The Development of Higher Education in Egypt

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Abstract
Higher education (HE) in Egypt faces problems regarding efficiency and efficacy. Although there is some progress, the system is not regenerating fast enough to prepare young people for a more vibrant future. This work aims to present a road map toward improving the HE system. In this study, A new model for developing higher education towards the global plan 2030-2063 is introduced. In this model, the operational research approach is implemented to determine the activities, including all educational processes, such as educational policies, management, curricula, and human resources. The process analysis of the policy strategy components depicted that the higher education system in Egypt faces a triple crisis: the scarcity of human capital, low quality, poor integration and inconsistency with the needs of the private sector. From the results, we conclude that developing HE require training for transformation to assist the country in adopting a comprehensive approach to its education system and obtaining better value for money from education expenditures to prepare skilled graduates for national development, introducing an "International Action Scheme" for mobility universities students; as well as enhancing Science, Technology and Innovation. To ensure that Egypt does not lag behind the "Fourth Industrial Revolution", we recommend the importance of developing priority through national entrepreneurship plans and incubators in academic sectors such as agrifood, marine science, energy, water treatment, ICT, infrastructure, medicines, nutrition, and green economies.

Keywords: Higher Education, Triple Helix, Operational Research, Edumod-Egypt Model, Educational Policy, Labor Skills, Innovations

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Introduction

The development of higher education in Egypt has a rich and complex history, closely linked to the cultural, political and social development of the country. From ancient times to the modern era, Egypt has been a beacon of learning and intellectual pursuits. Higher education in Egypt dates back to ancient times, with the founding of institutions such as the Temple of Ptah in Memphis and the Library of Alexandria. The latter, founded in the 3rd Century BC, became the largest and most important library in the ancient world, attracting scholars from across the Mediterranean and beyond. During the Islamic Golden Age, Cairo became a major centre of learning. Al-Azhar University, founded in 970 CE, is one of the oldest operating universities in the world. It was originally a mosque but was later converted into a comprehensive university focusing on Islamic law, theology and many other disciplines.

In the 19th Century, reform of higher education began under the reign of Muhammad Ali Pasha, who ruled Egypt in the early 19th Century and implemented a number of educational reforms. He sent students abroad to study in Europe and established schools and colleges in Egypt. His efforts laid the foundation for a more modern education system. In the early 20th Century, Cairo University was founded in 1908, marking a milestone in modern Egyptian higher education. It was Egypt's first secular university, offering a wide range of academic disciplines and serving as a model for other institutions in the region. In the mid-20th Century, after gaining independence from British rule in 1952, Egypt experienced rapid expansion of its higher education system. New universities were established, including Ain Shams University and Alexandria University. This period also saw an emphasis on free education and expanding educational opportunities for all. The Egyptian government enacted the Higher Education Law in 1972. This law aimed to regulate and modernize higher education in Egypt, addressing issues of governance, funding, and academic standards. Egypt has played a significant role in shaping the modern higher education landscape. Over the past decades, Egypt has focused on improving the quality of higher education, aligning it with international standards. Efforts have been made to improve research output, faculty qualifications, and infrastructure. The early 21st Century saw the establishment of private universities, such as the American University in Cairo (AUC), the German University in Cairo (GUC), and the Future University of Egypt (FUE). These institutions have introduced various models and curricula, contributing to the overall development of the sector. The advent of the digital age has brought significant changes to higher education in Egypt. Online learning platforms, online courses, and digital libraries have become an essential part of the educational landscape, especially during the COVID-19 pandemic. Recent government initiatives aim to modernize the higher education system further. Projects such as the Egyptian-Japanese University of Science and Technology (E-JUST) and the Knowledge City in the New Administrative Capital are examples of efforts to promote innovation and research.

Challenges and Future Prospects

In the last two decades, higher education in Egypt has faced numerous challenges affecting its efficiency, quality, and accessibility. These challenges are deeply rooted in the historical, socioeconomic, and political context (Afifi and Ewiss, 2023; Badran, 2018; Habchi, 2018; Mohamed et al., 2023). The main challenges are grouped in Table 1.

Challenges of Higher Education in Egypt	
- University motivation,	- Overpopulation
- Lack of educator capacity	- Educational Management
- Dilapidated infrastructure	- Disparities and Equity
- Teaching methodology	- Outdated curriculum
- Student enrolment	- Poor-calibre trainees
- Lack of recognition of certificates	- Limited Funds
- Supply and demand	- Brain Drain

Table 1: Challenges of Higher Education in Egypt

In the following, we present a comprehensive overview of the main challenges facing higher education in Egypt:

1. Quality Assurance and Accreditation
    - Varying standards: The quality of education differs greatly among various institutions. Public universities frequently fall behind private colleges in terms of facilities, faculty qualifications, and academic rigor.
    - Issues with accreditation: Making sure Egyptian universities comply with both national and international accreditation requirements is an ongoing challenge that impacts the worldwide recognition of degrees from the country.
2. Funding and Resources
    - Insufficient funding: Public universities face ongoing issues with a lack of funding, which hinders their capacity to enhance infrastructure, provide competitive pay, and support research and innovation.
    - Resource allocation is frequently inefficient, and the limited resources are not utilized effectively, resulting in disparities in the quality of education and facilities among institutions.
3. Faculty and Staff Development
    - Faculty qualifications: A large number of faculty members do not have higher education and experience with global educational standards and practices. It affects the standard of teaching and academic research.
    - Continuous professional development programs are necessary to ensure faculty remain current with the latest advancements in their fields.
4. Research and Innovation
    - Egyptian universities tend to have limited research output in comparison to global norms because of insufficient funding and a shortage of research infrastructure.
    - Innovation Ecosystem: The limited connection between universities and industry is hindering innovation and the implementation of research discoveries.
5. Access and Equity
    - Regional Disparities: The availability of quality higher education varies among different regions in Egypt. Educational facilities in urban areas are superior to those in rural areas.
    - Obstacles in Socioeconomic Status: Students coming from lower socioeconomic levels frequently encounter challenges in gaining access to higher education, such as financial constraints and insufficient preparatory education.
6. Curriculum and Pedagogy
    - Outdated curricula, found in numerous programs, do not match current industry needs or global educational trends.
    - Teaching Approaches: The use of traditional memorization techniques is still common, lacking focus on critical thinking, problem-solving, and practical abilities.

7. Employability and Labor Market Alignment
    - Skills Gap: Graduates lack the skills required by the labor market, creating a mismatch. This results in elevated levels of unemployment and underemployment among recent college grads.
    - University Career Services: Many universities do not have strong career services or partnerships with industries to assist students in moving from education to the workforce.
8. Governance and Autonomy
    - Strong government influence governs universities in the highly centralized higher education system. It restricts the independence and adaptability of institutions in making decisions.
    - Excessive bureaucracy within universities hinders effective management and creativity.
9. Technological Integration
    - The unequal distribution of digital technologies is present among institutions. While a few universities have adopted e-learning and digital resources, others are falling behind because they lack infrastructure and training.
    - Online learning during the COVID-19 crisis showcased the possibilities of online education while also revealing issues such as internet availability, digital skills, and the adequacy of institutions for providing high-quality online education.
10. Political and Social Stability
    - Political Unrest: Periodic political unrest has caused disruptions in the higher education system, impacting academic outcomes and the learning environment as a whole.
    - Broader social problems like poverty, gender inequality, and cultural norms also affect the availability and standard of higher education.

Implementation of the Triple Helix Model in Developing Higher Education

The Triple Helix model in higher education is a structure that helps us comprehend the relationships among universities, industry, and government. Henry Etzkowitz and Loet Leydesdorff (1998) developed this concept. They highlight the importance of the interconnected and constantly changing connections between these three foundations, essential for promoting innovation and economic growth. Here is a summary of the Triple Helix model, its parts, and its importance in higher education:

Components of the Triple Helix Model

1. Universities:
    - Responsibilities: Building knowledge, conducting research, and providing education.
    - Function: It is the role of universities to create fresh knowledge by conducting research and imparting it through education. Additionally, they are vital in cultivating talented individuals and promoting analytical thinking.
2. Industry:
    - Role: The economic production and marketing of knowledge.
    - Function: Utilizing research generated by universities, the field creates innovative products, services, and technologies. It provides financial support for research and provides useful knowledge and resources for academic endeavors.

3. Government:
    - Role: Governing, financing, and policymaking.
    - Function: The government influences the educational and economic environment through policy creation, funding research and development, and implementing regulations for university-industry relations.

Interactions and Dynamics

- University-Industry Collaboration: This includes joint ventures on research projects, technology transfer, internships, and the commercialization of scholarly findings between academic institutions and businesses. These kinds of partnerships can result in the creation of cutting-edge goods and services as well as give students real-world experience.
- University-Government Collaboration: Governments frequently use grants and scholarships to support university research. Additionally, they create frameworks for research funding and intellectual property laws, among other policies that promote innovation and higher education.
- Industry-Government Cooperation: Infrastructure development, tax breaks, and subsidies are some of the ways that governments assist businesses. They also establish rules that guarantee honest business practices and fair competition in the sector.

Significance of the Triple Helix Model in Higher Education

1. Innovation and Economic Growth:
    - By combining the assets and capabilities of academia, business, and government, the Triple Helix model fosters the co-creation of knowledge and innovation. Economic growth and major technological advancements can result from this cooperative approach.
2. Enhanced Research and Development:
    - The model strengthens university research capacities by promoting closer ties between academia and business. Universities offer funding and theoretical insights, while industry partnerships give access to real-world challenges and state-of-the-art research facilities.
3. Education and Workforce Development:
    - These three sectors work together to make sure that educational programs are in line with industry demands and that graduates have the necessary skills. By doing this, the skills gap is closed, and students are better prepared for the workforce.
4. Policy and Infrastructure Support:
    - The involvement of the government guarantees the establishment of infrastructure and policies that support industry-university collaboration. The sustainability of innovation ecosystems depends on this support.
5. Regional and National Competitiveness:
    - Countries and regions can become more globally competitive by putting the Triple Helix model into practice. Strong innovation ecosystems they build draw capital, skilled workers, and cutting-edge industries.

Challenges and Considerations

- Coordination and Communication: Clear coordination and communication between the three sectors are necessary for effective collaboration. Conflicting interests or misalignments can impede development.
- Intellectual Property and Data Sharing: When there are several parties involved, navigating agreements pertaining to intellectual property rights and data sharing can be difficult.
- Funding and Resource Allocation: It can be difficult to obtain sufficient funding and resources for cooperative projects, especially during uncertain economic times.
- Cultural Differences: Working together can be difficult because governments, businesses, and universities frequently have distinct cultures and ways of doing things.

The Triple Helix model's structure is shown in Figure 1. As can be seen from the previous, the Triple Helix model signifies a paradigm change in the way government, business, and higher education collaborate to promote innovation and economic growth. Together, these three industries can build a more vibrant and fruitful environment for the creation and application of knowledge, which will ultimately benefit society and the economy.

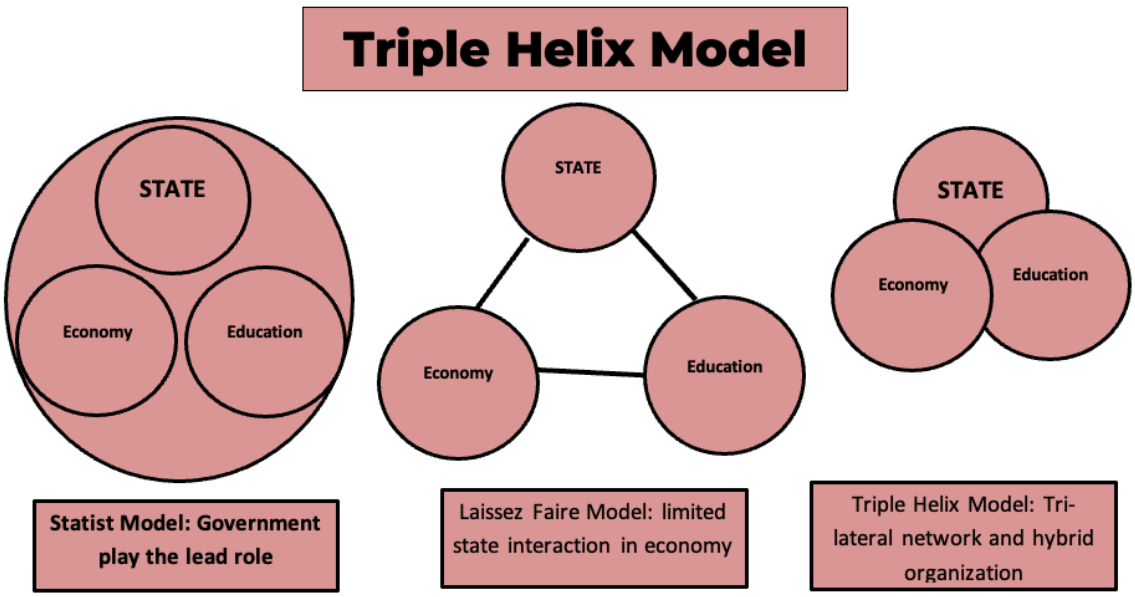

Figure 1: The Structure of the Triple Helix Model

Assessment, Planning, Doing, and Checking Cycle (APDC Cycle)

Assessment, planning, doing, and checking, or the APDC cycle, is a continuous improvement process that is especially important in higher education in order to guarantee efficacy and quality in both academic and administrative functions. The Deming Cycle, also known as PDCA (Plan-Do-Check-Act), is the source of this cycle, which has been modified to meet the unique requirements and environments of educational institutions. A thorough examination of each phase of the APDC cycle and its use in higher education is provided in Table 2.

Stage	Application
Assessment	**Objective**: To evaluate current processes, performance, and outcomes • **Academic Assessment**: This involves evaluating the effectiveness of curricula, teaching methods, and learning outcomes. Tools such as student surveys, course evaluations, and standardized tests are often used. • **Administrative Assessment**: This includes reviewing administrative processes and services such as admissions, financial aid, and student support services. Performance metrics and feedback from stakeholders (students, staff, faculty) are crucial. **Key Activities**: • Collecting data on various performance indicators. • Analyzing feedback from students, faculty, and other stakeholders. • Identifying strengths, weaknesses, opportunities, and threats (SWOT analysis
Planning	**Objective**: To develop strategies and plans based on the assessment findings. • **Academic Planning**: Based on assessment results, universities might redesign courses, update syllabi, introduce new programs, or implement new teaching methodologies. • **Administrative Planning**: This might involve restructuring departments, introducing new administrative processes, or enhancing student services. **Key Activities**: • Setting clear, measurable goals and objectives. • Designing action plans to address identified issues and improve outcomes. • Allocating resources and assigning responsibilities.
Doing	**Objective**: To implement the plans developed during the planning stage. • **Academic Implementation**: This includes rolling out new or revised curricula, adopting new teaching tools and technologies, and conducting professional development for faculty. • **Administrative Implementation**: This could involve launching new student services, implementing new administrative procedures, or upgrading infrastructure. **Key Activities**: • Executing the action plans. • Providing necessary training and resources to staff and faculty. Ensuring stakeholder engagement and participation.
Checking	**Objective**: To monitor and evaluate the implementation process and outcomes. • **Academic Checking**: This involves assessing the impact of the changes on student learning and academic performance. Tools such as formative assessments, summative assessments, and feedback mechanisms are used. • **Administrative Checking**: This includes evaluating the effectiveness of new processes and services, using performance metrics and feedback from stakeholders. **Key Activities**: • Collecting and analyzing data on the implementation outcomes. • Comparing actual performance against the set goals and objectives.

Table 2: The Stages of the APDC Cycle and Its Applications

Continuous Improvement

After the Checking phase, the cycle repeats, beginning again with Assessment. This continuous loop ensures that higher education institutions are constantly improving and adapting to new challenges and opportunities. The iterative nature of the APDC cycle fosters a culture of ongoing evaluation and enhancement. The benefits of the APDC cycle are summarized in Table 3.

Benefit	Function
1. **Enhanced Quality Assurance**:	○ By regularly assessing and improving processes, institutions can ensure high standards in both academic and administrative functions.
2. **Increased Accountability**:	○ The cycle promotes transparency and accountability as each phase requires documentation and evaluation.
3. **Stakeholder Engagement**:	○ Continuous feedback from students, faculty, and other stakeholders is integral to the process, ensuring that their needs and expectations are met.
4. **Adaptability and Responsiveness**:	○ The iterative nature of the cycle allows institutions to quickly adapt to changes in the educational landscape, including technological advancements and evolving student needs.
5. **Data-Driven Decision Making**:	○ Decisions are based on empirical data and thorough analysis, leading to more effective and targeted interventions.

Table 3: Benefits of the APDC Cycle in Higher Education

Challenges and Considerations

- Resource Allocation: Effective implementation of the APDC cycle requires sufficient resources, including time, funding, and personnel.
- Stakeholder Buy-In: Achieving buy-in from all stakeholders, especially in large institutions, can be challenging but is crucial for successful implementation.
- Consistent Monitoring: Regular and consistent monitoring is necessary to ensure that the cycle is effective, which can be demanding in terms of effort and coordination.

Figure 2 shows a schematic of the framework of the APDC cycle.

In summary, the APDC cycle is a powerful framework for fostering continuous improvement in higher education. By systematically assessing, planning, doing, and checking, institutions can enhance their quality, effectiveness, and responsiveness, ultimately leading to better educational outcomes and overall institutional performance.

The Development of Higher Education Using Operational Research Methods

Applying an operational research (OR) approach to the development of higher education in Egypt can provide a structured and systematic method to optimize resources, improve decision-making, and enhance the overall quality and accessibility of education. Operational research employs analytical methods to aid in decision-making and can be instrumental in addressing complex challenges in higher education. Here is a detailed analysis of how OR can be applied to the development of higher education in Egypt:

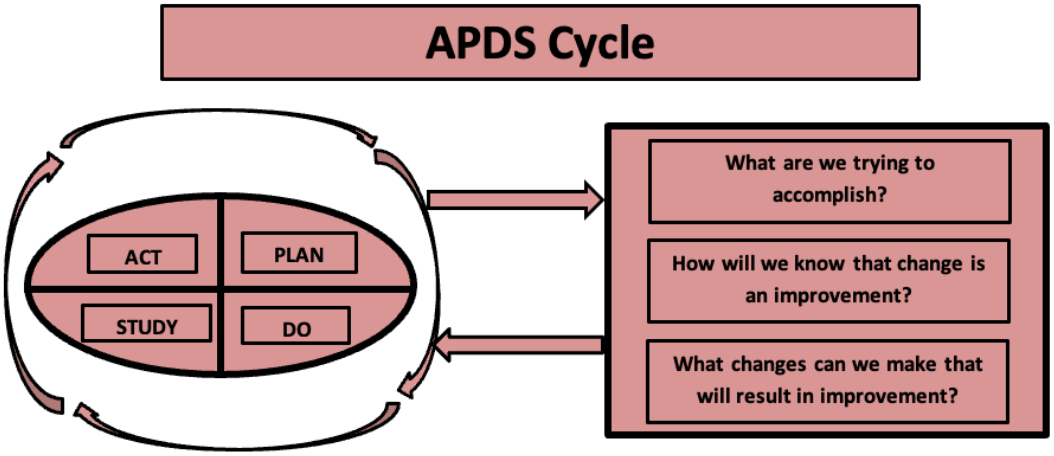

Figure 2: The Framework of the APDC Cycle.

Problem Definition

The first step in applying OR is to define the problems and objectives clearly. Key issues in the development of higher education in Egypt include 1) Insufficient funding and resource allocation, 2) Inequitable access to education, 3) Quality assurance and improvement., the mismatch between graduates' skills and market needs, and 4) Need for modernization and digital transformation.

Data Collection and Analysis

Accurate data is crucial for operational research. Data collection involves gathering information on the following: 1) student demographics, enrollment rates, and dropout rates; 2) financial data on funding sources, expenditures, and resource allocation; 3) Infrastructure status, including facilities, technology, and educational materials; 4) Faculty qualifications, training, and research output; and 5) Labor market trends and employer needs.

Model Formulation

Based on the data collected, various OR models can be formulated to address specific issues. These models are listed in Table 4.

Model	Description
1. Resource Allocation Models:	○ **Linear Programming (LP)**: LP can optimize the allocation of limited resources (e.g., budget, faculty, facilities) to maximize educational outcomes, such as graduation rates or research output. ○ **Multi-Criteria Decision Analysis (MCDA)**: This approach can balance multiple objectives, such as cost efficiency, quality improvement, and equity in resource distribution.
2. **Simulation Models**:	○ **Discrete Event Simulation (DES)**: DES can model the flow of students through the educational system, identifying bottlenecks and testing the impact of policy changes, such as increasing faculty numbers or expanding facilities. ○ **System Dynamics (SD)**: SD can capture the complex interactions between different components of the education system, such as funding, enrollment, and employment outcomes, to forecast long-term trends and outcomes.
3. **Queuing Theory**:	○ Queuing models can be used to analyze and optimize processes such as admissions, registration, and student services, reducing waiting times and improving service delivery.
4. **Forecasting Models**:	○ **Time Series Analysis**: This can project future trends in student enrollment, budget needs, and labor market demands, aiding in strategic planning and policy development.

Table 4: The Operational Research Models

Solution Implementation

Once the models are developed and validated, the next step is to implement the solutions:

- Policy Recommendations: Based on model outcomes, recommendations can be made for policy changes, such as increasing funding for specific programs, introducing new courses aligned with market needs, or implementing targeted financial aid for disadvantaged students.
- Resource Allocation: Optimal resource allocation plans can be developed and executed, ensuring that funds, faculty, and facilities are used efficiently to achieve educational goals.

Monitoring and Evaluation

Operational research is an iterative process. Continuous monitoring and evaluation are essential to ensure that implemented solutions are effective:

- Key Performance Indicators (KPIs): Establish KPIs to measure success, such as improved graduation rates, higher employment rates of graduates, and increased research output.
- Feedback Loops: Collect feedback from stakeholders, including students, faculty, and employers, to identify areas for further improvement.

Hypothetical Case Study to Develop Higher Education in Egypt Using Operational Research Approach

The Egyptian Structure of Higher Education

Currently, Egypt's higher education system is comprised of twenty-seven public universities, twenty-seven private universities, twenty semi-private universities, six foreign university branches, and four hundred higher institutes and academies. The public universities offer three hundred education programs at the undergraduate level and another three hundred programs at the postgraduate level, covering various scientific sectors such as medicine, engineering, basic sciences, and social and humanities. Conversely, private universities and other higher institutions and academies offer a more limited range of education programs (5-10 programs) to meet the students' demands. It is worth mentioning that 85% of 3.5 million Egyptian students are enrolled in public Universities, while only 15% of the students are enrolled in private universities and other higher institutions.

Let us consider a hypothetical case study where OR is applied to improve the allocation of government funding across public universities in Egypt:

1. Problem Definition: The objective is to distribute limited government funds to maximize student outcomes (graduation rates) while ensuring equity (supporting disadvantaged students).
2. Data Collection: Data is gathered on current funding levels, student demographics, performance metrics (graduation rates, dropout rates), and socioeconomic indicators.
3. Model Formulation: An LP model is developed to optimize fund allocation based on the objective function of maximizing weighted student outcomes, subject to constraints such as minimum funding levels for each university and equity considerations.
4. Solution Implementation: The optimal funding distribution is calculated and implemented. Universities receiving additional funds are required to report on their use and impact on student outcomes.
5. Monitoring and Evaluation: KPIs such as changes in graduation rates and improvements in disadvantaged students' performance are monitored. Regular feedback is collected to adjust the model and funding allocations as necessary.

Proposed Solution

EDUMOD – EGYPT Model

The Edumod-Egypt model is described in more detail elsewhere (Zaki Ewiss, 2018; Zaki Ewiss, 2023). In this framework, ten education pillars are identified. These pillars are identified as follows:

1) Educational Policy
2) Educational Management
3) Educational Economy (Budget)
4) School/University Construction and Equipment
5) Educational Programs Curricula
6) Educational Teaching Methods
7) Teacher responsibilities
8) Educational Human Resources
9) Evaluation
10) Media and Educational Development

Figure 3 shows the tree model for the analysis of each pillar and its domains, including educational activities and processes.

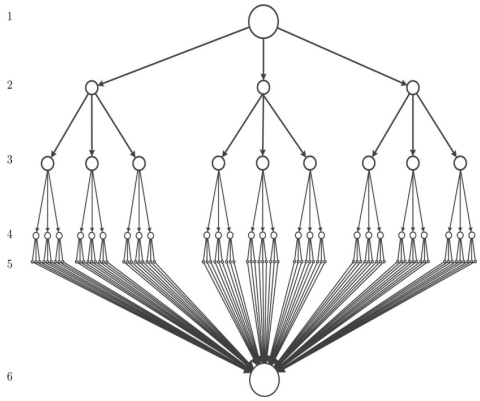

Figure 3: The Tree Model to Identify the Educational Domains, Activities, and Processes

Think about a scenario where OR is used to improve the distribution of government funds among public universities in Egypt:

1. Objective: The aim is to efficiently distribute scarce government funds to enhance educational results and ensure fairness.
2. Gather data on existing funding amounts, student characteristics, operational expenses, and performance measures.
3. Formulate a model to distribute funds through linear programming, taking into account goals like maximizing graduation rates and ensuring fair access. Budget constraints and minimum funding requirements for each institution will be considered.
4. Implement the optimal distribution of funds to universities and continuously monitor performance, making adjustments as necessary.
5. Evaluate the effectiveness of the funding strategy using key performance indicators such as changes in graduation rates and equity in access. Gather feedback to enhance the model and improve results.

In Figure 4-10, the main domains, including the educational activities and process of the educational pillars given above, are shown.

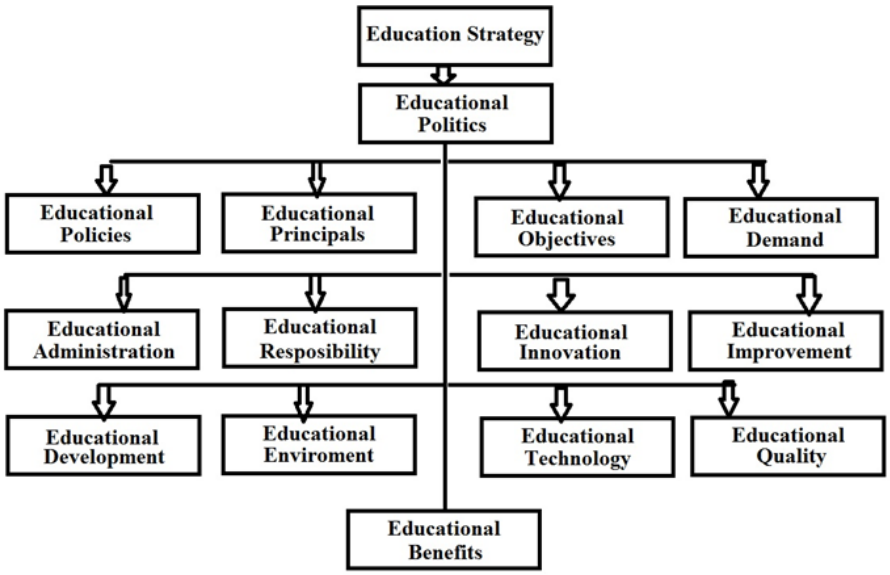

Figure 4: Suggested Tree Model for the Educational Strategy

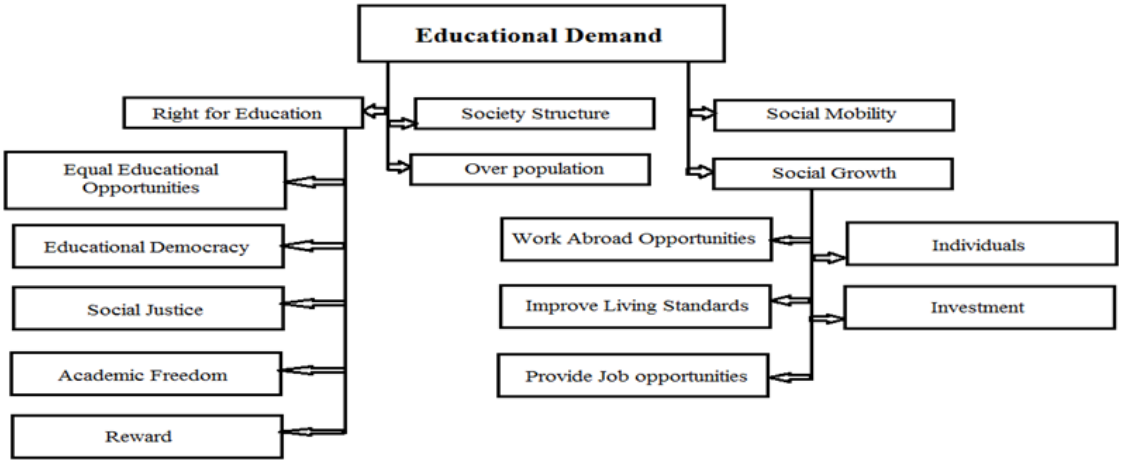

Figure 5: The Main Activities in the Domain of Educational Demand

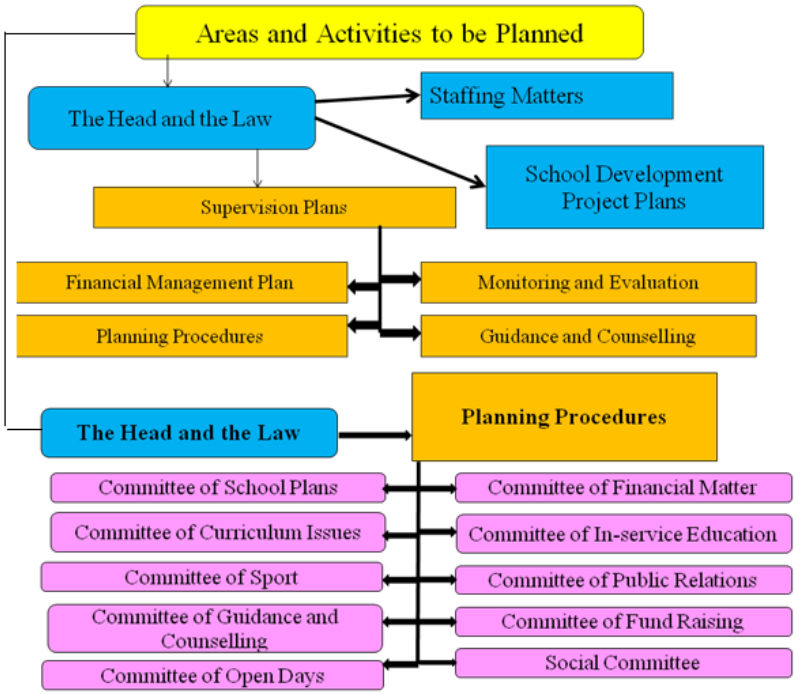

Figure 6: The Main Activities in the Domain of Educational Plans

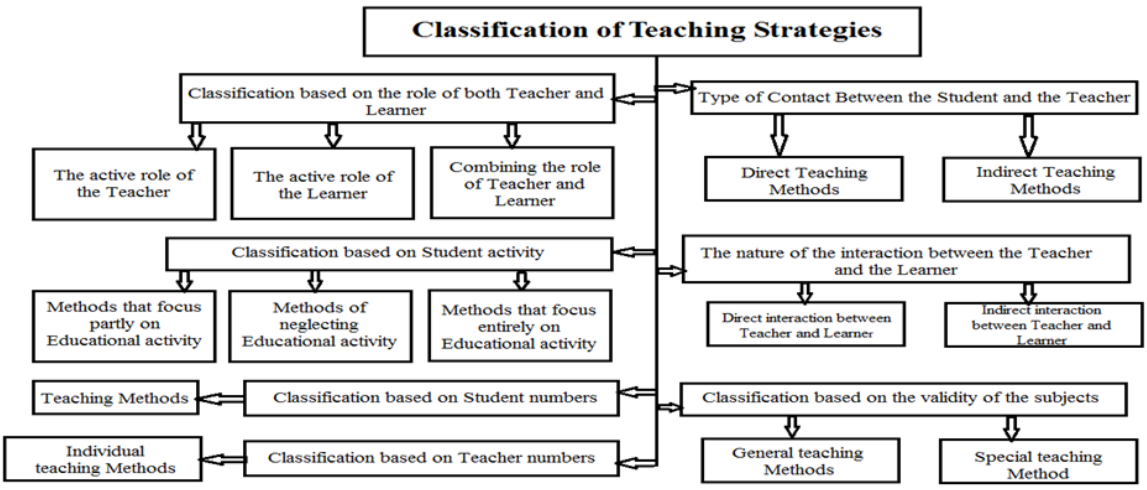

Figure 7: The Main Activities of the Teaching Strategies

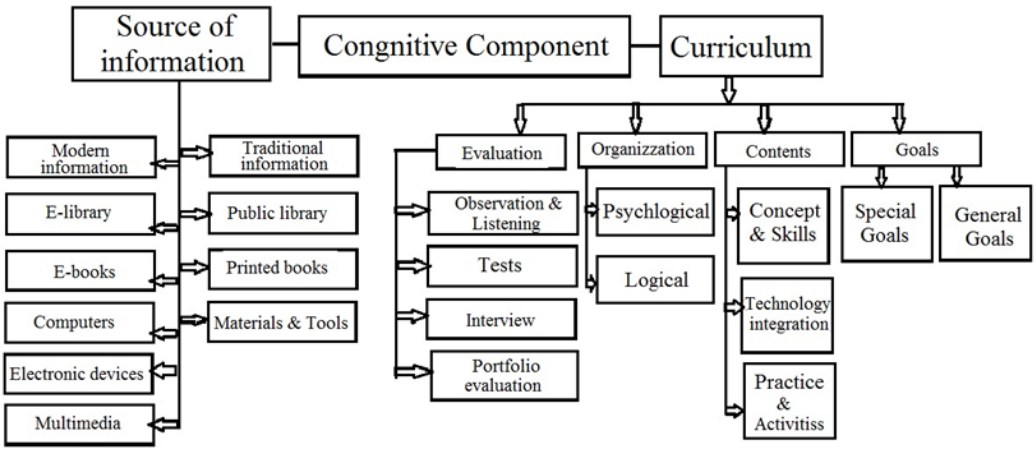

Figure 8: The Tree Model for the Cognitive Components

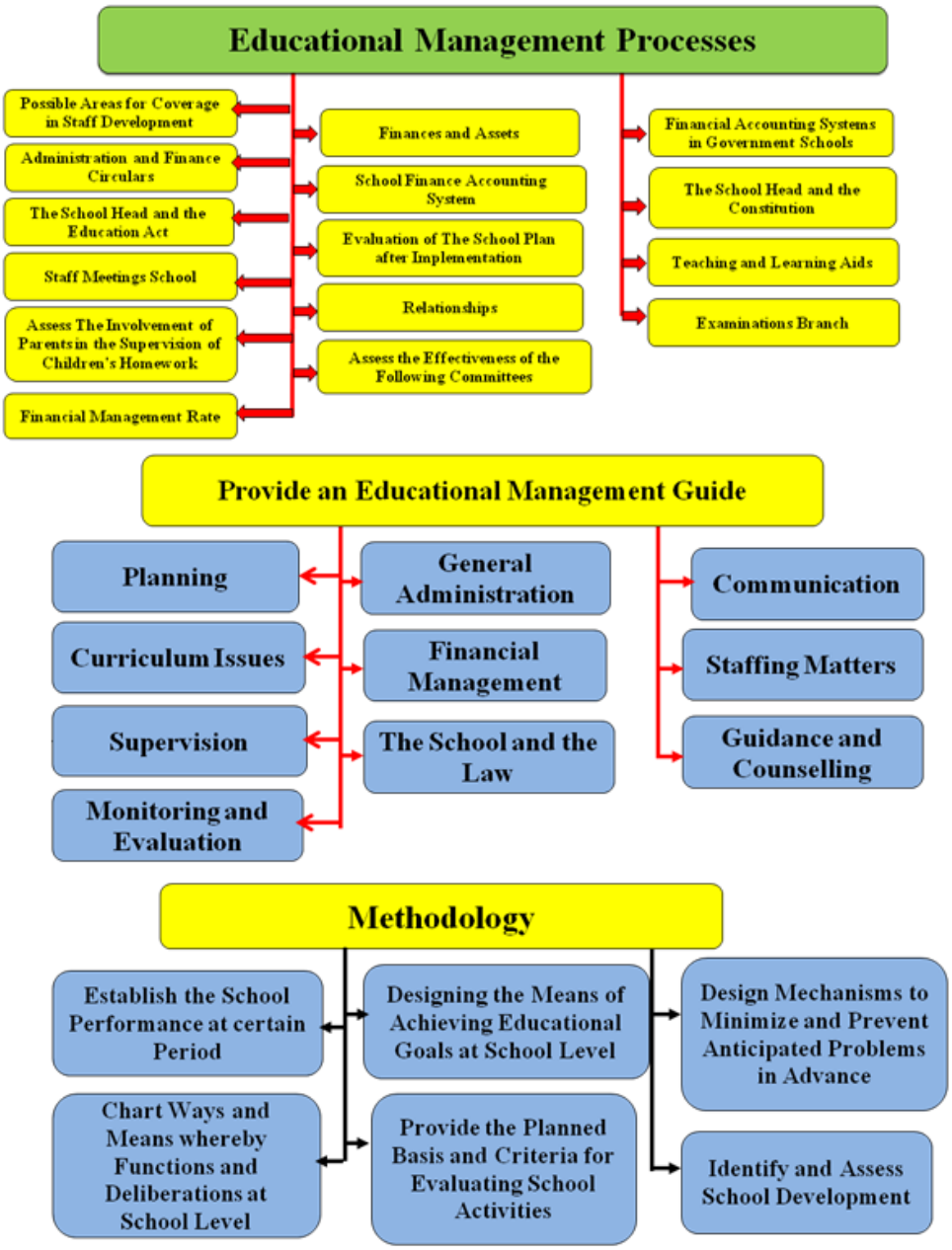

Figure 9: The Main Activities and Processes of the Educational Management

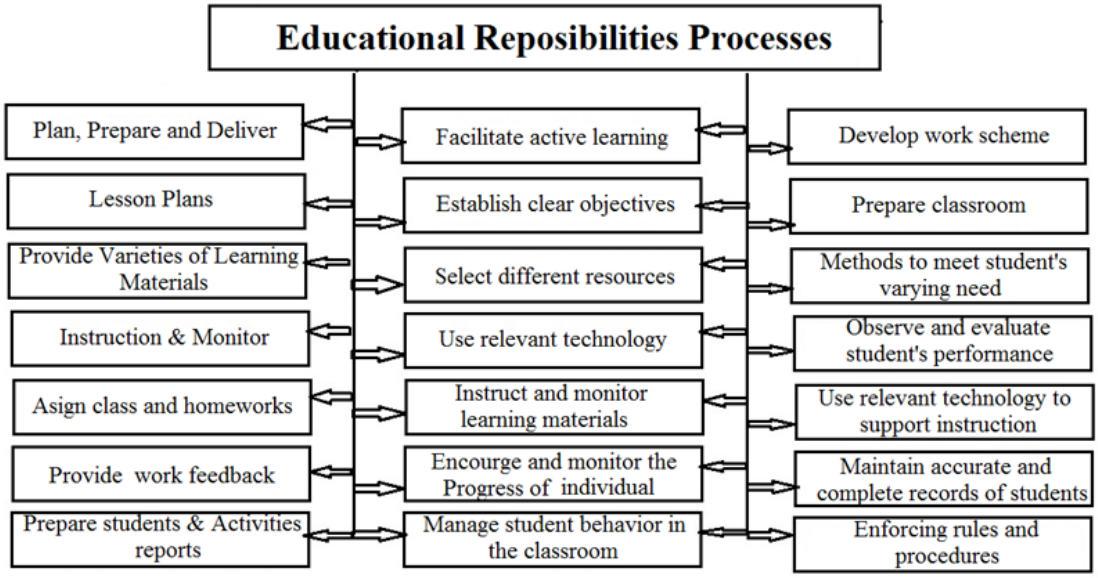

Figure 10: Scheme for the Educational Responsible Processes

Example: Proposal for Developing an Effective Model of Teaching in Higher Education

The aim is to develop an effective model for teaching in higher education, which involves integrating various pedagogical strategies, technological tools, and assessment methods to create a comprehensive and dynamic learning environment.

Table 5 describes our proposed model to enhance teaching in higher education, emphasizing student-centered learning, active engagement, and continuous improvement is presented.

Stage	Description
1. Curriculum Design and Planning	**Objective**: To develop a curriculum that is relevant, comprehensive, and aligned with learning outcomes. • **Outcome-Based Education (OBE)**: Design courses with clear, measurable learning outcomes that align with the skills and knowledge students need. • **Integrated Curriculum**: Ensure interdisciplinary integration where applicable, connecting concepts across different subjects to provide a holistic learning experience. • **Flexibility**: Incorporate elective courses and flexible learning paths to cater to diverse student interests and career goals.
2. Teaching Strategies	**Objective**: To implement diverse and effective teaching methods that cater to different learning styles. • **Active Learning**: Engage students through discussions, group work, problem-solving activities, and hands-on projects. Techniques include: ○ **Flipped Classroom**: Students review content before class, and class time is dedicated to interactive activities and discussions. ○ **Problem-Based Learning (PBL)**: Students learn through solving complex, real-world problems. ○ **Case Studies**: Analyze real-life scenarios to apply theoretical concepts.

	• **Blended Learning**: Combine face-to-**face instruction with online learning to provide flexibility and enhance accessibility.**
	  ○ **Synchronous Online Learning: Live virtual classes, webinars, and online discussions.**
	  ○ **Asynchronous Online Learning: Pre-recorded lectures, discussion forums, and self-paced assignments.**
	• **Collaborative Learning: Foster teamwork and communication skills through group projects, peer reviews, and collaborative research**.

3. **Technological Integration**	**Objective: To leverage technology to enhance teaching and learning experiences.** • **Learning Management Systems (LMS): Platforms like Moodle, Canvas, or Blackboard for managing course content, assignments, and assessments.** • **Educational Technologies: Use tools like interactive whiteboards, simulations, and educational software to create engaging learning experiences.** • **Online Resources: Incorporate e-books, academic journals, videos, and other digital resources to supplement learning.**
4. Assessment and Feedback	**Objective: To employ diverse assessment methods to evaluate student learning and provide constructive feedback.** • **Formative Assessment: Continuous assessments like quizzes, in-class activities, and draft submissions to monitor progress and provide timely feedback.** • **Summative Assessment: Comprehensive evaluations like final exams, projects, and papers to assess overall learning at the end of a course.** • **Authentic Assessment: Real-world tasks such as internships, practicums, and portfolios to evaluate the practical application of knowledge**
5. **Student Support and Engagement**	**Objective: To create a supportive and engaging learning environment.** • **Academic Advising: Guide course selection, career planning, and academic challenges.** • **Mentorship Programs: Connect students with faculty or industry mentors for personal and professional development.** • **Student Services: Offer resources such as counseling, tutoring, writing centers, and disability services to support diverse student needs.** • **Extracurricular Activities: Encourage participation in clubs, organizations, and events to foster a sense of community and enhance soft skills.**
6. Professional Development for Faculty	**Objective: To ensure continuous improvement in teaching practices through professional development.** • **Training Programs: Regular workshops and seminars on teaching methodologies, technological tools, and curriculum development.** • **Peer Observations: Faculty observe each other's classes to share best practices and provide constructive feedback.** • **Research Opportunities: Encourage faculty to**

	engage in educational research to stay updated with the latest pedagogical advancements.
7. Evaluation and Continuous Improvement	**Objective**: To continuously assess and improve teaching practices and curriculum effectiveness. • **Course Evaluations**: Collect feedback from students on course content, teaching methods, and overall experience. • **Data Analysis**: Analyze performance data and feedback to identify areas for improvement. • **Review and Revise**: Regularly update curriculum, teaching strategies, and assessment methods based on evaluation results and emerging trends.

Table 5: *Proposal for an Effective Model of Teaching in Higher Education*

At this point, it is believed that implementing this comprehensive model for teaching in higher education can significantly enhance the quality of education provided. By focusing on student-centered learning, leveraging technology, employing diverse assessment methods, and continuously improving through feedback and professional development, higher education institutions can create dynamic and effective learning environments that prepare students for success in their academic and professional lives.

Conclusion

Egypt's longstanding dedication to education and intellectual advancement is reflected in the growth of its higher education system. Even though there has been much progress, ongoing work is still required to solve the problems at hand and guarantee that Egyptian higher education is kept competitive and relevant in the international arena. Government agencies, academic institutions, the commercial sector, and civil society must work together to implement comprehensive reforms and persistent efforts to address these issues. Reviving higher education in Egypt will require prioritizing funding, enhancing faculty development, updating curricula, strengthening ties between industry and education, and improving governance. By addressing these problems, Egypt can better prepare its graduates with the know-how and abilities required to support the socioeconomic development of the country and contend on the international stage. The evolution of higher education in Egypt can be approached using an operational research approach, which provides a strong framework for addressing difficult problems. An operational research approach can assist in maximizing resource use, enhancing educational quality, and guaranteeing equitable access through methodical data analysis, model development, and ongoing evaluation. It will ultimately result in a more efficient and long-lasting higher education system in Egypt.

References

Afifi S., Ewiss M. (2023). Improving Educational Management in Developing Countries Using an Operational Research Approach ISSN: 2188-1162 The European Conference on Education 2023: Official Conference Proceedings https://doi.org/10.22492/issn.2188-1162.2023.88

Almansour, S. (2016). The Crisis of Research and Global Recognition in Arab Universities, Near and Middle Eastern Journal of Research in Education, 2016(1), 1-13.

Badran, A. (2018). Landscape of Higher Education in the Arab World: Quality, Relevance, and Student M Afifi S., Ewiss M. (2023) obility, In Badran A., Baydoun E., Hillman J. (eds) Universities in Arab Countries: An Urgent Need for Change (pp. 71-84). Springer, Cham.

Etzkowitz, H., & Leydesdorff, L. (1998). A Triple Helix of University-Industry—Government Relations: Introduction. Industry and Higher Education, 12(4), 197-201. https://doi.org/10.1177/095042229801200402

Habchi, A. (2018). The Role of Governments in Shaping Governance of Higher Education Institutions in the Arab World, In Azzi G. (eds) Higher Education Governance in the Arab World (pp. 105-130), Palgrave Macmillan, Cham.

Mohamed M., Ghoneim Sywelem, Asmaa Mohamed Elsayed Makhlouf. (2023). Common Challenges of Strategic Planning for Higher Education in Egypt, American Journal of Educational Research, 2023, Vol. 11, No. 6, 430-439 Available online at http://pubs.sciepub.com/education/11/6/12 Published by Science and Education Publishing DOI:10.12691/education-11-6-12

Zaki Ewiss (2018). CAIRO UNIVERSITY PROPOSAL FOR EDUCATION REFORM IN DEVELOPING COUNTRIES USING MODELING TECHNIQUE (EDUMOD-EGYPT), ICERI2018 Proceedings, Pp. 9006-9014.doi: 10.21125/iceri.2018.0661

Zaki Ewiss, M. A. (2023). "Management of pre-university Egyptian education: politics, issues and trend", Journal of Humanities and Applied Social Sciences, Vol. 5 No. 1, pp. 35-58. https://doi.org/10.1108/JHASS-04-2021-0079/

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