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Analyzing the Achievement of the Objectives of Iran's University of Applied Science and Technology from the Perspective of Experts

Akram. Esmaeili Yadaki[1], Khodayar. Abili[2], Javad. Pourkarimi[3*]

[1] Ph.D. Student in Higher Education Management, Department of Educational Management and Planning, Faculty of Psychology and Educational Sciences, University of Tehran, Tehran, Iran
[2] Professor, Department of Educational Management and Planning, Faculty of Psychology and Educational Sciences, University of Tehran, Tehran, Iran
[3] Associate Professor, Department of Educational Management and Planning, Faculty of Psychology and Educational Sciences, University of Tehran, Tehran, Iran

*** Corresponding author email address**: jpkarimi@ut.ac.ir

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ABSTRACT

The efficiency of Iran's University of Applied Science and Technology (UAST) has been a contentious issue among researchers and higher education policymakers since its establishment. This study aimed to analyze the founding philosophy and the extent to which the university's objectives have been achieved, employing an exploratory mixed-methods approach. In the qualitative phase, inductive content analysis was used, while the quantitative phase employed the Delphi technique. The study population consisted of experts in applied science education (41 participants in the first phase and 116 in the second phase). Qualitative data were collected through document review, semi-structured interviews, and focus group discussions, while quantitative data were gathered using a researcher-developed questionnaire and analyzed with Excel and SPSS 23 software. Sampling was purposive in the qualitative phase and snowball in the quantitative phase. The validity of the study was confirmed through the evaluation of two external reviewers, and reliability was established using Cronbach's alpha (0.931). Findings indicated that the university was established to address four categories of material, efficient, formal, and final causes. These findings indicate that out of 36 objectives (16 educational, 14 economic, and 6 social), the university has successfully achieved 10 objectives, including enabling return or continuation of education, expanding educational equity and access, aligning knowledge with skills, ensuring continuity and coherence across academic levels, covering degree-based programs, facilitating participation of non-governmental and public institutions, and training specialized human resources required in the cultural and artistic, management and social services, and industrial sectors. These findings can serve as a basis for higher education policymakers in enhancing the quality of the University of Applied Science and Technology.

Keywords: *Applied Science Education, University of Applied Science and Technology of Iran (UAST), Higher Education, Goal Achievement, Expert Perspectives, Exploratory Mixed-Methods Research*

Introduction

In recent decades, many countries have moved toward strengthening skill-based and job-oriented higher education, emphasizing practical learning, interaction with industry, and alignment of curricula with economic needs (Billett, 2011; Varma & Malik, 2023). This type of education, internationally known as TVET, VPET, TPET, and applied science education, has established a significant presence in Europe, North America, Australia, and East Asia (De Weert & Beerkens-Soo, 2009; Cedefop, 2019). Global experience shows that applied universities play a key role in promoting educational equity, improving job skills, enhancing employability, and supporting regional development (De Wit, Yemini & Martin, 2015). Examples of success can be observed in U.S. two-year colleges, East Asian vocational systems, and high employment rates in the Philippines and China (Kisker, Cohen & Brawer, 2023; Tyagi et al., 2021; Mirakzadeh, Gholami & Shahbazi, 2021; Huang et al., 2022). In Iran, the history of vocational education spans over 170 years, and the establishment of the University of Applied Science and Technology (UAST) in the 1990s aimed to institutionalize skill-based higher education (Ebtekar, 1992; Haghpanahi, 2004). However, evaluations of the university's effectiveness vary, with some studies citing lack of macro-level policy coherence and structural coordination (Salehi Omran, 2014; Hosseini Rad & Kavousi, 2017; Sedghi et al., 2023), others highlighting deviation from the core mission and theoretical orientation (Bouzari, 2021; Moghannizadeh, 2001; Jafari Sani, Jahan & Shahsavan, 2018), and another group acknowledging partial effectiveness and employment outcomes (Izadi, Salehi Omran & Ghorbani, 2010; Darvishi, 2019; Avakh Kassimi, 2005).

Methodology

This study employed an exploratory mixed-methods approach conducted in two phases. In the qualitative phase, inductive content analysis of documents and review of upstream policies was combined with 41 semi-structured interviews with experts until theoretical saturation was reached. The findings were subsequently validated through a focus group consisting of 17 experts and two external auditors. Based on the results of this phase, a questionnaire was developed and distributed in the quantitative phase using the Delphi technique with a Likert scale among 116 specialists. Content validity was confirmed by expert review, and reliability was established with a Cronbach's alpha of 0.93. The data collected in the second phase were analyzed using Excel and SPSS 23, and descriptive statistics were employed to enhance the interpretation of the findings.

Findings

- **Research Question 1: The Core Idea and Founding Philosophy of the UAST**
  - Material Causes (Needs and Necessities): shortage of technicians in the national human resource hierarchy, the knowledge-oriented nature of traditional universities, limited government financial resources, and the absence of a sustainable model for university–industry interaction.
  - Efficient Causes (Key Actors and Founders): the key role of senior government officials in the 1980s, especially Dr. Ebtekar
  - Formal Causes (Founding Model): utilization of successful national and international experiences, creation of a unique university–industry collaboration model, work-integrated education, instruction by experts.
  - Final Causes (Founding Objectives):
    - Educational objectives: skill and knowledge development, academic continuity and coherence, coverage of all educational levels, program flexibility, applied and technological training, and internships;
    - Economic objectives: training specialists, technicians, and entrepreneurs required by industry, culture, services, and agriculture sectors; education based on occupational standards; enhancing productivity; job creation; fostering innovation; aligning education with labor market needs; and developing regional and international collaborations;
    - Social objectives: promoting educational equity, enhancing participation of governmental, public, and private institutions, and identifying and nurturing both manifest and latent talents.

Over 90% of experts agreed with the university's founding philosophy. There was disagreement regarding the focus on the associate degree, which was ultimately resolved by approving the "coverage of all educational levels" according to the statute.

- **Research Question 2: The Extent of Objective Achievement**
  - Educational: the highest achievement was in facilitating return to education, whereas the lowest were in coverage of non-degree education and coordinated student internships.
  - Economic: the greatest achievement was in training specialized human resources in culture and arts, while the least was in regional and international collaboration.
  - Social: the highest achievement was in expanding educational equity, and the lowest in actualization of latent talents.

Overall, the university's performance in the social dimension was above average, whereas educational and economic dimensions were evaluated as below average. The evaluation of goal attainment indicated that the university has performed satisfactorily in approximately 10 out of 36 objectives.

- **Research Question 3: Future Priorities of the University**
  - Education: coverage of non-degree education, coordinated internships, work-related applied training, integration of modern educational technologies, and utilization of workplace resources.
  - Economic: aligning education and research with labor market needs, employment and wage system transformation, regional and international cooperation, professional standards, and technology and innovation ecosystems.
  - Social: nurturing outstanding talents, realizing latent talents, and enhancing non-governmental institutional participation.

Conclusion

The findings indicate that over the past three decades, UAST has demonstrated above-average performance in social objectives by expanding educational equity, strengthening the participation of non-governmental institutions, and fostering individual talents. However, the educational and economic dimensions have faced challenges, including limitations in developing practical skills, aligning education with labor market needs, and utilizing modern technologies.

Analysis of the gaps between intended and achieved objectives reveals that high-priority goals identified by experts—such as coverage of non-degree programs, coordinated internship planning, and alignment of education with labor market needs—have not yet been fully realized. These findings align with previous studies (Mohammadi et al., 2015; Jafari Sani et al., 2018; Sadria, 2019), confirming the university's limitations in enhancing students' practical skills.

The founding idea of the university remains valid, and its core philosophy does not require fundamental change. Experts argued that, even if challenges persist, the university faces a potential "efficiency crisis" rather than a "legitimacy crisis."

Data analysis, aligned with international frameworks such as the European Centre for the Development of Vocational Training (Cedefop, 2017-2023), emphasizes that effective applied scientific education requires simultaneous attention to micro-level (practical skills), meso-level (educational system and institutions), and macro-level (labor market and governance) factors. Neglecting any level can reduce institutional efficiency.

Ultimately, achieving qualitative transformation requires governance reform, establishment of an independent multi-level quality assurance system, management stability, succession planning, and strengthened industry and societal engagement. Recommendations include adopting a government–university–industry participatory model, creating a national independent accreditation body, enhancing government resource provision, redefining criteria for recruitment and promotion of specialized faculty, strengthening applied research, establishing a university–research system, and continuous program evaluation. Study limitations included reliance on expert questionnaires, subjective evaluation, and limited access to senior administrators and former university presidents.

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