeful methods. Table 2 shows the demographic characteristics of the participants.

Data Collection

To collect data, in-depth and semi-structured interviews were used, which continued until data saturation was achieved. This saturation occurred when no additional data emerged defining the characteristics of the categories in the study, and all the desired comparisons had occurred. An interview guide, which had been designed following the literature and based on the research question, was used to conduct the interviews. It included five general questions related to the study's objectives.

Interview Questions

The questions included "What is your opinion, as an expert, regarding the executive dimensions of the educational transformation plan in Iran's health system?", " In the internal environment of the organization, which abilities and strengths (outstanding competencies and competitive advantages) are there to realize the mission and the vision of the educational transformation plan, on which the organization can rely?", "Which weaknesses or vulnerabilities is the organization facing in its internal environment that hinder its success?", "In the environment outside the organization, which opportunities are there that should be used to realize the educational transformation and innovation plan?", and "Which threats are there in the outside environment that should be avoided or for which it is necessary to find solutions?" Besides, to access the participants' more profound experiences, the researchers also used exploratory questions such as "What do you mean?", "Could you provide more explanation? ", and "Could you give an example?"

Before conducting the interviews, the researchers clarified the aim of the research and the confidentiality of the information, the participants' identities, and the recording of the interviews. After receiving informed consent from the participants, the interviews were conducted in a completely quiet, private environment, based on prior agreement and participants' preferences. The average duration of interviews with key informants was 45 minutes.

Data Analysis

Data collection and analysis were done simultaneously. To analyze the qualitative data, the Graneheim and Lundman method was used. Data management was done using MAXQDA software. To begin data analysis, each of the recorded interviews was listened to several times and then transcribed and reviewed by the first researcher. For this purpose, after conducting each interview, the text of the interview was first transcribed. Then, in the first phase, the text of the interview was reviewed to obtain a general perception of the text. Considering that qualitative

Table 2. Demographic characteristics of participants in the research

No	Sex	Age (year)	Work experience (years)	Position	Expertise	Education
1	Male	45	12	Director of the Center for the Study and Development of Medical Sciences Education	Faculty member	Clinical doctorate
2	Male	39	10	Member of the Council for Transformation and Innovation in Education	Faculty member	PhD in Environmental Health Engineering
3	Female	45	16	Curriculum Development Working Group Member	Faculty member	PhD in Nursing
4	Male	30	7	Member of the Research and Development Working Group in Education	Faculty member	PhD in Nursing
5	Male	38	5	Member of the International Partnership Development Working Group	Faculty member	Clinical doctorate
6	Female	35	3	Member of the Management and Human Capital Development Working Group	Faculty member	Clinical doctorate
7	Male	65	24	Member of the Educational System Accountability Committee	Faculty member	PhD in Public Health
8	Male	50	15	Member of the Teaching and Evaluation Development Working Group	Faculty member	PhD in Nutrition Science
9	Male	55	20	Member of the Scientific Authority Working Group	Faculty member	PhD in Hematology
10	Female	42	13	Member of the Faculty Empowerment Working Group	Faculty member	PhD in Epidemiology
11	Female	50	18	Member of the Working Group for the Standardization Of The Education Process and Infrastructure	Faculty member	PhD in Pharmacy
12	Male	46	10	Member of the Social Needs Assessment Working Group	Faculty member	PhD in Rehabilitation
13	Female	48	13	Virtual Education Development Working Group	Faculty member	PhD in Medical Education

research requires researchers to immerse themselves in the data, the researcher listened to the interviews several times. The researcher read the transcript many times to gain a deeper understanding of the data. Next, the meaning units were extracted from the participants' quotes. Then, the codes were extracted from meaning units, classified based on semantic and conceptual similarities, and refined to be as concise as possible. There was a downward trend in data reduction in all analysis units, as well as in the sub- and primary classes. Thus, the subcategories, categories, and finally, themes were extracted (10, 11). Considering that the research conceptual framework was the SWOT model; after coding the data, they were placed in the four classes of the model: strengths, weaknesses, opportunities, and threats.

Rigor

The criteria provided by Lincoln and Guba were used to confirm the accuracy and the validity of the data (12). To establish the validity, the researchers had long-term interaction with the participants, leading to the discovery of their more profound experiences. To examine the reliability, a combination of several methods of interview, observation, note-taking during the interview, and monitoring by external observers was used. In order to ensure the confirmability of the data, all phases of the research, the analysis process, and the formation of the classes were recorded and transparently provided to the participants. In order to reach transferability, efforts were made to include and describe the characteristics and experiences of individuals involved in the implementation of medical education transformation and innovation packages with maximum diversity in disciplines and educational levels (13).

Results

The present study's participants consisted of 13 educational faculty members and policy makers, with a mean age of 49.53 ± 11.95, 61% of whom were male and 38% female (Table 2). After continuous analysis and comparison, 658 codes were extracted, 12 subcategories, and four main categories, including strengths, weaknesses, opportunities, and threats, were identified (Table 3) (Figure 1).

The data analysis led to the identification of four main categories: strengths, weaknesses, opportunities, and threats of the Educational Transformation and Innovation Plan. These categories were further divided into 12 subcategories and 658 codes.

Strengths

The key strengths of the plan, as perceived by the key

Table 3. SWOT Categories, Subcategories, and Representative Codes

Main Category	Subcategory	Representative Codes
Strengths	Innovation	Innovative, purposeful, and needs-based design; recognized as a novel initiative in medical education; promoting knowledge production aligned with the health system; guiding universities toward scientific advancement.
	Policy alignment	Consistency with upstream documents; strong support from the government and Ministry of Health; delegation of responsibilities to universities with supervision; emphasis on quality, balanced development, and responsive education.
	Evidence-based design	Grounded in studies and expert consensus, inspired by models from developed countries, tailored to universities' missions and capacities, integration of professional ethics and interdisciplinary approaches, and attention to indigenous models and local needs.
Weaknesses	Executive and structural limitations	Lack of needs assessment and monitoring indicators; insufficient phase-wise planning; poor continuity and follow-up; limited studies on stakeholders' educational needs; shortage of interdisciplinary management; inadequate delivery prioritization.
	Lack of motivation and career incentives	Low accountability among academic leaders; emigration and better conditions abroad; reduced motivation among faculty and staff; financial concerns outweighing national service; and the absence of clear career pathways.
	Poor stakeholder engagement	Limited participation of headquarters units; neglect of organizational culture during package design; weak interdepartmental cooperation; insufficient standard educational content; low involvement of executives and clinical centers.
Opportunities	Institutional capacity	Presence of capable and committed faculty; students' eagerness for reform; expansion of medical education infrastructure; autonomy and self-sufficiency in training human resources; comprehensive educational planning based on global benchmarks.
	Internationalization	Strong and growing ties with international institutions; establishment of international university branches; facilitation of foreign student admission; use of global educational models and international collaboration.
	Technology access	Availability of internet and e-learning platforms; potential for online collaboration and consultation; access to reliable scientific databases and digital resources.
Threats	Mismatch between supply and demand	Increased student admissions without corresponding capacity; focus on quantity over quality; misalignment between academic output and health labor market demands; health education leaning toward treatment rather than prevention; lack of equity in access.
	Resource and infrastructure constraints	Limited financial resources and educational space; lack of experienced multidisciplinary faculty; inadequate facilities relative to student numbers; insufficient funding for research and development; poor internet access and equipment.

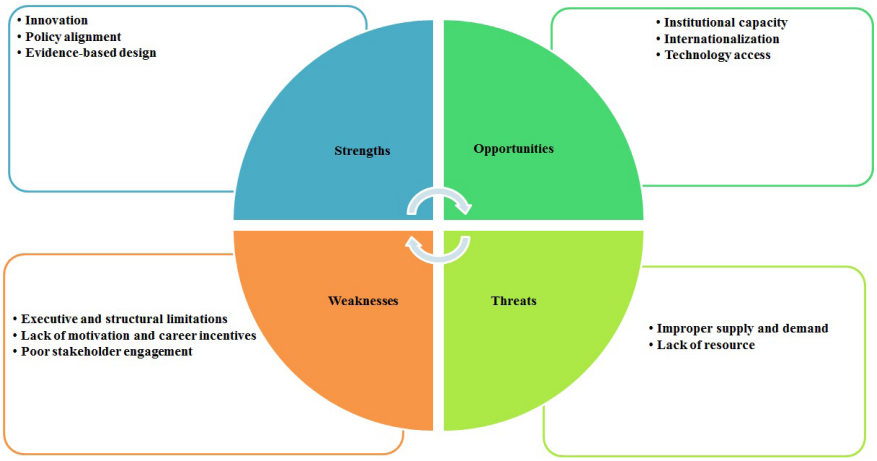

Figure 1. Study findings based on SWOT

informants, included innovation, consistency with policies, and being evidence-based. Participants noted that "the plan has a comprehensive structure based on upstream documents" (P1). Another major strength was the integration of stakeholder views during development and implementation: "Engagement of various stakeholders increased our commitment to execution" (P4). Additionally, the decentralization of implementation across universities was highlighted as a factor contributing to contextualized action.

Weaknesses

The key weaknesses of the plan, as perceived by the key informants, included executive-administrative problems, a lack of awareness, weak stakeholder participation, and a lack of career paths and motivation. The respondents raised concerns about inadequate initial infrastructure and a lack of coordination among departments. One interviewee noted, "There was no centralized monitoring mechanism to ensure coherence across universities" (P9). Furthermore, some packages were considered too theoretical, lacking operational clarity. Limited human resources and high turnover of decision-makers were also cited as barriers to sustainable implementation.

Opportunities

The key opportunities of the plan, as perceived by the key informants, included institutional capacity (support from the Ministry of Health and Medical Education), international relations, and technological advantages. Participants emphasized that the alignment of the plan with international standards created the potential for academic partnerships and benchmarking: "This was a great chance to align with international accreditation norms" (P8).

Threats

The key threats to the sustainability of the plan included an imbalance between supply/demand and the lack of resources. As one participant mentioned, "The inflexible and insufficient supply system (the lack of diverse methods of higher education) is one of the most important threats in this dimension" (P11). Financial constraints and overlapping duties between education and service delivery were also considered significant threats.

Discussion

The findings of this study, we identified 12 subcategories that fit into four main categories: strengths, weaknesses, opportunities, and threats. The strengths include innovation, alignment with policies, and evidence-based practices. On the other hand, the weaknesses encompass administrative challenges, a lack of awareness among stakeholders, limited career advancement options, and poor engagement. As for opportunities, we see potential in institutional capacity, international relations, and technological advantages. However, we also face threats like the imbalance between supply and demand and resource shortages.

One of the main strengths highlighted by participants was the alignment of the transformation plan with upstream documents and national macro-policies. This coherence creates a strong foundation for sustainability, especially in contexts where frequent changes in administration challenge policy continuity. Creativity and innovation should be an inseparable part of the holistic approach to education and be part of the educational system. The reason is that creative ideas feed the innovation process, and improved innovation leads to increased competitiveness (14). The decentralization of implementation and the relative autonomy provided to universities were seen by informants as both a practical strength and a motivational factor. It allowed universities to contextualize the packages according to their needs, leading to better integration of the reform in their local ecosystems. This is consistent with findings from other countries, where decentralization has improved ownership, flexibility, and efficiency (15, 16). Moreover, the participants pointed to this plan's evidence-based

approach as one of its strengths. Among the existing approaches to effective policy process in higher educational systems, the new evidence-based policy approach has been more successful compared to other methods in the domain of policy making from the developed regions such as England, as the origin of evidence-based policy making, the United States, and Australia to developing countries like Tanzania (17, 18).

Despite the robust structure of the plan, several weaknesses were identified that may hinder effective implementation. Informants repeatedly emphasized the absence of a coherent and unified monitoring system as a critical gap. This lack of real-time oversight may lead to fragmented execution and inconsistency across institutions. Such challenges have been previously reported in national transformation efforts in countries with decentralized education systems (19). Another major weakness was the theoretical nature of some packages, which lacked practical guidelines for implementation. The gap between conceptual frameworks and actionable steps is a recurring theme in reform literature and often contributes to what is termed "reform fatigue" – a phenomenon in which stakeholders become disengaged due to unclear pathways to change (20). In addition, numerous studies have pointed out motivational harms such as the shortage or the lack of sufficient motivation and incentives in the entire organization, the lack of financial and spiritual incentives, and the lack of clear regulations in determining supportive and binding incentive mechanisms as the known harms that prevent the correct implementation of packages (21-23).

The broader policy environment in Iran, particularly the support from the Ministry of Health and the emphasis on improving educational quality, creates opportunities for advancing the transformation plan. Global trends in medical education, such as competency-based training and the integration of technology, were viewed as additional enablers that could be harnessed for further development. According to Roga et al. (24), leveraging international standards and aligning with global benchmarks enhances credibility and provides new avenues for institutional partnerships. Participants also recognized opportunities in the form of growing awareness among faculty and students regarding the importance of educational reform. This cultural shift, though still in its early stages, represents fertile ground for innovation and experimentation in curriculum design, evaluation methods, and inter-professional education (25). The rise of digital technologies and remote learning platforms, particularly during the COVID-19 pandemic, has accelerated this transformation and created space for blended learning models (26, 27).

The threats identified, namely political instability, limited financial resources, and faculty resistance, are consistent with challenges faced by many reform efforts globally. In Iran, the integration of medical education with service delivery has long posed structural difficulties. Participants noted that ambiguity in roles and overlapping responsibilities often dilutes accountability and strains faculty capacity. Resistance to change, particularly among senior faculty, was frequently attributed to unfamiliarity with the reform goals, fear of increased workload, or skepticism about outcomes (21, 22, 28). These insights echo findings from regional studies on reform implementation, where targeted awareness and capacity-building programs were found to mitigate resistance (6, 23). A final yet critical threat is the unpredictability of financial support. Participants expressed concerns about budget constraints, especially in public universities operating under fiscal pressure. Without sustained investment, key components of the reform – such as faculty development, curriculum redesign, and student assessment – may remain under-resourced, risking partial or symbolic implementation.

Limitations

The most important limitations of the current research were the limited number of key informants, the difficulty of accessing them in the country's medical science universities, and the shortage of similar studies.

Conclusion

Together, the SWOT findings offer valuable insights for policymakers and university administrators. The strengths suggest that the reform is well-grounded and scalable, provided that the identified weaknesses are addressed. Opportunities exist to link the reform with global standards and innovations, while the threats demand proactive planning and stakeholder engagement.

Strategically, efforts should focus on: (1) developing robust monitoring and evaluation systems; (2) translating theoretical packages into actionable plans; (3) building faculty capacity through structured training; and (4) securing sustainable funding mechanisms. Periodic reviews, stakeholder feedback loops, and collaborative governance models could help institutionalize reform and make it resilient to external shocks.

In conclusion, the educational transformation and innovation plan in Iran represents a forward-thinking policy initiative. Its success, however, depends not only on sound design but also on practical implementation, continuous engagement, and adaptive leadership. By addressing structural and cultural barriers, Iran's health education system can move toward a more equitable, efficient, and future-ready model.

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Authors' Contribution

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Availability of Data and Materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing Interests

The authors have no conflicts of interest to declare.

Consent for Publication

Not applicable.

Ethical Approval and Consent to Participate

The current study was approved by the Research Ethics Committee of the National Agency of Strategic Research in Medical Education (NASR) under approval number 984921 (IR.NASRME.REC.1400.422). We obtained written informed consent from the participants. We also confirm that all methods were performed following the relevant guidelines and regulations consistent with the principles outlined in the Declaration of Helsinki.

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