

Evaluating the Academic Performance of General Secondary School Certificate Graduates in Egypt: A Follow-Up Study

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Abstract

The study aims to evaluate the graduates of different general secondary school certificates in Egypt, in light of the main objective of secondary education, which is to academically prepare students for the university, and then to recognize the ranks of the secondary certificates in Egypt in terms of the high academic performance of their graduates after joining the Egyptian governmental universities or private universities, then find out the strengths and weaknesses of each certificate, in order to provide recommendations for improving the academic quality of those certificates.

The study used the descriptive approach to assess the current state of these certificates. A data monitoring form for universities in Egypt, accredited by the university, was designed to monitor the average academic results of students in the first year in a number of faculties with the name of the secondary certificate prior to enrollment.

The study sample included the academic results of (1071) first year students of Cairo University, representing public universities, and Delta University for Science and Technology, representing private universities in a number of faculties, namely: Pharmacy, Engineering, Economics, Commerce, Dentistry, and Sciences.

The field study results indicated that the highest academic performance were of students holding the Egyptian General Secondary Certificate studying science and mathematics in Arabic, followed by students with the Egyptian General Secondary Certificate studying sciences and mathematics in English, followed by the graduates of the International General Certificate of Secondary Education (IGCSE), then equivalent foreign certificates from non-Arab countries (the American High School Diploma), and lastly, the equivalent Arab secondary certificates from other Arab countries.

The study recommended paying attention to the Egyptian General Secondary Certificate, which teaches in both Arabic and English, benefiting from the academic strength of its graduates and promoting and further developing them. It is also recommended that the Supreme Council of Universities rethink the certificates offered by the American High School Diploma in particular and the foreign certificates as they result in educational wastage due to academic weakness of their graduates.

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Key Words: Academic Performance - General Secondary school Certificate Graduates

Introduction

All societies go through periods of political, social, and economic ups and downs, and any changes in these areas impact others, especially education. A strong economy significantly reflects on the strength of education in any country, as increased spending on education generally results in positive educational outcomes. Egypt has experienced significant periods of political, economic, and social fluctuations, which have greatly impacted its education system.

The general secondary education system in Egypt allows students to choose the type of school that suits their potential and abilities and obtain a secondary school certificate, whether Arabic or foreign, which qualifies them to study at the university in its various faculties, and then join the labor market. The current study will address the level of academic performance of graduates of each of these types of secondary school certificate in order to identify the best one.

General Framework

The general framework of the study will be addressed as follows:

Development of Subsidy Policy in Egypt:

Egypt's subsidy policy has fluctuated considerably, with periods of expansion and contraction. Sometimes, subsidies were increased to appease citizens, while at other times, the government reduced them when it found itself unable to bear the cost within the national budget. This is evident in the following:

After World War I, the Egyptian government provided minimal support to citizens due to rising food prices, by importing large quantities of wheat and flour from Australia and selling them at lower prices through government outlets (Rohac, 2014). In 1941, the government provided support to all citizens to alleviate the negative impact of the war on living standards by supplying essential goods (Gamal, 2012).

Following the 1952 revolution, the subsidy system reflected the state's political orientation, where the government assumed responsibility for providing basic social services to citizens, such as healthcare, education, and support for essential food items and housing (Salma Farid, 2006). In the mid-1960s, the state introduced a ration card system for a limited number of essential goods due to severe shortages caused by the 1967 war between Egypt and Israel (Gunter et al., 1999).

The 1970s saw an expansion of the subsidy system, both in terms of scope and value, covering a larger number of goods (18 items) and extending to electricity, public transport, and gasoline. This system was intended for all citizens, not just low-income groups (Nader Nour El-Din, 2009). However, as the cost of this support began to strain the Egyptian economy, the government raised prices for several goods in January 1977 as part of agreements with the International Monetary Fund (IMF) in 1976, aiming to reduce subsidies in the context of economic reforms (Rohac, 2014).

Subsidy costs rose again in the early 1980s, with food subsidies alone reaching 1.6 billion EGP annually and an increase in the number of subsidized goods (Gamal, 2012). In

1994, the Minister of Trade and Supply reduced the number of ration card holders, limiting support to only four essential items (Gunter et al., 1999). By 2002/2003, fuel subsidies had decreased to 60.8 billion EGP (Younan et al., 2005). In 2004/2005, government subsidies amounted to 42.2 billion EGP in the national budget (Information and Decision Support Center, 2004).

Between 2007/2008 and 2011, government subsidies increased significantly, rising from 84.2 billion EGP in 2007/2008 to approximately 132.3 billion EGP in the 2011/2012 budget, representing a 57.1% increase (Information and Decision Support Center, 2012).

In the 2012/2013 fiscal year, the subsidy budget reached 145.2 billion EGP. In 2013/2014, the total subsidies, grants, and social benefits amounted to 160 billion EGP, of which about 100 billion EGP was allocated to fuel subsidies, and 30 billion EGP (15% of total subsidies) was allocated to food subsidies (Mohamed Suleiman, 2014).

Impact of Subsidy Policy Development on Education:

The subsidy policy has had a negative impact on Egypt's overall economy and, specifically, on education. This is particularly true given the sharp increase in Egypt's population, which has led to a growing demand for subsidies from the national budget and a rise in the number of students seeking educational opportunities. Consequently, this has resulted in insufficient funding for education on the one hand, and an increase in the overall budget deficit and public debt (both domestic and foreign) on the other.

By reviewing the annual statistical book issued by the Central Agency for Public Mobilization and Statistics (2015), it becomes clear that as the population continues to increase, and the state's commitment to providing subsidies, the overall deficit in the state budget has increased, along with an increase in the state's debt. Despite the growing number of students, the percentage of spending on education has remained constant and even slightly decreased. This has led to several educational shortcomings, which are manifested as follows:

. High student density in schools:

With the growing budget deficit, the state has been unable to build enough new schools to accommodate population growth leading to increased student density in classrooms. Class sizes have approached fifty students in primary schools and exceed forty in both preparatory and secondary stages.

By reviewing the educational indicators issued by the General Administration of Information Systems and Decision Support at the Ministry of Education (2018), the following can be noted:

. Increased Dropout and Failure Rates:

The high student density in classrooms has reduced the time allocated for each student to participate in discussions and ask questions, negatively impacting the targeted learning outcomes. This has led to increased dropout and failure rates.

The educational indicators issued by the General Administration of Information Systems and Decision Support at the Ministry of Education (2018) showed that the failure rates in the school year 2016/2017 reached approximately 7% in primary school, around 6% in preparatory school, and about 18% in secondary school. This indicates that as students advance in their education, they require more understanding, inquiry, and discussion in the

classroom- needs that cannot be met because of high student densities, resulting in noticeably higher failure rates in secondary education compared to earlier stages.

Consequently, dropout rates in 2016/2017 reached 0.38% in primary school and 3.38% in preparatory school, (General Directorate of Information Systems, 2018), a natural outcome of students repeating grades multiple times.

- ***Increasing Illiteracy Rates:***

Illiteracy rates stem from two sources: lack of enrollment in the educational system and dropping out of school, as outlined in the previous section. The net enrollment rate in the educational system for the 2017/2018 school year was 84.7% (General Directorate of Information Systems, 2018), indicating that about 15% of children do not enroll in the educational system.

The Impact of Limited Spending on Education on Society:

Egyptian society places significant importance on education, but due to the state's limited ability to fund education, society has split into three segments:

- **First Segment: Those Who Neither Know Nor Can Afford It**

This segment consists of poor, uneducated families whose children repeatedly failed and then dropped out of school. This group bears the brunt of the state's insufficient funding for education.

- **Second Segment: Those Who Know But Cannot Afford It**

The educated, low-income middle class has taken on the responsibility of addressing educational shortcomings themselves, with parents stepping in to teach and discuss topics with their children to achieve the desired learning outcomes.

- **Third Segment: Those Who Can Afford It, Whether or Not They Are Educated**

This group has resorted to private tutoring and specialized learning centers to compensate for deficiencies in the educational system.

As a result of the educational system's failure to achieve its objectives, private tutoring and educational centers have spread widely. Private tutoring is a global phenomenon, not exclusive to Egypt, but has spread worldwide. According to the Global Education Monitoring Report, private tutoring has become a widespread global trend, with expected growth rates of around 50% in Egypt, China, Spain, Ukraine, and India, and 25% in England and Wales. Moreover, 35% of parents reported that cost is the main barrier preventing their children from receiving private tutoring. While private tutoring addresses students' academic weaknesses, it negatively impacts educational equity.

According to the Global Education Monitoring Report, governments have responded in various ways (Global Education Monitoring Report, 2018, pp. 108, 109):

- Some ignored it, like in Canada and Nigeria.
- Some tried in vain to ban it, as in Cambodia and South Korea.
- Some sought to regulate it by setting requirements for number of students, facilities, safety and safety standards, and price caps, as in China.

- In countries like Japan and the United Kingdom, private tutors established associations and created ethical codes for their work.

Despite the fact that private tutoring addresses deficiencies in the education process, it disrupts the principle of social justice. Those who can afford it will learn, while those who cannot, will bear the consequences of the system's deficiencies .

However, the final graduates who left the educational system and enrolled in universities were well qualified, due to the efforts of parents to address the educational system's shortcomings. Nonetheless, the Egyptian media has recently been diminishing the value of students graduating from the Egyptian educational system, while glorifying those from other educational systems.

This trend prompted the research team leader to conduct a study to assess the academic performance of graduates holding Egyptian secondary school certificates, to determine their ranking compared to other certificates, and to identify their strengths and weaknesses.

Research Questions:

The main question of this study is:

How can the academic performance of graduates holding Egyptian secondary school certificates be assessed upon their entry into university?

Several sub-questions stem from this main question:

1. What are the foreign secondary school certificates available in Egypt, and what are the key features of their educational systems?
2. What are the main Egyptian national secondary school certificates provided by the Ministry of Education, and what are the key features of their educational systems?
3. What is the current state of academic performance of graduates holding secondary school certificates in Egyptian universities?
4. What are the main recommendations of the study based on its findings?

Study Methodology:

The study used a descriptive approach to observe the main secondary school systems available in Egypt and assess the academic performance of their graduates. Additionally, it identifies the ranking of secondary school certificates available in the universities within the study sample based on the strength of their graduates' academic performance.

Study Objectives:

This study aims to achieve several objectives, the most important of which are:

1. Identify the ranking of secondary school certificates in the universities within the study sample based on the academic performance of their graduates.
2. Determine the ranking of secondary school certificates within each university separately in terms of the academic strength of their graduates.
3. Determine the ranking of secondary school certificates for each faculty separately in terms of the academic performance of their graduates.

4. Provide recommendations for enhancing the academic performance of secondary certificate graduates in Egypt based on the study's findings.

Study Significance :

The importance of this study lies in the lack of a scientific reference confirming the quality or lack thereof of any of the current secondary school certificates. For instance, the following can be observed:

- There is a prevalent negative public opinion about Egyptian education in the media, without any scientific basis..
- There is a large demand for international certificates, despite a lack of scientific evidence supporting their academic strength.
- There is a growing trend among parents to favor foreign language education, again without any scientific reference to support it..

Study Boundaries:

The study is limited to the following boundaries:

- Spatial Boundaries: Cairo University, as a representative of public universities, and Delta University for Science and Technology, as a model for private universities.
- Temporal Boundaries: The study focused on the students' results and academic averages at the end of their first year of university specifically for the academic year 2017/2018.
- Human Boundaries: The study was limited to the results of students in six faculties: Engineering, Economics and Political Science, Commerce, Dentistry, Science, and Pharmacy.

Operational Definition of Study Terms:

Academic Performance:

This refers to the academic grade point average (GPA), which ranges from zero to four points, obtained by students at the end of the academic year as a percentage of their total grades across all subjects studied during that year.

Field Study:

The field study included the following:

Field Study Tools:

The study relied on a data-tracking form directed to the Student Affairs Department at both public and private universities to record the academic performance results of graduates from various secondary school certificates during their first year at university. This was done to assess the impact of the academic preparation from these certificates before the effect of university preparation in subsequent years become apparent.

Study Sample:

The study selected a random sample of documented and certified results for first-year university students with a total of 1,071 students from two universities: Cairo University, as a model for public universities, and Delta University, as a model for private universities. The following table [1] illustrates the distribution of the sample according to the study variables.

Table [1]

Distribution of the study sample based on the study variables

Studys variables		Sample	Percentage
University	Cairo	499	46.59
	Delta	572	53.41
	Total	1071	100
Faculties	Pharmacy	158	14.75
	Engineering	488	45.56
	Economics and Political Science	89	8.31
	Commerce	179	16.71
	Dentistry	142	13.26
	Science	15	1.40
	Total	1071	100
Type of general secondary school certificate	International General Certificate of Secondary Education (IGCSE)	188	17.55
	American High School Diploma	112	10.46
	General Egyptian Language Secondary school	139	12.98
	General Egyptian Arabic Secondary	198	18.49
	Equivalent Arabic Secondary	408	38.10
	Equivalent Foreign Secondary	26	2.43
	Total	1071	100

Field Study Questions:

The field study aims to answer the following questions:

1. Are there statistically significant differences in students' academic performance based on the type of secondary school certificate they hold? And what is the ranking of secondary school certificates in the study sample universities in terms of the academic performance of their graduates?
2. Are there statistically significant differences in the academic performance of Cairo University students based on the type of secondary school certificate they hold, and what is the ranking of secondary school certificates at Cairo University (as a public university) in terms of academic performance?
3. Are there statistically significant differences in the academic performance of Delta University students based on the type of secondary school certificate they hold, and what is the ranking of secondary school certificates at Delta University for Science and Technology (as a private university) in terms of academic performance?
4. Are there statistically significant differences in academic performance between secondary school certificate holders and graduates of the Pharmacy Faculty, and who among them demonstrates the best academic performance in this faculty?
5. Are there statistically significant differences in academic performance between secondary school certificate holders and graduates of the Engineering Faculty, and who among them demonstrates the best academic performance in this faculty?
6. Are there statistically significant differences in academic performance between secondary school certificate holders and graduates of the Commerce Faculty, and who among them demonstrates the best academic performance in this faculty?
7. Are there statistically significant differences in academic performance between secondary school certificate holders and graduates of the Faculty of Economics and Political Science, and who among them demonstrates the best academic performance in this faculty?
8. Are there statistically significant differences in academic performance between secondary school certificate holders and graduates of the Science Faculty, and who among them demonstrates the best academic performance in this faculty?
9. Are there statistically significant differences in academic performance between secondary school certificate holders and graduates of the Dentistry Faculty, and who among them demonstrates the best academic performance in this faculty?

Study Variables:

- Independent Variables: Type of secondary school certificate, university, faculty.
- Dependent Variable: The student's academic performance.

Field Study Tools and Preparation Steps:

- To achieve the objectives of the field study, a data-tracking form was designed for universities to record students' academic performance at the end of their first year across six faculties, half of which are theoretically inclined, while the other half are scientifically oriented.

- The form includes the university and faculty name at the top, followed by a table with several columns, as follows:
 - Student Name Column: To enable data verification and accuracy by any interested authority.
 - Certificate Type Column: Indicates the type of secondary school certificate the student holds.
 - Academic Average Column: Records the student's academic average or grade at the end of the first year.

Since the data-tracking form is based on actual results and information from the students' academic records, it is academically reliable and stable, requiring no statistical testing for validation.

Statistical Methods Used:

The Statistical Package for the Social Sciences (SPSS) version 16 was utilized, and the following statistical methods were applied [for further clarification: Abu Hatab and Sadiq, 1996]:

- a. Frequencies and percentages.
- b. Calculating the significance of differences between the means for the type of secondary school certificate held by the student, the university, and the faculty, and their academic performance using ANOVA (Analysis of Variance).
- c. Tukey's and Scheffé's tests to determine the direction of significant differences in cases where there are statistically significant differences between the variables.

Results of the Field Study and Analysis:

- 1- Regarding the response to the first question [Are there statistically significant differences in the academic performance of the students in the study sample based on the type of secondary school certificate they hold, and what is the ranking of secondary school certificates in the study sample universities in terms of the academic performance of their graduates?]

The results answering this question were as follows:

Table (2)

ANOVA Test to Measure the Significance of Differences Between Types of Secondary School Certificates and the Academic Average of the Sample Students at the End of the First Year

	Sum of Squares	df	Mean Squares	F	Sig
Between Groups	205.503	5	41.101	42.714	.000
Within Groups	1024.775	1065	.962		
Total	1230.278	1070			

The results of the field study in Table (2) indicate strong statistically significant differences at the 0.01 level, indicating that there is a clear difference between the academic performance of graduates of different secondary school certificates. The following is an explanation of this difference.

Table (3)

Tukey and Scheffe tests to indicate the direction of the significant differences between General Secondary Certificates and students' academic performance at the end of the first year

	Type of secondary school certificate	No.	Subset for alpha = 0.05			
			1	2	3	4
Tukey	Equivalent Arabic certificates	408	2.0117			
	American Diploma	112	2.1405			
	Equivalent foreign certificates	26	2.2381	2.2381		
	International General Certificate (IG)	188		2.6058	2.6058	
	General Egyptian Language Secondary Certificate	139			2.7929	2.7929
	General Egyptian Arabic Secondary Certificate	198				3.1403
	Significance		.639	.125	.800	.171
Scheffe	Equivalent Arabic certificates	408	2.0117			
	American Diploma	112	2.1405	2.1405		
	Equivalent foreign certificates	26	2.2381	2.2381		
	International General Certificate (IG)	188		2.6058	2.6058	
	General Egyptian Language Secondary Certificate	139			2.7929	2.7929
	General Egyptian Arabic Secondary Certificate	198				3.1403
	Significance		.796	.076	.899	.350

Table (3) shows the consensus of both the Tukey test and the Scheffé test that the highest performing students in the total sample of the study, in terms of academic performance at the end of the first year of university, are graduates of the Egyptian General Secondary Certificate taught in Arabic, followed by graduates of the Egyptian General

Secondary Certificate taught in English, then graduates of the British IGCSE, followed by equivalent foreign certificates, the American Diploma, and finally, equivalent Arab certificates.

- 2- Regarding the answer to the second question [Are there statistically significant differences between the academic performance of students at Cairo University and the secondary certificate they obtained, and what is the ranking of secondary school certificates at Cairo University, as a public university, in terms of the academic performance of its graduates?]

The results indicated that the top-performing students at Cairo University in academic performance at the end of the first year of university study were graduates of the Egyptian secondary school certificate taught in Arabic, followed by graduates of the Egyptian secondary school certificate taught in English, then the International General Certificate (IG), then the equivalent foreign certificates, then the American Diploma, and finally the equivalent Arab certificates.

- 3- Regarding the answer to the third question [Are there statistically significant differences between the academic performance of students at Delta University and the secondary certificate they obtained, and what is the ranking of school secondary certificates at Delta University of Science and Technology, as a private university, in terms of the strength of academic performance of its graduates?].

The results showed that the highest performing students at Delta University of Science and Technology, in terms of academic performance at the end of the first year of university, were graduates of the Egyptian General Secondary Certificate taught in Arabic, followed by graduates of the Egyptian General Secondary Certificate taught in English, then equivalent foreign certificates, the American Diploma, and finally, equivalent Arab certificates.

- 4- Regarding the answer to the fourth question [Are there statistically significant differences between the academic performance of graduates of different secondary school certificates and the Faculty of Pharmacy, and who are the top-performing secondary school graduates in terms of academic performance in that faculty?].

The results showed that the top-performing students in the Faculty of Pharmacy, for the total study sample, in terms of academic performance at the end of the first year of university, were graduates of the Egyptian General Secondary Certificate taught in Arabic, followed by graduates of the Egyptian General Secondary Certificate taught in English, and then equivalent Arab certificates.

- 5- Regarding the answer to the fifth question [Are there statistically significant differences between the academic performance of graduates of secondary school certificates and the Faculty of Engineering, and who are the top-performing secondary school graduates in terms of academic performance in that faculty?].

The results showed that the top-performing students in the Faculty of Engineering, for the total study sample, in terms of academic performance at the end of the first year of university, were graduates of the Egyptian General Secondary Certificate taught in Arabic, followed by graduates of the International General Certificate IGCSE, then graduates of the

Egyptian General Secondary school Certificate taught in English, then the American Diploma, then the equivalent foreign certificates, and finally, the equivalent Arab certificates.

- 6- Regarding the answer to the sixth question [Are there statistically significant differences between the academic performance of graduates of different secondary school certificates and the Faculty of Commerce, and who are the top-performing secondary school graduates in terms of academic performance in that faculty?].

The results showed that the top-performing students at the Faculty of Commerce for the total study sample, in terms of academic performance at the end of the first year of university were graduates of the Egyptian General Secondary school Certificate taught in Arabic, followed by graduates of equivalent foreign certificates, then graduates of the Egyptian General Secondary school Certificate taught in English, then the American Diploma, then graduates of the International General Certificate IGCSE, and finally, the equivalent Arab certificates.

- 7- Regarding the answer to the seventh question [Are there statistically significant differences between the academic performance of graduates of different secondary school certificates and the Faculty of Economics and Political Science, and who are the top-performing secondary school graduates in terms of academic performance in that faculty?].

The results indicated that the top-performing students in the Faculty of Economics and Political Science, for the total study sample, in terms of academic performance at the end of the first year of university, were graduates of the International General Certificate IGCSE, followed by graduates of the American Diploma, then graduates of the Egyptian General Secondary Certificate taught in Arabic, then graduates of the Egyptian General Secondary Certificate taught in English, followed by the equivalent foreign certificates, and finally the equivalent Arab certificates.

- 8- Regarding the answer to the eighth question [Are there statistically significant differences between the academic performance of graduates of different secondary school certificates and the Faculty of Science, and who are the top-performing secondary school graduates in terms of academic performance in that faculty?].

The results showed that the top-performing students in the Faculty of Science, for the total study sample, in terms of academic performance at the end of the first year of university were graduates of the Egyptian General Secondary school Certificate taught in Arabic, followed by graduates of the Egyptian General Secondary school Certificate taught in English, and then the American Diploma.

- 9- Regarding the answer to the ninth question [Are there statistically significant differences between the academic performance of graduates from different secondary school certificates and the Faculty of Dentistry, and who are the top-performing secondary school graduates in terms of academic performance in that faculty?].

The results showed that the top-performing students in the Faculty of Dentistry, for the total study sample, in terms of academic performance at the end of the first year of university, were graduates of the Egyptian General Secondary school Certificate taught in Arabic, followed by graduates of the Egyptian General Secondary school Certificate taught in English, then the American Diploma, and finally the equivalent Arab certificates.

Explanation of the Field Study Results

- 1- *Explanation for the decline in academic performance among American Diploma students:* The decline in the academic performance of American Diploma students may be attributed to a significant flaw in their evaluation system. An American Diploma student takes four annual exams over three years, totaling 12 exams, and only the highest four scores are counted. It is known that each academic year has its own requirements and objectives that differ from the previous one. Consequently, this system leads students to focus heavily on the first year, where they achieve the highest grades, while neglecting the second and third years, which contain many essential academic requirements for university preparation. It would be more beneficial to allow students two exams at the end of each semester, at spaced intervals, where the best test score is taken into account, ensuring that academic requirements for all levels of study are not neglected.
- 2- *Explanation for the superior performance of Egyptian Arabic General Secondary School graduates in the Faculties of Engineering, followed by IG graduates and then the Egyptian Language General Secondary School graduates, and the dominance of Egyptian Language General Secondary School graduates in the Faculties of Pharmacy, followed by Egyptian Arabic General Secondary School graduates:* This can be attributed to the fact that faculties that rely on understanding, such as engineering, are better suited for those who studied in their native language, as they have possess a deeper understanding. On the contrary, those who studied in foreign languages excel in faculties that rely more on memorization, such as pharmacy. The superior performance of IG graduates over Egyptian Language General Secondary school graduates in engineering can be explained by the fact that they study specialized subjects that qualify them for engineering faculty.
- 3- *Explanation for the Consistency in the Ranking of academic performance of Secondary School Graduates between Cairo University and Delta University for Science and Technology:* This consistency lends a significant degree of credibility, accuracy, and validity to the field study results, indicating that this ranking is indeed reliable and realistic.

Study Recommendations:

Based on the results of the field study and the theoretical framework, several recommendations can be formulated, categorized into several key areas:

First: Regarding the Media

The study recommends that media outlets conduct awareness campaigns for parents and the public to correct erroneous educational concepts within society, such as:

- Mistake of unifying educational systems: Diversity always fosters creativity, meets labor market needs, and considers beneficiaries' desires. It is one of the ethics of educational planning, uniformity stifles creativity, fails to align with various professional requirements, and does not satisfy beneficiaries' wishes.
- Mistake that diversity of educational systems creates classism: The claim that this diversity creates classism is false. This diversity is based on parents' desires and not

mandated by any law requiring them to enter a specific type or prohibiting them from entering another.

- Mistake that diversity in educational systems destroys national identity: This is incorrect because identity is preserved through three subjects taught in Arabic: Arabic language, religious education, and national social studies, thus fulfilling the constitutional requirement, and the study of any other subjects alongside these does not impact national identity.
- Educational Systems Worldwide Are Diverse: The United States has religious education in Catholic schools, STEM education focused on science and mathematics, American Diploma education, and vocational education. Similarly, England has various types of secondary school certificates, each with different curricula and assessment methods, such as the International Baccalaureate (IB) and the International General Certificate (IG). No one in these countries calls for the abolition of these systems because they meet professional needs, societal desires, foster creativity, and comply with ethical educational planning.
- Mistake of Studying Sciences and Mathematics in Foreign Languages: Some believe that studying in a foreign language is superior to studying in Arabic. However, the study results have shown that the opposite is true, and studying sciences and mathematics in one's mother tongue leads to better performance in faculties that depend on understanding.
- Mistake of Eliminating Memorization in Curricula: Memorization is the foundation upon which higher-order thinking skills are built; understanding cannot occur without memorization, and inference and deduction cannot happen before understanding. Similarly, comparison, analysis, and judgment require prior knowledge. Therefore, it is essential to correct these misconceptions in the media, which shapes societal awareness.
- Mistake that Graduates of Foreign Certificates Are Better Than Those of the Egyptian Certificate: The study has shown that the academic performance of graduates of the Egyptian secondary school certificate taught in Arabic is indeed the best among their peers from other certificates, whether international or national, that are taught in English.
- Mistake of Disparaging the Egyptian Education System: Recently, there has been significant disparagement of the Egyptian education system in the media, diminishing the value of graduates of the Egyptian general secondary school certificate. This is dangerous for the reputation of Egyptian education, as it is scientifically inaccurate based on the findings of legitimate research. Moreover, it reduces demand for education in Egypt, impacting universities' income from international students and weakening external labor market demand for Egyptian graduates, adversely affecting society both socially and economically.
- Mistake of Relying on Unreliable Global Reports in the Egyptian Media: Recently, unreliable reports such as the Global Competitiveness Report, have been widely circulated in the Egyptian media, sometimes placing Egypt last and sometimes

ranking it as high as 100 based solely on the announcement of a new plan. An examination of this report reveals it does not rely on a scientific methodology for evaluation, and the issuing body has stated in small print on the next page that it is not responsible for the accuracy of any data contained in the report, nor for presenting any papers regarding it. It can change any statement without notice and is not responsible for any decisions made based on this report. Unfortunately, this report continues to dominate media outlets despite its lack of credibility.

- Mistake that Private Tutoring Is a Disease that must be eradicated: Private tutoring is a symptom of a larger problem, not a problem in itself. It arises from insufficient education funding and high student-to-teacher ratios, resulting in limited classroom time for discussions and individual questions. This situation has led society to divide into three groups to cope with this deficiency:
 - The first group consists of those who lack knowledge and resources, and their children are the ones affected by this deficiency, often failing and dropping out of the education system.
 - The second group includes those who possess knowledge but lack financial resources. They take on the responsibility of ensuring their children receive an education to compensate for this deficiency.
 - The third group comprises those with resources who may or may not possess knowledge; they resort to private tutoring to address the educational shortcoming. Thus, private tutoring serves to rectify educational deficiencies but harms social justice, as those who can afford it will learn, while those who cannot will not. Moreover, private tutoring is prevalent in many advanced countries, increasing according to UNESCO's 2018 Global Education Monitoring Report.

Second: Regarding the Ministry of Education:

The study advises the Ministry of Education to take the following actions:

- Address Weaknesses in the American Diploma System: Avoid the weaknesses encountered by the American Diploma when implementing the new secondary school system, which relies on the same evaluation system as the American Diploma. An American Diploma student takes four annual exams over three years, totaling 12 exams, and only the highest four scores are counted. This is the same evaluation system currently being adopted for the new secondary education. Each academic year has its own requirements and goals that differ from the previous year. Consequently, this system leads students to focus heavily on the first year, where they achieve the highest grades, while neglecting the second and third years, which contain many essential academic requirements for university preparation. Therefore, the study recommends allowing students to take two tests at the end of each semester at spaced intervals, where the best test score is considered, ensuring that academic requirements for all levels of study are not neglected.

- Disseminate Research Findings: Publish the results of this research to the media so that the community understands the validity of the ministry's approach to Arabicizing the study of sciences and mathematics. Scientific research has demonstrated that students who study in their mother tongue have a better understanding and excel compared to those who study in foreign languages.
- Encourage Educational Diversity: Promote diverse educational systems to meet societal desires and professional needs within the community.
- Collaboration Protocol for International Certifications: Establish a collaboration protocol to modify the language of instruction in international English and American certifications so that students study the same curricula but in their mother tongue, alongside advanced study of the English language. They should take the same tests but answer them in Arabic.
- Support the National Center for Educational Research and Development: Support the National Center for Educational Research and Development in establishing its own international certification and a series of affiliated schools where educational research is conducted. This certification should expand or contract based on success measured by supply and demand, with a national non-profit focus, and an international profit-oriented approach, where profits are allocated for expanding non-profit school construction in Egypt.
- Revise the evaluation systems in STEM schools: Modify the evaluation system in gifted STEM schools to encourage enrollment and expand their establishment.

Third: Recommendations for the Supreme Council of Universities:

The study advises the Supreme Council of Universities to undertake the following actions:

Annual Academic Report Requirement: Mandate all public and private universities to prepare an annual report on the academic performance of first-year students based on their secondary school certificates, to facilitate an annual evaluation of these certificates and to make decisions regarding the admission criteria for these certificates based on the report results.

Consolidated Annual Report: Create a consolidated annual report to evaluate these certificates based on the previously mentioned reports.

Awareness of Admission Testing: Recognize that foreign universities conduct academic admission tests due to the absence of free university education and the considerable variety in secondary school certificates. Each university administers admission tests for capable students willing to pay tuition fees to select the best candidates while meeting the university's financial operational needs. However, in Egypt, the situation is different; we have a national examination and free university education. Thus, Egypt selects the best students among all graduates nationwide for university admission, not just the best among those who can afford to continue their education.

- Determine Required University Enrollment Numbers: Set the required enrollment numbers for Egyptian public and private universities each year and obligate the Ministry of Education and governors not to exceed this number when determining acceptance rates in the general secondary education system, which is considered an incomplete certificate and only qualifies students for university education.

- Establish a Graduate Employment Office in Each University: Propose the creation of a graduate employment office within each university responsible for the following:

- Forming agreements with business owners.
- Training all students in all faculties annually during summer vacations within the job market.
- Maintaining ongoing communication with business owners to identify new skills they wish to impart to graduates.
- Providing business owners with student lists and tracking their employment and integration into the job market after graduation.

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