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Developing an integrated model for talent nurturing in Gulf higher education institutions: an analytical foresight approach

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This study aims to develop a sustainable, foresight-based model for nurturing university talent in the Gulf Cooperation Council (GCC) countries. The study employs a mixed-methods descriptive–analytical research design, integrating document analysis with expert consultation. It draws on a systematic review and analysis of selected international, Arab, and Gulf experiences in higher education talent development and collects data from a purposive sample of 53 experts working in GCC universities. The experts were purposively selected based on predefined criteria, including academic specialization, professional experience, and active involvement in talent development and excellence initiatives in higher education. The study adopted both quantitative and qualitative descriptive analytical procedures, including thematic analysis, to identify key indicators and practices related to sustainable talent development. The findings highlight the importance of establishing a clear institutional vision for university talent development, supported by an integrated organizational structure and policies that promote early identification of talented students, enhance their academic, research, and leadership capabilities, and ensure continuous evaluation of program outcomes. Analysis of global and regional experiences particularly the "Gifted Community" initiative as an applied Gulf model revealed that integrating talent development programs into university strategic frameworks enhances innovation, research productivity, and the university's societal impact. Based on these findings, the study developed a proposed foresight-based model structured around the integration of inputs, processes, and outputs. The model is built upon the principles of sustainability, empowerment, and innovation, providing a strategic framework that aligns talent development programs with the needs of academic and societal institutions. This model serves as an institutional guide for Gulf universities to establish a sustainable culture of talent nurturing, support academic excellence, and contribute to building innovation ecosystems in higher education.

KEYWORDS

foresight, Gulf Cooperation Council, higher education, mixed methods, model development, sustainability, university talent

Introduction

Gulf universities are increasingly focused on developing human capital and promoting excellence and innovation, with investment in university talent being one of the key pillars of strategic educational development. In recent years, global higher education systems have shifted toward viewing talent development as a strategic driver of innovation ecosystems, knowledge economies, and societal impact rather than merely an academic support function (OECD, 2023). However, talent development in higher education remains less advanced

compared to school-based programs, resulting in a gap in identifying and nurturing exceptional abilities among university students. This discrepancy is particularly evident in the transition phase from secondary education—where gifted programs are often structured and systematic—to universities, which frequently lack coherent mechanisms to absorb, develop, and extend students' previously identified talents. This gap underscores the need for systematic initiatives aimed at supporting talented students within an integrated learning environment that prepares them to innovate and achieve institutional excellence.

Amid ongoing economic and social transformations in GCC countries, investing in human capital—especially through university talent development—is a cornerstone for achieving sustainable development and institutional innovation. Research indicates that universities investing in talent programs significantly enhance academic excellence and research productivity, positively impacting their global competitiveness (Lavy and Goldstein, 2023; Muammar, 2018). Nevertheless, recent studies emphasize that without foresight-oriented planning and sustainability principles, many university talent initiatives remain fragmented and short-lived, limiting their long-term institutional impact (UNESCO, 2022).

Despite growing attention to gifted education at the school level, university-based talent programs remain limited. Studies show that higher education programs often emphasize traditional academic performance, with little focus on early talent identification or creating environments that foster leadership and creativity (Almukhambetova, 2020). This misalignment between secondary education outputs and university objectives creates a structural gap, where students identified as gifted in secondary schools are not systematically supported to translate their talents into research, innovation, and leadership outcomes aligned with university missions (Subotnik et al., 2019). Consequently, there is a growing call in the literature for integrative models that bridge secondary and higher education talent pathways within a coherent developmental continuum.

The study underscores the importance of analyzing the "Gifted Community" initiative implemented in GCC universities as a model case offering insights into identification strategies, support mechanisms, empowerment approaches, and program evaluation. Unlike many existing studies that focus on either school-level gifted education or isolated university initiatives, this research adopts a cross-level and foresight-based perspective that links pre-university talent identification with university strategic goals and sustainability imperatives. By examining this experience, the study seeks to extract lessons learned and propose a theoretical–applied framework for sustainable talent development at the Gulf level, enhancing universities' capacities for excellence and innovation.

Problem statement and research questions

Arab universities face growing challenges in identifying and supporting gifted university students, despite significant progress in school-level gifted education (Abdullah, 2021). The literature reveals that higher education institutions often adopt limited and unsystematic approaches, focusing on academic achievement rather than comprehensive development of creativity, innovation, and leadership skills (AlGhawi, 2017). Recent international scholarship highlights that this challenge is not merely operational but conceptual, stemming from the absence of foresight-based models that align talent development with universities' future-oriented missions and societal responsibilities (Subotnik et al., 2019).

This reality exposes a clear gap between school and university talent programs. While schools typically offer structured initiatives—including academic enrichment, psychological guidance, and leadership development—universities often lack clear policies, dedicated organizational structures, and effective evaluation tools for identifying and nurturing talent. Moreover, the lack of continuity between secondary education talent outputs and university input systems leads to a loss of accumulated human capital and weak integration of talented students into research and innovation ecosystems. The absence of such systematic frameworks results in underutilization of gifted human capital, reducing contributions to scientific innovation and institutional excellence. Accordingly, this study seeks to design a sustainable foresight-based model for university talent development that reflects the cultural and academic specificities of Arab universities, bridges the transition from secondary to higher education, and aligns early identification, enrichment programs, and empowerment with universities' academic, research, and societal leadership roles.

Research questions

1 What are the major international experiences in nurturing university talent?
2 What are the key Arab and Gulf experiences in university talent development?
3 How can academic and administrative experts utilize these experiences to design a sustainable foresight-based model for nurturing university talent?

Objectives

To analyze major international practices in university talent development and extract lessons and institutional models applicable to the Gulf higher education context.

1 To review and assess Arab and Gulf experiences in university talent development in terms of policies, structures, discovery programs, and empowerment mechanisms.
2 To explore experts' views on leveraging international, Arab, and Gulf experiences and aligning secondary education talent outputs with university goals to design a sustainable foresight-based model for nurturing university talent.
3 To build a proposed foresight-based model for university talent development in GCC countries that integrates inputs, processes, and outputs based on sustainability, innovation, and institutional empowerment.

Theoretical framework

University talent refers to students' exceptional intellectual, creative, or leadership abilities that can be developed to achieve distinguished academic and societal performance. Such talent is

essential for promoting innovation and institutional excellence in universities. Studies show that developing talented university students significantly enhances institutional innovation, educational quality, and research productivity, and is a core element of global competitiveness (Abou Nasser, 2019).

Integrating theoretical foundations

To strengthen the theoretical grounding of this study, the Triple-Helix model (Etzkowitz and Leydesdorff, 2000) is applied as a central framework, emphasizing the dynamic interactions between universities, industry, and government to foster innovation and knowledge creation. Within this model, university talent development is conceptualized as a strategic mechanism linking students' individual capabilities with institutional and societal innovation goals.

Additionally, Renzulli's Three-Ring Conception of Giftedness and Gardner's Theory of Multiple Intelligences provide complementary micro-level perspectives, focusing on cognitive, creative, and motivational factors that enable differentiated and personalized educational interventions (Toshpulatov S., 2025; Toshpulatov X., 2025; Albrahim and Al Rashidi, 2020). By combining macro-level innovation theories (Triple-Helix) with micro-level talent theories, this framework connects individual talent development to broader institutional and societal objectives, providing a robust theoretical basis for the foresight-based model proposed in this study.

Current status of talent development in GCC universities (enhanced)

Despite positive trends in higher education policies in GCC countries toward a knowledge-based economy, gifted education remains characterized by fragmented visions, inconsistent policies, and weak implementation. The lack of a coherent theoretical underpinning in most GCC talent programs contributes to limited alignment with universities' innovation and research missions (Matu and Paik, 2021). The absence of a unified definition of talent, limited diagnostic tools, and inadequate teacher preparation programs pose significant challenges to building a systematic framework for nurturing talent and aligning educational outcomes with institutional innovation. Establishing university environments that deeply understand gifted students' characteristics and provide advanced learning experiences fostering critical thinking and creativity is essential. Differentiated education remains a key pillar, enhanced through integration with institutional strategies that link talent programs to national innovation agendas and Triple-Helix partnerships.

Institutional and societal context in GCC countries

GCC universities aim to cultivate a culture of innovation as part of their transition to knowledge economies. However, in the absence of structured frameworks linking university talent development with industry and government initiatives, many programs remain *ad hoc*. Recent literature emphasizes integrating talent development into universities' strategic goals across research, entrepreneurship, and employability domains. The Triple-Helix perspective supports partnerships between universities, industry, and government to create environments conducive to creativity, innovation, and practical application of student talents (Syed et al., 2023; El-Saharty et al., 2020; Zhang et al., 2023). A strategic approach linking student talent with institutional excellence requires embedding talent programs into universities' research, entrepreneurship, and community engagement plans, making talented students active contributors to national development. This integration fosters synergy between individual growth and institutional distinction and aligns higher education outputs with societal and economic transformation (Ayoub et al., 2023).

International practices in university talent development

Globally, leading universities adopt comprehensive programs and policies for gifted students based on differentiated curricula, holistic identification, psychological and social support, and strong institutional frameworks. In the United States, Hong Kong, and Taiwan, academic programs include acceleration, enrichment, and supervised research projects (Chan et al., 2020; Chen and Chen, 2020; Boichenko, 2015). European universities emphasize equity and inclusion through financial aid and academic support for underrepresented groups (Cazco et al., 2024; Ecker-Lyster and Niileksela, 2017). Russia, Spain, and Latin American countries have established national frameworks with specialized centers and long-term initiatives to build research and creative capacities (Skorobogatova and Melikhova, 2021; Balakireva, 2018). From a Triple-Helix perspective, these global practices demonstrate how university-industry-government interactions enhance student talent development, linking individual abilities with institutional innovation and national knowledge ecosystems. Comparative research reveals that countries with mature Triple-Helix structures (e.g., U.S., Netherlands, China) achieve more systematic and sustainable talent outcomes compared to nations in developmental stages (Jones et al., 2019; Ćurić et al., 2025; Lei, 2023).

Policies supporting university talent development

Educational policies form the foundation of effective talent programs, defining identification methods, curriculum adaptation, and academic and psychological support services. Effective policies worldwide emphasize equity, inclusiveness, and equal opportunities for all gifted students, including underrepresented groups (Cazco et al., 2024; Robinson, 1997; Peters et al., 2019; Ninkov, 2020; Ryu and Ryu, 2023). Policies integrated with Triple-Helix principles ensure that university talent programs are aligned with broader institutional and national innovation strategies, fostering sustainability and societal impact. Policy approaches vary: American and European universities emphasize academic counseling and acceleration, while Australia faces challenges in integrating technology in rural education (Rasmussen and Lingard, 2018; Jolly and Robins, 2021;

Alqahtani and Alqahtani, 2023). Latin American, Spanish, and Ukrainian experiences highlight scholarship programs but suffer from inconsistent implementation and limited evaluation mechanisms (Setiawan and Septiarti, 2019; Maznichenko et al., 2021).

Overall, nurturing university talent in GCC countries requires an integrated vision combining differentiated education, global models of giftedness, and Triple-Helix institutional frameworks. International experiences show that flexible policies, rich curricula, precise identification tools, and sustainable support systems are essential to unleashing student potential. A comprehensive Gulf model for university talent development should therefore draw from global lessons while adapting to regional cultural and social contexts, embedding students' development within institutional and national innovation ecosystems (Cazco et al., 2024; Toshpulatov S., 2025; Toshpulatov X., 2025; Motlak et al., 2024; Ayoub et al., 2023; Chan et al., 2020; Lei, 2023; Tiwen, 2023).

Study methodology

This study aims to develop a sustainable foresight-based model for nurturing university talent in Arab and Gulf universities by analyzing international and regional experiences and exploring the perspectives of academic and administrative experts. To achieve this goal, the study adopted a qualitative descriptive–analytical research design, integrating systematic document analysis and expert consultation as complementary qualitative tools. The descriptive–analytical method was employed to examine existing practices and experiences, while the foresight approach was operationalized through synthesizing expert insights and documented practices to design a future-oriented and sustainable model grounded in empirical qualitative evidence.

Study population and sample

The study population consisted of academic and administrative experts specializing in higher education and those directly involved in designing, managing, or evaluating university talent development programs, as well as documented institutional experiences related to talent care in higher education.

The study sample comprised 53 experts from Gulf Cooperation Council (GCC) countries, selected using purposive sampling, which is widely recommended in qualitative and policy-oriented research for accessing information-rich cases (Creswell and Poth, 2018; Palinkas et al., 2015). The selection process followed explicit criteria, including:

- Minimum of 5 years of professional experience in higher education institutions,
- Direct involvement in talent development, excellence, or innovation initiatives,
- Familiarity with higher education policies and strategic planning, and
- Representation from diverse GCC national contexts.

Experts were identified through professional networks, institutional nominations, and public records of participation in talent and excellence programs. Invitations were sent electronically, and participation was voluntary. This approach ensured depth, relevance, and diversity of perspectives, rather than statistical generalizability, which aligns with the qualitative nature of the study (see Table 1).

The table demonstrates diversity in the demographic characteristics of the study sample, providing a wide range of perspectives across different Gulf contexts, which enhances the validity and richness of the study findings.

Data collection tools

Document analysis

Document analysis served as a primary tool for understanding the regulatory and operational framework of talent development in higher education institutions. Documents were selected based on predefined criteria relevant to Research Question 1 (RQ1), including:

- Relevance to university-level talent development,
- Official status (e.g., policies, strategic plans, institutional reports),
- Publication within the last 10 years, and
- Representation of international, Arab, and Gulf contexts.

TABLE 1 Demographic characteristics of the study sample.

Variable	Category	Frequency	Percentage
Academic Rank	Professor	11	20%
	Associate Professor	13	25%
	Assistant Professor	16	30%
	Lecturer	13	25%
Country	Oman	11	20%
	United Arab Emirates	10	18%
	Saudi Arabia	12	22%
	Qatar	8	15%
	Kuwait	7	13%
	Bahrain	5	12%
Age	30–39 years	13	25%
	40–49 years	16	30%
	50–59 years	16	30%
	60 years or above	8	15%
Gender	Male	29	55%
	Female	24	45%
Years of Academic Experience	0–5 years	11	20%
	6–10 years	13	25%
	11–15 years	16	30%
	16 years or more	13	25%

The analyzed documents included strategic plans, talent development policies, program descriptions, accreditation and evaluation reports, and publicly documented initiatives from selected universities and recognized educational bodies. Content analysis was used to identify recurring patterns, strengths, gaps, and future-oriented practices relevant to sustainable talent nurturing.

Expert consultation

Expert consultation complemented document analysis by providing in-depth insights into institutional practices for talent identification, academic support, leadership empowerment, and sustainability mechanisms. A semi-structured qualitative questionnaire was developed based on relevant literature and document analysis findings. The questionnaire underwent content validation by a panel of five experts in higher education leadership and research methodology, leading to minor revisions for clarity and alignment. From the total sample of 53 experts, data collection involved two qualitative modes:

- 7 experts participated in individual in-depth interviews, and
- 9 experts participated in 3 focus group interviews (each group comprising 3 participants).

These 16 participants were drawn from the larger sample of 53 experts, selected based on their availability and depth of experience, to enrich and triangulate the questionnaire data. The remaining experts contributed through the qualitative questionnaire only. This multi-layered consultation enhanced data richness and credibility.

Data collection procedures

Official documents were retrieved from university websites, governmental portals, and recognized international and regional educational initiatives. The qualitative questionnaire was distributed electronically via email and secure online platforms. Interviews were conducted online, audio-recorded with participants' consent, transcribed verbatim, and anonymized to ensure confidentiality.

Data analysis methods

- *Document Analysis*: Qualitative content analysis was applied to classify data into categories aligned with talent development inputs, processes, and outcomes.
- *Expert Consultation Analysis*: A systematic thematic analysis was conducted following Braun and Clarke's (2006) six-step procedure, including familiarization, initial coding, theme development, review, definition, and reporting.
- *Thematic Procedure Transparency*: Coding matrices and thematic tables were developed to illustrate the progression from raw data to final themes, with selected examples presented in the Results section.
- *Foresight Integration*: Findings from both data sources were synthesized to construct a foresight-based model emphasizing sustainability, innovation, and institutional alignment.

Validity and trustworthiness

Instrument validity was ensured through literature grounding, expert review, and pilot testing of the questionnaire. Credibility was enhanced through data triangulation (documents and expert inputs), member checking of interview summaries, and peer debriefing during analysis. Transferability was supported by detailed contextual descriptions, while dependability was ensured through transparent documentation of all methodological procedures.

Study results and discussion

Research question 1: what are the most prominent international experiences in nurturing university talent?

International experiences in university talent development vary across countries in terms of policies, models, and support mechanisms, yet several common and distinctive trends emerge depending on cultural and economic contexts.

Countries such as China, Singapore, Malaysia, and Taiwan adopt clear national policies that integrate universities, government, and the private sector under the "Triple Helix Model," emphasizing human capital development and innovation. These systems offer specialized programs, partnerships with industry, and support for scientific research and entrepreneurship. For instance, China focuses on talent development as a means to promote national rejuvenation, strengthen cultural values, expand higher education and research, and address regional disparities in talent distribution (Jehma, 2024; Li and Xue, 2021; Kun and Jian, 2023; Guo et al., 2023).

European universities—particularly in Finland, Ukraine, and Poland—emphasize creating a supportive, flexible, and inclusive learning environment that provides academic and personal assistance for talented and international students. In Finland, talent support encompasses academic adjustment, learning enhancement, personal growth, and independence (Ballo et al., 2024). Meanwhile, Ukraine and Poland have adopted national strategies to develop higher education in line with digital transformation and European integration (Skydan, 2024; Lei, 2023).

Japanese universities seek to enhance internationalization through English-medium programs, international student support, and multicultural campus environments. However, challenges persist regarding the social and cultural integration of gifted students (Lei, 2023; Rees, 2024).

In the United States and Western Europe, universities rely on advanced programs such as *dual enrollment*, *advanced courses*, and *individual mentoring*, alongside strong partnerships between universities and high schools to facilitate the transition of gifted students and provide advanced research opportunities (VanTassel-Baska, 2023; Brandon et al., 2021).

Experiences in Russia and Eastern Europe highlight the importance of university–school partnerships for identifying and supporting gifted learners, focusing on career guidance and aligning education with regional labor market needs (Maznichenko et al., 2021; Balakireva, 2018) (see Table 2).

In summary, international experiences converge on the importance of national policies, institutional partnerships, and flexible, supportive

learning environments for nurturing university talent, while differing in tools and emphases based on local and cultural contexts.

Research question 2: what are the most prominent Arab and Gulf experiences in nurturing university talent?

Arab and Gulf countries have witnessed notable progress in higher education talent development policies and programs, though disparities remain in legislation, implementation, and program quality.

General trends and challenges

- *Gulf countries* (Saudi Arabia, UAE, Qatar, Oman, Kuwait, Bahrain) have adopted national policies to support talented individuals, focusing on human capital development and innovation, especially in STEM fields. However, challenges persist, such as the absence of a unified definition of talent, insufficient identification tools, limited teacher preparation programs, and underrepresentation of artistic talent programs due to cultural factors (Kayan-Fadlelmula et al., 2022; Al-Duraywish, 2023).
- *United Arab Emirates* has made significant strides in integrating equity and excellence into education, providing equal opportunities and diverse support services for talented students. Nevertheless, there remains a need for more specialized programs and stronger policy frameworks (Ismail et al., 2022; Al-Duraywish, 2023; Opoku et al., 2024).
- *Saudi Arabia* launched national programs for talent development, such as the *King Abdulaziz and His Companions Foundation for Giftedness and Creativity (Mawhiba)*, and has advanced its legislative frameworks. Yet, gaps persist in defining talent, implementation mechanisms, and teacher training (Alamrani et al., 2024; Al-Duraywish, 2023; Alelyani, 2021; Salamah et al., 2023).
- *Other Arab countries* (Syria, Jordan) have established initiatives like the *Science Olympiad* and *National Centers of Excellence*, with evident governmental support. However, challenges include limited funding, a lack of specialized programs, and difficulties in scaling successful models (Al-Raeei et al., 2024; Alodat et al., 2024) (see Table 3).

In conclusion, although several Arab and Gulf countries have made progress in university talent development, common challenges persist, including the absence of unified legislation, inadequate preparation programs, and limited attention to artistic talents. Strengthening regional cooperation, experience exchange, and policy development will contribute to improving talent care across the region (Ismail et al., 2022; Alamrani et al., 2024; Opoku et al., 2024; Alodat et al., 2024; Al-Duraywish, 2023; Alelyani, 2021; Salamah et al., 2023).

Research question 3: how can academic and administrative experts utilize these experiences to design a sustainable foresight-based model for nurturing university talent?

The responses of experts ($n = 53$) reflected a diversity of viewpoints, yet converged on a central belief: the sustainability of university talent programs depends on an integrated institutional model combining strategic vision, practical implementation, technological innovation, and continuous evaluation.

Thematic analysis of interviews and discussions revealed six major dimensions:

1 *Institutional Vision and Strategic Sustainability*: About twelve experts agreed that the starting point for building a sustainable foresight-based model lies in adopting a clear institutional vision that embeds talent development within the university's strategic plan. Successful universities were those that integrated talent care into their broader excellence and quality frameworks rather than treating it as isolated or temporary initiatives. Sustainability, they emphasized, requires flexible and adaptive policies aligned with national development goals and future aspirations.

TABLE 2 Provides a comparative summary of international experiences in university talent development.

Country/region	Policies/models	Main support tools	Key notes	References
China/Asia	National policies, Triple Helix partnerships	Specialized programs, research support, entrepreneurship	Addressing regional disparities; innovation focus	Jehma (2024), Li and Xue (2021), Kun and Jian (2023), and Guo et al. (2023)
Europe (Finland)	Inclusive and supportive environment	Academic and personal support, flexible study paths	Promotes autonomy and personal growth	Ballo et al. (2024)
Japan	Educational internationalization	English programs, international student support	Challenges in cultural integration	Lei (2023) and Rees (2024)
U.S./Western Europe	University–school partnerships	Advanced programs, individual mentoring, research opportunities	Effective transition for gifted students	VanTassel-Baska (2023) and Brandon et al. (2021)
Russia/Eastern Europe	Educational partnerships	Career guidance, labor market alignment	Multi-dimensional talent support	Maznichenko et al. (2021) and Balakireva (2018)

TABLE 3 Policies and programs for talent development in Arab and Gulf countries.

Country/region	Policies and legislation	Strengths	Main challenges	References
Saudi Arabia	National programs and advanced legislation	Governmental support, national initiatives	Lack of teacher training, definitional gaps	Alamrani et al. (2024), Al-Duraywish (2023), Alelyani (2021), and Salamah et al. (2023)
United Arab Emirates	Comprehensive policies and diverse support	Equity and excellence, varied services	Need for greater specialization	Ismail et al. (2022), Opoku et al. (2024), and Al-Duraywish (2023)
Qatar/Oman/Kuwait/Bahrain	Fragmented policies	International partnerships, infrastructure development	Lack of unified definitions, weak artistic programs	Kayan-Fadlelmula et al. (2022) and Al-Horr (2023)
Syria/Jordan	Governmental initiatives	Science Olympiads, Centers of Excellence	Limited funding, few specialized programs	Al-Raeei et al. (2024) and Alodat et al. (2024)

2 *Integration Between Academic and Administrative Roles*: Around ten participants highlighted the importance of coordination between academic and administrative units in designing and implementing talent programs. Previous experiences revealed that poor coordination often led to duplication and fragmentation of efforts. The proposed model should therefore establish functional partnerships—academics handle the pedagogical and diagnostic aspects of talent development, while administrators ensure resources, organization, and institutional continuity.

3 *Utilizing Future Technologies and Predictive Analytics*: Nine experts advocated for the adoption of artificial intelligence and predictive analytics to enable early identification of gifted students. They called for moving beyond traditional nomination systems toward data-driven approaches capable of tracking academic and behavioral excellence indicators and predicting creative potential. The foresight model, they suggested, should rely on integrated databases linking academic performance with research and innovation activities to create a precise profile of emerging talent.

4 *Creating a Supportive and Stimulating University Environment*: Eleven experts emphasized that any sustainable model requires a nurturing institutional environment that encourages creativity, experimentation, and learning from failure. Key elements include innovation incubators, research support centers, and specialized academic mentoring programs. Some also noted the importance of involving talented alumni as mentors and role models to sustain a culture of talent within the university.

5 *Local and International Partnerships*: Six experts pointed out that sustainability cannot thrive in isolation. It requires networks of collaboration and research partnerships with leading regional and global universities. They recommended adapting successful international practices to local contexts and establishing partnerships with industrial and innovation sectors to offer applied learning opportunities for gifted students.

6 *Continuous Evaluation and Self-Improvement*: Five experts stressed that regular assessment of programs and policies is essential for sustainability. The success of a talent development model should be measured using quantitative and qualitative indicators—including student outcomes, research contributions, and engagement in innovation activities. They also proposed creating specialized institutional evaluation units to collect feedback, analyze findings, and employ results for ongoing improvement.

Developing a foresight-based model for talent nurturing in Gulf universities

The academic and administrative experts participating in the study unanimously agreed that learning from international experiences in talent development represents a fundamental entry point for designing a sustainable foresight-based model suited to the context of Arab and Gulf universities. They emphasized that the essence of this model lies in integrating elements of *open innovation* within the higher education system so that the university becomes an interactive space for collaborative creativity—one that embraces ideas and initiatives and transforms them into measurable and improvable institutional practices.

The experts also highlighted the importance of establishing *multi-sectoral partnerships* involving research institutions, industry, and civil society organizations to enhance integration between academic knowledge and real-world developmental needs. They viewed the success of this model as contingent upon its ability to align the Sustainable Development Goals (SDGs) with university policies for talent development and innovation, thus transforming programs into effective tools for achieving comprehensive development and responsible citizenship. Several experts further noted that an effective model must be based on a holistic institutional vision, cross-disciplinary collaboration, and long-term strategic planning that ensures sustainability and coherence with global trends in higher education (Lee et al., 2025; Ferrer-Estévez and Chalmeta, 2021; Abo-Khalil, 2024; Zaidan et al., 2024).

The findings also indicated that adapting a sustainable foresight-based model for talent development to the Arab and Gulf higher education context requires sensitivity to the region's cultural and organizational specificities, where societal values intersect with national development priorities. Experts observed that universities in the region possess promising foundations for adopting such a model—including advanced technological infrastructure, growing governmental support for innovation, and policy orientations toward quality and excellence.

However, several participants pointed out institutional and cultural challenges that must be addressed when transferring or adapting international experiences, such as limited cross-sectoral integration, weak culture of interdisciplinary teamwork, and overreliance on individual initiatives instead of systemic approaches. Therefore, experts recommended developing a flexible legislative and organizational environment that enables knowledge exchange among

universities, fosters institutional innovation, and links talent development to national economic and social development projects.

They also emphasized that the Gulf context presents unique foresight opportunities that can make it an ideal environment for implementing this model, given its economic stability and forward-looking national visions (e.g., Oman Vision 2040 and Saudi Vision 2030) that prioritize investment in human capital. Consequently, implementing the proposed model requires transforming talent nurturing from a supportive activity into a *strategic component* of the university's identity and mission, with policies and programs redesigned to advance innovation, leadership, and entrepreneurship. Thus, adapting the international model within the Arab and Gulf university context does not mean copying it verbatim but rather *re-engineering it* to align with local cultural and developmental characteristics — turning it into an institutional framework capable of achieving sustainability and excellence in university talent development over the long term.

Proposed model components

- *Partnerships and Alliances*: Establish alliances among universities, the private sector, and nonprofit organizations to provide international training opportunities, sustainable funding, and joint research projects — thereby enhancing innovation and talent development environments (Lee et al., 2025; Pereira et al., 2023; Zaidan et al., 2024).
- *Integration of SDGs*: Develop an institutional framework that aligns the visions of all stakeholders (students, faculty, and community) and translates them into measurable action plans with continuous assessment (Ferrer-Estévez and Chalmeta, 2021; Abo-Khalil, 2024).
- *Interactive and Community-Based Learning*: Adopt active learning strategies such as project-based learning, community service, and interdisciplinary education to cultivate creativity and leadership skills among students (Castro et al., 2020; Tejedor et al., 2019; Zid and Al-Kendi, 2025; Al-Raeei et al., 2024).
- *Design of a Sustainable University Environment*: Invest in smart and sustainable infrastructure that reflects cultural and climatic considerations to enhance student well-being and motivation for participation and innovation (Noaime et al., 2025).
- *Entrepreneurial Culture Development*: Promote a culture of entrepreneurship and innovation through incentive policies, incubation programs, and the provision of administrative and technical support (Zaidan et al., 2024; Pereira et al., 2023).

Practical steps for implementation

Based on the literature analysis and study findings, talent development in higher education institutions can be strengthened through a series of interrelated procedural steps integrating institutional, academic, and community dimensions:

Building strategic partnerships for talent development

Establish effective partnerships with the private sector, nonprofit organizations, and research institutions to support talent identification programs, fund student initiatives, and develop their leadership and innovation skills. Such partnerships align university talent programs with national development needs and labor market demands (Lee et al., 2025; Pereira et al., 2023; Zaidan et al., 2024).

Integrating SDGs into talent policies and programs

Develop an institutional framework linking talent development policies with the SDGs, ensuring that talent programs contribute to goals such as quality education, equality, innovation, and economic growth. This includes establishing performance indicators to measure the impact of talent programs on institutional and societal development (Ferrer-Estévez and Chalmeta, 2021; Abo-Khalil, 2024).

Curriculum reform for talent nurturing

Redesign academic curricula to incorporate active learning, research and community projects, and team-based creative problem-solving. Curricula should help identify students with exceptional abilities and cultivate their critical thinking and innovation skills (Castro et al., 2020; Tejedor et al., 2019; Zid and Al-Kendi, 2025).

Developing a university infrastructure that supports talent

Create flexible and smart learning environments—innovation labs, student research centers, and collaborative learning spaces. Infrastructure should be both digitally and environmentally sustainable to enhance learning experiences and inspire creative students (Noaime et al., 2025).

Encouraging entrepreneurship and innovation among talented students

Adopt institutional policies and programs promoting entrepreneurship among talented students, offering incubation spaces to transform their ideas into innovative projects with economic and societal impact. Competitive funding models and incentive awards should also be introduced for outstanding research and projects (Zaidan et al., 2024; Pereira et al., 2023; Alfaiz et al., 2022).

These steps demonstrate that designing a *sustainable foresight-based model* for university talent development requires integrating partnerships, embedding SDGs, innovating curricula, and fostering an innovation culture, with continuous evaluation and flexible implementation aligned with the local context (Lee et al., 2025; Ferrer-Estévez and Chalmeta, 2021; Abo-Khalil, 2024; Noaime et al., 2025; Castro et al., 2020; Tejedor et al., 2019; Zaidan et al., 2024; Pereira et al., 2023; Zid and Al-Kendi, 2025).

Key features of the sustainable foresight-based model

1 A clear, integrated institutional vision aligned with national education and innovation strategies.
2 Collaborative partnerships between academics and administrators ensuring continuity of initiatives.

3 Use of artificial intelligence and predictive analytics for early talent identification.
4 A motivating university environment that nurtures creativity and experimentation.
5 Strategic openness to both local and international partnerships.
6 A periodic evaluation and improvement system ensuring model sustainability and development (Figure 1).

Discussion of the results

The study results reveal a clear disparity in the extent to which structured programs and initiatives for talent development are available across Arab and Gulf universities. This reflects the absence of a unified institutional framework and consistent policies among universities. This finding aligns with previous studies that highlighted existing gaps in defining giftedness, the weakness of teacher preparation programs, and the lack of standardized assessment tools for identifying gifted students (Matu and Paik, 2021; Mun et al., 2020). These results emphasize the need for higher education institutions in the region to develop a comprehensive regulatory and strategic framework that links talent development to broader institutional objectives, thereby enhancing alignment between talent programs and the requirements of innovation and institutional excellence (Alsuwailimi, 2024).

A review of current initiatives provides important insights related to program design, policy integration, and the role of academic leadership. The presence of a clear and supportive regulatory framework helps ensure coordination between academic and administrative activities, increasing the overall effectiveness of talent programs (Ayoub et al., 2023; El-Saharty et al., 2020). Moreover, offering diverse enrichment programs contributes to developing critical thinking, creativity, and independent research abilities — outcomes consistent with theoretical models of differentiated instruction and Renzulli's Three-Ring Conception of Giftedness (Renzulli, 1978; Gardner, 1983). Hence, academic and research enrichment can be regarded as a core component in fostering the growth of gifted students within universities.

Experts' opinions further indicated that designing a sustainable model for talent development requires integrating both international and local best practices while taking into account institutional and cultural particularities (Helali and Alwaely, 2025). This assertion is consistent with comparative studies showing that successful programs in the United States, Europe, and Asia rely on early identification,

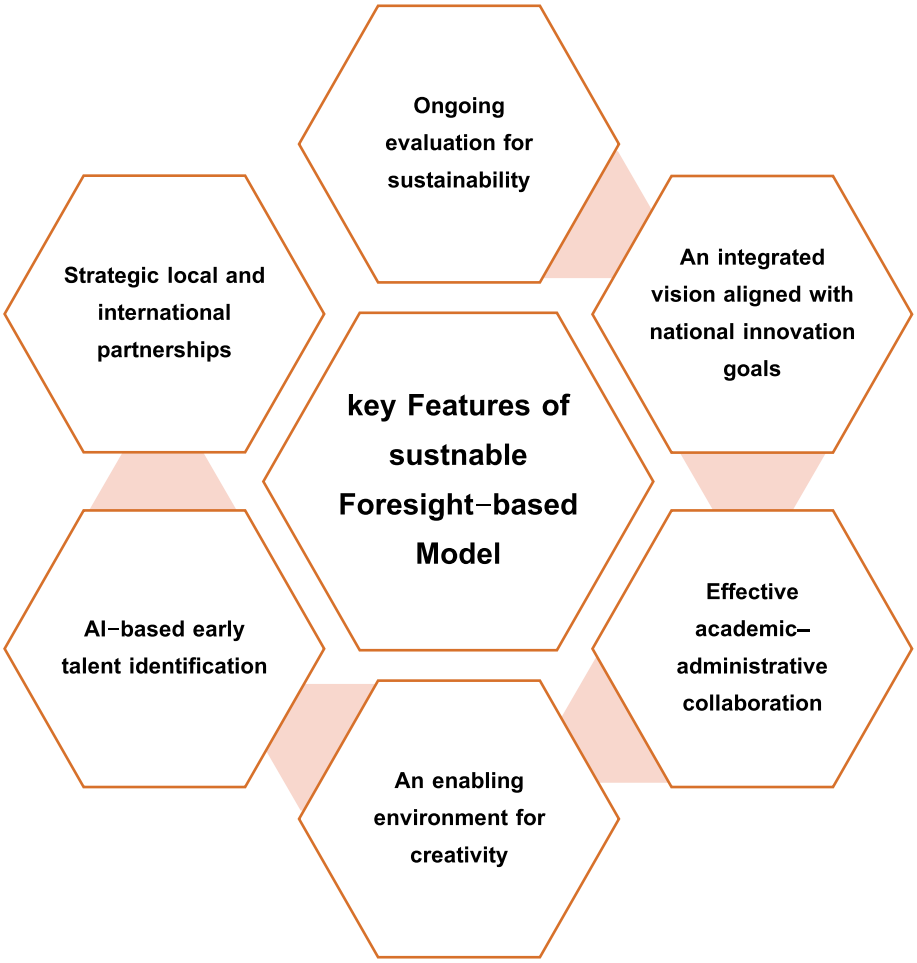

FIGURE 1
Key features of the sustainable foresight-based model.

continuous evaluation, and a clear linkage between student development and the university's strategic goals (Toshpulatov S., 2025; Toshpulatov X., 2025; Syed et al., 2023). Additionally, the importance of institutional flexibility emerges as essential for adapting programs to academic and technological changes, thereby ensuring sustainability and long-term impact on university excellence.

The study presents a clear vision of the proposed model's key components, encompassing inputs, processes, and outputs. Inputs relate to institutional policies, resources, and diagnostic tools; processes include academic and research programs, leadership empowerment, and supervision; while outputs involve students' academic and innovative capabilities and the achievement of institutional excellence. This vision aligns with the theoretical framework of integrated institutional development, as international studies emphasize the need for consistency among inputs, processes, and outputs to ensure the effectiveness of talent programs (Ayoub et al., 2023; Toshpulatov S., 2025; Toshpulatov X., 2025).

From an integrative perspective, the results indicate that effective investment in talent development can enhance innovation, increase universities' international competitiveness, and support the transition toward a knowledge-based economy. The findings also reflect the importance of linking students' personal growth with institutional objectives, enabling universities to transform academic programs into strategic tools that enhance the quality of education and research. At the same time, there is a need for ongoing monitoring and periodic evaluation of programs to ensure their relevance to local contexts and to benefit from successful international experiences—thus supporting the development of sustainable, flexible, and effective models.

In conclusion, the discussion confirms that adopting a comprehensive and sustainable model for talent development depends not only on improving academic programs but also on cultivating institutional culture, support policies, and effective leadership, while employing modern technologies and analytical tools to monitor performance and impact. This integrative approach enables Arab and Gulf universities to benefit from international experiences and adapt them to the region's cultural and strategic particularities, making talent development programs an integral part of institutional and research excellence pathways.

The study concludes that the proposed model for nurturing gifted students should include three main components to ensure the effective investment in university talent:

1. Inputs: Institutional policies, financial and human resources, infrastructure, and diagnostic criteria for identifying gifted students.
2. Processes: Academic and research enrichment programs, leadership empowerment, supervision and mentoring, practical training, and the use of advanced assessment tools and artificial intelligence technologies for performance monitoring.
3. Outputs: Development of students' academic and innovative capabilities, increased research productivity, promotion of university entrepreneurship, and contribution to institutional excellence aligned with social and economic development goals (Toshpulatov S., 2025; Toshpulatov X., 2025).

From an integrated perspective, these findings indicate that nurturing gifted students serves as a strategic lever for enhancing innovation, university excellence, and the transition toward a knowledge-based economy, consistent with international best practices. They further highlight the importance of adopting a sustainable and flexible model that balances local needs with global standards.

Integrative concluding vision

The study's findings suggest that nurturing gifted students in higher education institutions across the GCC requires a comprehensive approach that integrates institutional policies, organizational structures, specialized academic programs, and modern assessment tools—while considering the region's cultural and social context. These findings align with international best practices emphasizing early talent identification, differentiated learning, psychological and social support, and the promotion of research and innovation.

From a holistic perspective, talent development can be viewed as a cornerstone for strengthening university excellence, institutional innovation, and the shift toward a knowledge economy, ensuring a sustainable positive impact on students, institutions, and society alike. The study underscores the value of drawing on international experiences to design locally applicable models adapted to institutional and cultural contexts. This contributes to building an integrated knowledge network that bridges theory and practice, and local expertise with global standards. Consequently, this vision provides a conceptual framework to guide academic policymakers toward talent-nurturing strategies that foster international competitiveness and institutional excellence in higher education.

Limitations

Several factors may limit the generalizability of this study's results, including the relatively small sample size and its distribution across a number of GCC countries, as well as reliance on official documents and expert opinions that may reflect partial subjective judgments. Furthermore, variations in policies, resources, and institutional maturity among universities may affect the applicability of the findings in different contexts. Therefore, institutional and cultural differences should be considered when transferring these findings to other settings, and complementary studies are recommended to validate the suitability of the proposed recommendations.

Recommendations and proposals

1. Adopt the foresight-based model developed by this study for nurturing talent in GCC universities, while benchmarking it against internationally recognized talent development frameworks and best practices reported in global higher education literature.
2. Establish clear university policies and strategies linking talent development with the university's strategic goals, drawing on comparative evidence from leading international universities that have successfully embedded talent development within their institutional strategies.
3. Create specialized organizational units to oversee gifted programs and promote regional coordination for experience

sharing, and encourage international partnerships and academic networks to exchange expertise and adopt globally informed governance models.

4 Develop comprehensive talent pathways that include early identification, academic and skill enrichment, leadership empowerment, and support for research projects and community initiatives, aligned with internationally validated models of student talent development and innovation ecosystems.

5 Utilize modern assessment tools and AI technologies to continuously monitor and improve program effectiveness, informed by international studies and global standards related to learning analytics, digital assessment, and evidence-based decision-making in higher education.

6 Ensure program sustainability through the allocation of ongoing financial and human resources, accompanied by periodic reviews to achieve desired outcomes, and integrate international sustainability indicators and evaluation benchmarks to enable cross-institutional and cross-national comparison.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

This study received ethical approval from the Departmental Research Ethics Committee at Sultan Qaboos University. The participants were academic experts who voluntarily agreed to take part in the study after being informed of its objectives and procedures. According to the institutional ethics policy, written informed consent was not required, as the participants were qualified experts capable of making autonomous decisions regarding their involvement. Participation was entirely voluntary, and all ethical standards related to confidentiality, respect, and transparency were fully observed.

Author contributions

FA: Supervision, Project administration, Writing – original draft, Writing – review & editing. SA: Data curation, Formal analysis, Resources, Writing – original draft, Writing – review & editing.

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Conflict of interest

The author(s) declared that this work was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/feduc.2025.1737185/full#supplementary-material

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