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The dual education program in Egypt: a qualitative study on challenges and opportunities

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THE DUAL EDUCATION PROGRAM IN EGYPT

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ABSTRACT

The Mubarak Kohl Initiative – now called the Dual Education System is considered as one of the most successful intervention of active labor market programs (ALMPs) in Egypt. The Dual Education Program offers a unique type of education that includes on-the-job training. Students can learn, work and earn in addition to a guaranteed job opportunity upon graduation. The blue collar category is normally the poor people who suffer from a low social standard as well as low income. The Dual Education System mainly targets technical and vocational workers to promote their living standard. Technical and Vocational Education in Egypt occupies the least governmental attention in regards to its improvement and budget allocation. This thesis will give an overview on governmental expenditure on technical and vocational education in Egypt. Also, it will point out the importance of the Dual Education System initiative in promoting the vocational and technical professions in Egypt and providing better job opportunities for its graduates and how far this is actually accomplished in reality and the key behind the project's sustainability. It will also point out the main lessons to be learnt from the Dual Education System, how it can be replicated by other interventions and how the program is evolving in its current scale-up phase. It will also show why preparatory students join the Dual Education System although they do not intend to continue in technical and vocational jobs.

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Table of Contents

I. Introduction

In Egypt, the poor can only achieve basic or, in the best case scenario, secondary education, with no access to tertiary education (Loveluck, 2012).Those who seek vocational education have limited opportunities for further learning and suffer low status, poor funding and poor quality. With the increasing unemployment rates among educated graduates, vocational and technical school graduates represent the largest portion. With the low and misallocated budget for this category of students which represent the majority of secondary students, unqualified graduates suffer from unemployment because they lack the skills required for labor market needs.

This thesis will assess on the evolution of the Dual Education System on technical and vocational school graduates in regards to their educational level. It will show how the program is evolving in its current scale-up phase. It will focus on the main lessons to be learnt from the Dual Education System in improving vocational and technical education in Egypt. Interviews will be conducted with the Dual Education System (DS) stakeholders. The interviews will cover six groups: DS students, DS graduates, employers, traditional secondary school teachers, DS teachers and DS administrators. The results of the interviews will point out the importance of this initiative in promoting the vocational and technical professions in Egypt and in providing better job opportunities for its graduates.

A. Background

The Egyptian education system falls under the umbrella of two ministries: Ministry of Education (MoE) and Ministry of Higher Education. The Ministry of Education is responsible for the stages of pre-primary education, compulsory education (basic and preparatory), and secondary education. Basic and compulsory education includes: primary education (six years)

and general or vocational education (three years). Secondary education includes: general, vocational and technical (three years each). The Ministry of Higher Education is responsible for higher or tertiary education. This kind of education includes: middle technical institutes (two years), higher technical institutes (four years) and universities (four to seven years) (Ministry of Education, 2003).

Primary school results determine whether the students are transferred to general or vocational preparatory education. Students who fail in the primary exams are forced to enter into vocational preparatory education even if they failed twice (Amer, 2007). Preparatory vocational school graduates can join training programs provided by the Ministry of Foreign Trade and Industry (MoFTI). It consists of two stages for three years, which when accomplished, the student will get a certificate equivalent to that obtained by technical secondary graduates. The first stage is a two-year-training in vocational centers and the second stage is a one-year on-the-job training in companies (ILO, 2006).

Secondary vocational education allows students from both general and vocational preparatory education. Technical secondary schools offer three or five year courses, where the fifth year graduates acquire the grade of technicians. However, only eight percent of the graduates from these schools seek higher education and join technical institutes (Ibid).

B. Problem Statement

Egyptian youth pursue their education with a great hope of having respectable jobs which offer them reasonable salaries in order to have better lives. During Nasser's era, it was possible for educated people with a minimum of a higher education certificate in Egypt to have a reasonable career after graduating from university. It was guaranteed for any graduate to get a

job in private or government sectors immediately after graduation. Such a job would permit the graduate to have a suitable salary to live on, as well as being able to afford marriage, buy a house, and even save some money. During this period of time, graduates did not have problems of unemployment (Hein, 2009).

In the 20th century, under the rule of Gamal Abdel Nasser, free schooling was guaranteed by the constitution. Schools were subsidized by the government where 90% of students enrolled in public schools at all levels of education. This led to the increase in the number of children enrolling in primary education (from 42% in 1960 to 95% in 2005/2006) (Grunwald et al., 2009). Since the 1960s, the government guaranteed governmental job opportunities for every school or university graduate until the early years of the 21st century. This led to the saturation of the governmental jobs and the inability of the public sector to offer more jobs. Gradually, Egypt suffered from the problem of unemployment together with the increasing number of school and university graduates. Moreover, the allocated fund for free schooling resulted in the low quality in education. Thus, Egypt is now suffering from a high number of unemployed with a low quality of education that does not match the needs of the labor market (Ibid).

During Sadat's era, these opportunities had begun to dissipate. Graduates had to wait for approximately five years to get a job, due to the lack of job opportunities in the market especially in the government sector (Hein, 2009).

According to the International Labor Organization, the unemployment rate in Arab countries has been the highest in the world since the 1990s. The young-adult workforce is 35% compared to the universal average of 52%, according to McKinsey & Co. Technical and secondary school graduates represent a large proportion of the unemployed in Egypt. This is mainly due to the

mismatch between the offered curricula and the jobs offered, which ends up with the 'educated unemployed'(ILO, 2006). Despite the increase in the number of vocational students in Egypt, the percentage distribution of unemployed persons is significant among this category of students. According to the Central Agency for Public Mobilization and Statistics "CAPMAS" statistics in 2010, the technical intermediate unemployed persons represent 42.2% compared to 39.7% of the university and above unemployed persons, in regards to their educational status (CAPMAS 2012).

Fifty percent of private firms interviewed in Egypt indicate that the main problem of the unemployment phenomenon among youth is the mismatch between the information they gain at schools and the skills required in the actual labor market (Urdinola et al. 2010). Besides lacking technical skills, 60 to 70 percent of all employers interviewed found that new labor market entrants lack soft skills such as communication and interpersonal and writing skills as indicated by the results of a School Transition Survey conducted in Egypt in the year2007 (Ibid). Thus, providing better vocational education would provide the country with trainees acquiring the skills needed to succeed in the labor market. Accordingly, trainees possessing skills aligned with market needs would lead to higher productivity and thus increase the competitiveness of the country's economy (El Sawy, 2012).

Technical and vocational school graduates represent a significant proportion of secondary school students, yet they receive low funds despite the expensive resources required for this type of education. This ends up with unqualified teachers, obsolete curricula, and skills mismatched with actual labor market skills. The government has always dealt with this type of education as an end game to limit the number of students enrolled to the universities, to increase the number of the unemployed educated graduates who lack marketable skills (Assaad & Barsoum, 2007).

As a means of facing the challenge of the unemployed vocational school graduates, in 1994, former president Hosni Mubarak and German Chancellor Helmut Kohl established a public-private partnership, an Egyptian-German technical cooperation project called The Mubarak-Kohl-Initiative Dual System (now called the Dual Education System-DS) (Adams, 2010). It is a "grant agreement between the German Federal Ministry of Economic Cooperation and Development (BMZ) and Egypt's Ministry of Education with technical support provided by German Technical Cooperation (GTZ)" (Ibid).

In regards to the unemployment problem facing vocational and technical school graduates, DS graduates proved to be different. With the high quality of education this kind of student receives, where theory is linked with practice in the actual workplace, DS students have more employment options and aspire to further education. DS students start to earn stipend during their trainings and DS graduates generally earn 20% to 30% more than their counterparts in traditional secondary schools (Adams, 2010).

This initiative mainly addresses the weaknesses in the Egyptian secondary technical education system which could provide better job opportunities for its graduates. It is offered in 22 out of 29 governorates and 68 technical secondary schools. This resulted in the development of thirty-one occupational profiles and the accommodation and training of 1900 companies to students, allowing them to combine classroom education with practical hands-on training. This led to the improvement of technical education and training in Egypt. Schools participating in this project witnessed great improvement because of the direct relevance between theory and practice (Grunwald et al., 2009).

It is worth noting that since the 80's, the number of technical school students dramatically exceeds that of general school. It was even more than doubled in 1994-1995 as the percentage of

technical school students was 64% while that of general school students was 30%, and the 6% represent Al-Azhar school students (CAPMAS, 2012). However, technical secondary school students suffer from the low quality of the courses offered and their irrelevance to the labor market. In the context of these numbers, until now, the DS remains an important intervention for the improvement it accomplished in terms of employability. It is worth noting that 85% of the DS students are offered employment immediately after graduation and approximately 70% of the total number of the DS graduates is currently working while most of the rest are pursuing higher education. The majority of those DS graduates who are working (90%) hold full-time jobs. In all these factors, the DS graduates go against the trend for most technical secondary school graduates (Ibid).

In 2003, Egypt became one of the leading countries of YEN (Youth Employment Network), which is a partnership between the United Nations, the World Bank and the ILO. Consequently, Egypt based its NAP (National Action Plan) on improving the employability of the Egyptian youth. By the end of NAP, it was planned that youth unemployment would be reduced to 15%. This could be accomplished by improving the technical education and vocational training system in a way that what is taught could match the market needs. Based on the successful dual system of DS, the NAP would work on promoting the linkage between the theoretical and the practical learning by including on-the-job training. It also includes involving the private sector in providing professional trainers, places for training, and advanced market-driven curricula (ILO, 2010).

C. Research Question

The Dual Education System has proved to be a successful model for the improvement of technical and vocational education in Egypt that would open better job opportunities for its

graduates. It has its impacts on students, teachers, and employers as well as the government. In many respects, this initiative provided better living for its graduates, better improved careers for its teachers and cut costs for expenditures by the government on technical secondary schools as well as the long-term returns this kind of education have on economy reforms. In terms of these noticeable returns, the research question that this thesis will try to answer is: what are the main lessons to be learnt from the DS, how can it be replicated by other interventions and how is the program evolving in its current scale-up phase. Another question is: why do students join the Dual Education System although they do not intend to continue in technical and vocational jobs.

II. Literature Review

The Dual Education System has always been recognized as a successful initiative for improving the Egyptian technical and vocational education and consequently the long-term economic reforms. According to the European Training Foundation study in 2007, the Dual Education System was called "island of excellence" with 86% of companies offering employment contracts to the DS graduates, 30% of the graduates are employed and 40% seek higher education. In addition, an ILO study, in 2001, called MKI-DS an "innovative" program and acknowledged the potential of the program to provide modern segments of the economy (Adams, 2010). In this regard, the DS initiative and similar initiatives can be recognized as a means for several problems facing the technical and vocational education and consequently youth employability in Egypt.

The Dual Education System is considered a successful intervention of Active Labor Market Programs (ALMPs) in Egypt, as one of the Arab-Mediterranean Countries (AMCs). ALMPs are used as a policy tool to improve employability and enhance job creation especially in AMCs

because they lack unemployment insurance systems and suffer from high unemployment rates among youth compared to international standards (Urdinola et al. 2010).ALMPs encompass five main types: employment services, labor market training, wage subsidies, public works and self-employment promotion. The first two types mainly enhance employability while the last three promote job creation (Ibid).

Employment services programs have a long-term impact on employability. Employment services assist the employers as well as the job seekers in matching workers with available jobs, and thus are cost-effective and have positive impacts on the short-run (Ibid). These services enhance job search efficiency and include "counseling, placement assistance, job matching, labor exchanges, and other related services (Betcherman et al. 2004).This type of program is much more effective for the skilled job seekers than the disadvantaged and more importantly when the labor market condition have sufficient vacancies to be filled (Urdinola et al. 2010).

Labor market training programs have a long-term impact on the participants' employability and earnings. Vocational training programs include on-the-job training which is the most significant way to acquire knowledge by applying theories with practice (Ibid).The DS fits very well in the training programs which have a significant impact on labor market outcomes if provided as a "comprehensive" package. Comprehensive training programs provide a combination of hard as well as soft skills through internships, apprenticeships or in-the-class training. Hard skills are the technical and administrative skills, while soft skills are the interpersonal skills as well as language and personal habits. Soft skills are transferable skills that can be used in different professions so they are more important than technical skills on the long run. These kinds of programs have a long-term impact on participants' employability because they not only acquire technical as well as interpersonal skills, but they also develop professional

skills, including time management and professionalism, which would allow them to excel in the labor market (Ibid).

There are other interventions for youth employment with direct government support. These include wage subsidies programs which enhance employability by supporting the creation of new jobs or maintaining existing ones. “Wage subsidies provide financial incentives to employers to hire new workers and/or to maintain the jobs of workers who would have otherwise been dismissed” (Ibid). These programs are used in economic crises to provide temporary jobs and prevent lays off. They provide job opportunities to certain groups such as first job seekers and women by allowing employers to pre-test these workers before committing to pay them full wages and at the same time allow workers to gain experience. Thus, these programs are especially used in the advantage of the disadvantaged from certain groups (Ibid).Therefore, these programs would be more effective if combined with other programs such as employment services and on-the-job training. Otherwise, they would be short-termed if they would be associated with deadweight loss, substitution effects or displacement effects (Ibid). Public works programs help in creating new jobs for the unemployed as they “provide direct and temporary employment opportunities at a low-wage rate in public works and other activities that produce public goods or services” (Ibid).These programs are normally introduced during natural disasters or economic crises to prevent households from income loss or poverty. They are short-termed programs that include infrastructure works such as road construction, maintenance and irrigation. Thus, they do not help workers to build a career because they end up lacking relevant experience for their future employability after the program completion. Self-employment programs include financial and advisory assistance to start up a business based on a conditional review of a successful business plan (Ibid).

In this sense, the Dual Education System entails two of the long-term ALMPs that enhance employability: employment services as well as training programs, providing the unemployed with sustainable job opportunities (Ibid).The DS is based on the public-private partnership between the Ministry of Education and private employers in sharing the responsibility of setting policy, providing finance as well as implementing technical education and developing new curricula (Adams, 2010). Through the public-private partnership, schools and employers share the learning objectives so that what the students learn match the needs of the actual labor market (Ibid). It also allows the employers and the students to interact so that students acquire all the hard and soft skills required in the workplace environment and the employers can be introduced to the job seekers after their graduation. This kind of partnership with inputs from teachers and employers helped in developing new occupational profiles and the requirements needed for these occupations (Ibid).

The Dual Education System as an ALMP enhances the sustainability of participants' employability and earnings as an employment service program by introducing employers to students, who would afterwards be job seekers. It also helps the students to acquire hard, soft as well as professional skills required for excelling in labor market. Moreover, it provides on-the-job training through the involvement of private employers that would enable students to apply in-the-class theories on actual work place practice.

The main objective of the Dual Education System as an ALPM is to improve the technical and vocational education and training system in Egypt. By providing qualified, trained graduates to the labor market, the employability of this category of graduates would increase. The main approach of the DS is based on actual labor market training rather than theoretical outdated class

theories that are far from labor market requirements. The program is targeting low-income youths who are enrolled in technical and vocational schools (Urdinola et al. 2010).

Reforming vocational technical schools is considered as one of the most important steps to reform the whole university education system in Egypt through which the demand for university education would be decreased, by matching the labor market demand. In collaboration with foreign donors, like the DS- the Mubakak - Kohl Project, would help in financing high quality new technical schools replacing the existing low quality technical secondary schools (El Baradei, El Baradei 2004).

One of the main attempts towards reforming the technical vocational education in Egypt was the initiative of the DS- Mubarak-Kohl. The DS was based on the German model that promote partnerships between training institutions, technical schools, and the private sector (World Bank, 2005).

Mubarak-Kohl Initiative is considered as one of the most successful social and educational projects in Egypt, according to Dr. Fayza Abu El-Naga, Former Minister of International Cooperation. The DS mainly focused on improving the technical and vocational schools curricula through partnership between a public and private sector. The first pilot of the project took place in Tenth of Ramadan City; as for the second pilot, the project extended to more than twenty other cities all over Egypt. The DS students spent four days per week at one of the factories through which they gain the practical training and two days in the school to gain the theoretical part (El Baradei, El Baradei 2004).

“Mubarak Kohl is one of the best cooperation models with donor agencies” as stated by The Vice President for the Chemicals Syndicate. One of the most crucial factors of its success is the

monitoring and follow-up performed by the German side. She also mentioned that, cooperation with the foreign side should not be focusing on form of studies, or consultancies, that probably have no tangible, concrete value; however, it should be focused on identifiable of any projects (Ibid).

III. Methodology

A. Introduction

This thesis is based on qualitative analysis mainly by conducting interviews with the Dual Education System stakeholders. The interviews covered six groups: DS students, DS graduates, employers, traditional secondary school teachers, DS teachers and DS administrators.

The scope of this thesis basically relies on semi-structured interviews. I used this method to ensure that nearly the same general areas of information are collected from each interviewee. Then I used the collected data in the analysis to achieve the goals of my thesis.

In a qualitative study, face to face communication is considered one of the most positive aspects about interviews (Berg, 2009).Reporting non-verbal communication, helps in terms of facilitating communication, and adding the value of the observation factor particularly within the field of the research (Ibid). Qualitative research allows for learning from the field, allowing for a first-hand account of the experience of informants.

B. Sample Selection

Interviews were conducted with the DS students and graduates to indicate the impact of this initiative before and after graduation and how far the students benefit from the education they receive in their professional and personal life. The DS students were asked about the effectiveness of the program and how far they can find it different from their counterparts in traditional secondary schools. The DS graduates were asked similar questions but focused mainly on the program's effect on their career and employability after graduation.

I also interviewed employers who provide the DS graduates with jobs and the main features that distinguish these students from their counterparts. They were asked about the main distinctions between traditional secondary school graduates and the DS graduates in regards to the requirements of labor market. I interviewed traditional technical secondary school and the DS teachers as well to point out the difference between traditional secondary school TSS education and the DS education. Teachers were also asked about the program effectiveness for them compared to traditional secondary school teachers and how far they can find the DS students different from their counterparts. I also interviewed the DS top officials in Down Town who have witnessed the program in its early and current phases to get more information about the DS program and its effectiveness since 1991 and how far they evaluate and monitor their performance to improve the program's outcomes. They were also asked about the main criteria on which the enrolled students are accepted. Interviews include questions about the means by which they evaluate the program's impact on the employability of the DS graduates as an ALMP, lessons that can be learned for replication, obstacles and problems faced.

C. Selection of Data Collection sites

These interview questions were sought to collect data about the Dual Education System in Egypt and to point out the importance of this initiative in promoting the vocational and technical professions in Egypt and in providing better job opportunities for its graduates.

I interviewed DS students, DS graduates, employers, traditional secondary school teachers, DS teachers and DS administrators. It helped to encourage the interviewees to share their knowledge, stories and cases in their own field of work. The interviews were more opened to explain why and how they arrived to their conclusions. Overall, I interviewed ten from each group, with a total of sixty interviews. Interviews took place in factories for the DS students and factory owners, each interviewed separately. Interviews with teachers took place in the TSS schools as well as the DS Schools. As for interviews with senior DS officials took place at their offices.

I tried to extend my interviews in different cities in Egypt. I conducted these interviews in two Dual System schools in both the Tenth of Ramadan city and in the Fayoum governorate. I chose the Tenth of Ramadan city as an industrial zone designated by the government. The area includes many factories. I interviewed DS students in ten factories. Students in these factories were primarily urban in residence. I chose the Fayoum governorate as a rural area with a few number of factories, with most of the students coming from rural areas.

IV. Governmental Expenditure on Technical and Vocational Education in Egypt

The vocational educational improvement resides in the fact that the entire state budget allocated to the Traditional Technical Secondary Schools (TSS) students does not exceed 55.7 million pounds or about 23 pounds per students (academic year 2006/2007). Moreover, there is almost no budget at all for teacher training or salaries leading to low educational quality. This led to the government's inability to provide sufficient resources for students. Low budget allocation also resulted in the inadequate training for TVET teachers and instructors as well as the outdated curricula that do not meet private sector workforce needs, thus leading to skill mismatch of high unemployment rates among graduates (Youth Employment National Action Plan 2010-2015).

In addition, Egypt has decreased the total public expenditure on education from 2000 to 2008. It started by allocating 17% of total public expenditure in 2000/2001 falling to 16%, 12.5%, 12% in 2005/2006, 2006/2007, 2007/2008 respectively. The highest budget allocated to education is still considered incomparable to other Arab countries which represent 16.7%, 23.4%, and 27.2% of total public spending in Syria, Tunisia, and Morocco respectively. (Building a Competitiveness Framework for Education and Training in Egypt, 2011). According to the Egyptian Center for Economic Studies, the budget allocated to the one-third of regular secondary-school students equals that allocated to the two-thirds in technical and vocational education (Loveluck, 2012).

Table 1: Public Spend on Education in Some Arab Countries for 2007/08:

Country	% of Public Spends
Egypt	12%
Syria	16.70%
Tunisia	23.40%
Morocco	27.20%

Table 2: Reduction in Education Public Spend in Egypt:

Year	% of Public Spends
2000/01	17%
2005/06	16%
2006/07	12.50%
2007/08	12%

Referring to CAPMAS statistics about the state public expenditure on education by state public budget, it has decreased in 2011/2012 compared to that in 2010/2011. The public expenditure on education to public expenditure was 11.7% in 2010/2011 compared to 10.6 % in 2011/2012. Consequently, the public expenditure on pre-university education to expenditure on education has also decreased from 66.4 % in 2010/2011 to 66.3 % in 2011/2012 (CAPMAS 2012).

According to CAPMAS statistics for 2009/2010, despite the fact that the number of technical secondary students represents 51.9% of total secondary students, the number of schools for these students represents 28.9% of the total number of secondary schools. (CAPMAS, 2011). Moreover, the total number of students in industrial technical secondary education in 2009/2010 is the highest followed by the commercial secondary education and finally the agricultural secondary education. (CAPMAS, 2011). Comparing CAPMAS statistics in 2009/2010 to that of

2010/2011 in regards to the number of students in technical secondary education, the number of students in governmental industrial secondary schools has increased from 664,843 students in 2009/2010 to 836,668 students in 2010/2011 and the number of students in private industrial secondary schools has increased from 2,232 students in 2009/2010 to 2,745 students in 2010/2011 (CAPMAS, 2011).

General secondary school students represent only 25% of Egyptian school students together with 2.7% from private schools. Technical secondary school students are neglected with less than one-third of operable machinery and are prohibited from touching them because they could be broken. Technical schools suffer from the problem of underpaid teachers and a large number of enrolled students whom the school's facilities cannot accommodate. "It was stated that only one-quarter of technical schools were able to provide their students with a full school day, compared with 63% in the general secondary system where the children of the middle classes study (MENA Programme: Meeting Summary Education in Egypt, 2012).

Thus, despite the fact that the majority of secondary students are technical and vocational students, and that the largest portion is among the industrial section, they receive low budget allocation, which leads to serious consequences. With low expenditures on this kind of education, technical students receive low quality of education with outdated curricula, insufficient schools to encompass their large number, unqualified teachers, dysfunctional machinery for training, and mismatch between theory and practice.

The Dual Education System proved to be very effective in facing these serious challenges and improving the same kind of education efficiently. First of all, in regards to the low budget allocation, the DS is cost saving because, unlike traditional secondary students who attend

schools six days per week for theory and practice, the DS students attend schools only two days per week to acquire theory and four days in work place to practice and develop practical skills. This would save the expenditures required for providing schools, teachers and machinery for training. Moreover, factories providing training in some context finance for equipment in schools. The DS represents the practical engagement between theory and practice with the link to up to date technology in production (Adams, 2010).

Not only has the DS its impact on students, but the teachers also benefit from this initiative. In the context of setting the adequate standards for training and developing curricula, employers provide teachers with the necessary trainings to improve their performance and keep them updated with the latest technology in practical work places (Adams, 2010).

V. The Establishment of the Dual Education System in Egypt

A. The Implementation Phase

The cooperation between Egypt and Germany dates back many years ago. Since the 1950s, both countries have cooperated in the field of technical and vocational education. This kind of cooperation was in the form of German assistance and support as represented by the German Foundation for Technical Cooperation (GTZ). The main goal was improving the performance and enhancing the productivity in this sector (Sweet, 2009).

In 1991, Egypt started a new program of economic reform. The main aim of this reform is to transfer the economy from a state-controlled economy to an open market economy. Such reform was characterized by economic privatization, modernization and mobility. One of the significant aspects of the reform is to upgrade the human resources system in Egypt in terms of improvement of education in technical fields. Therefore, a new dimension has been added to the existing Egyptian and German cooperation which has existed for years. In light of this, President Hosni Mubarak of Egypt and Chancellor Kohl of Germany agreed that Germany will assist Egypt in its economic endeavors by introducing the German experience of the dual education system. Later, a letter of intent was signed by both sides that has been followed by a feasibility study for almost three years from 1992 to 1995 in preparation of an actual implementation for the project (Stockman, R., & Leicht, R.1997).

After the preliminary agreement between former President Hosni Mubarak of Egypt and Chancellor Kohl of Germany and signing of letter of intent between the two governments in 1992, the implementation of the project was characterized by two phases, the preparatory and the on ground phase. The preparatory phase took place from 1992 to 1994, while the on-ground

implementation phase started in March 1994. The first pilot of the project was implemented in the Tenth of Ramadan city, with approximately three hundred trainees in 1995. A year later, the project was also implemented in two more cities, Sixth of October and Sadat (Ibid).

B. The Dual Education System

The dual education system refers to an educational system that combine both practical and theoretical education. This kind of education is quite well known and implemented in many countries. However, just few countries have well-structured and managed such an education system. Decades ago, Germany adopted a dual education system that has been modified many times to cope with the changes in society and meet the demand of the labor market. Today, such a system represents an important cornerstone in German technical education that have millions students enrolled (Sweet, 2009).

Similar to the German system, the dual system implemented in Egypt had to establish a strong, reliable partnership between the technical vocational school and the factory, which is about the theoretical teaching delivered in school and practical experience delivered in the factory. This kind of education is reflected in an education scheme in which a student spends two days per week in the technical vocational school, mainly acquiring theoretical knowledge, and four days per week in the factory acquiring practical experience pertinent to the student's profession. Thus, the factory bears a small portion of the student's educational expenses, also providing the student with a monthly stipend which is considered an incentive (Ibid).

C. The Dual Education System Structure

The governance structure of the program is presented in Figure 1. It is divided into two main sides. Government and private sector "investors" sides. On the government's side, the Ministry of Education is responsible for the DS through its Technical Education Department, in this Department the DS is handled and managed by the General Directorate of Vocational Education and Training (GD-VET) (Adams, 2010).

The MoE is responsible for instituting schools for DS. Depending on demand from industry, those schools might be originally established as the DS schools and in some other cases, the DS classes might be taken in traditional Technical Secondary Schools. The responsibilities of the MoE through its Directorate of Education and Departments of Education include reviewing and enhancing the curricula and teachers, training of the teachers, and a full set up of labs and workshops in the DS schools. In consultation with the investors, it measures the student performance during the academic year (Ibid).

The Investor Association Union which represents an independent Investor Associations is located in many different locations in Egypt. They represent geographic clusters of businesses that function independent of the government-led federation of businesses. The National Center for Human Resources Development (NCHRD) represents the Investor Associations and functions in parallel with the GDVET. The duties of the NCHRD include coordinating the provision of training places in industry by Human Resource Development Service Centers (HRDSC). Which is also known as Regional Units for the Dual System (RUDS). The NCHRD, working with employers to identify the labor market's need. The HRDSC/RUDS are an implementing unit of regional Investor Associations. Moreover, they work as partners with the

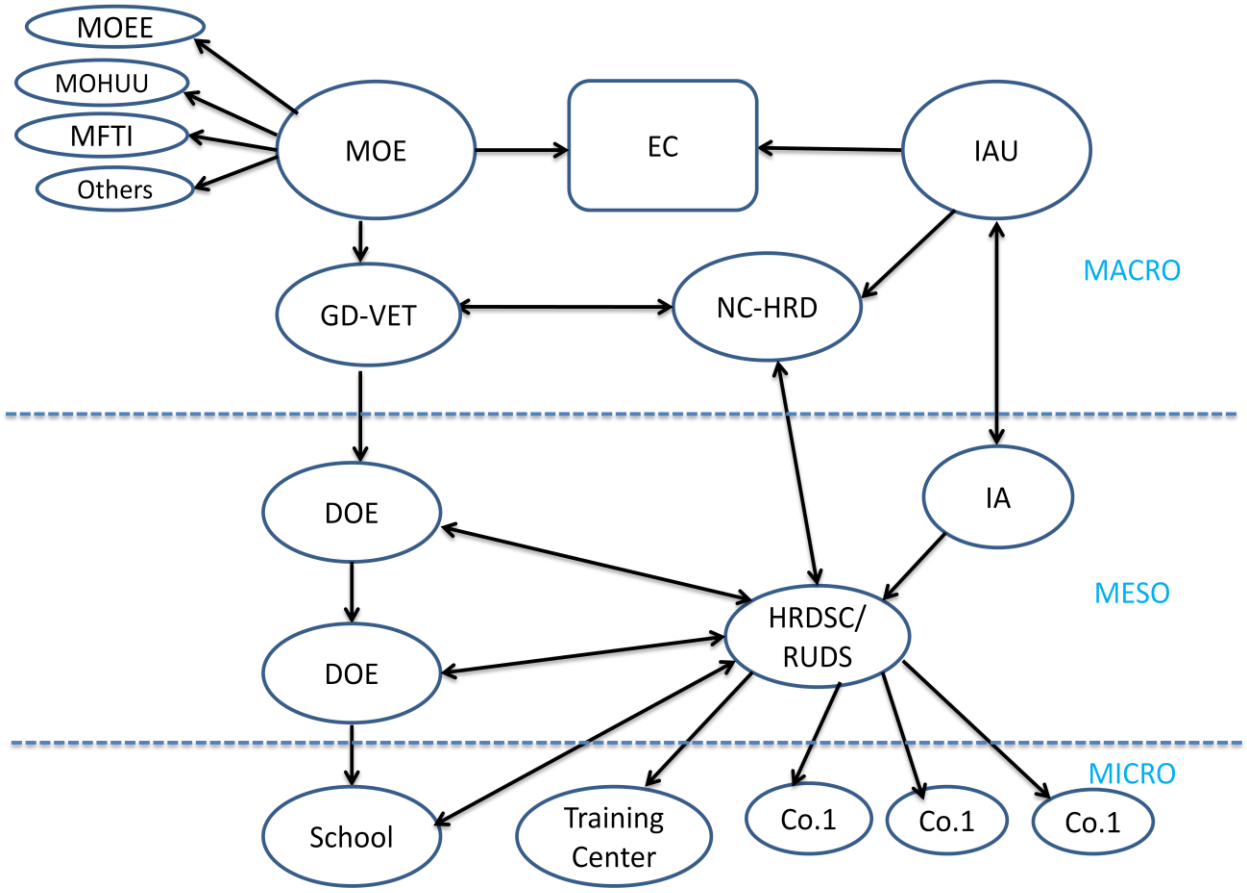
DS schools and classes to monitor the performance of students, and observing the in-factory training experience. In addition, in addition, they responsible for developing training places and preparing the DS entrants (Ibid).

One of the significant and notable aspects about the HRDSC/RUDS is that it is self-financing, receiving payments from investors for the services they provide trainees. These were entirely new Egyptian institutions established to serve the needs of the DS and have since begun to serve other programs. At the main core of DS was the public private partnership that set policy, provided financing, and implemented technical vocational education (Ibid).

The Ministry of Education paid the cost of schooling, including classrooms and teachers, while the private sector paid for the cost of training in factories and a stipend for trainees throughout the program (Ibid).

The governance structure for the DS was amended in 2010 by Ministerial Decree No. 106. This decree introduced an Executive Council to complete the supervision of the DS. Its members included four representatives from the NCHRD and four from the Ministry of Education. The Chair of the Executive Council was to be from the private sector. The Executive Council was charged with responsibility for policy development for the DS with an approval of the Minister of Education, resolving implementation issues not handled at lower levels, establishing new HRDSC/RUDS as required by the labor market, and developing new curricula and trades (Ibid).

Figure 1:The Dual Education System Structure



Source: (Adams, 2010)

DOE	Directorate of Education
DoE	Department of Education
EC	Executive Council
GD-VET	General Directorate for Vocational Education and Training
HRDSC/RUDS	Human Resources Development and Services Center/Regional Unit for the Dual System
IAU	Investors' Association Union
IA	Investors' Association
MOE	Ministry of Education
MOEE	Ministry of Electricity and Energy
MFTI	Ministry of Foreign Trade and Industry
MOHUU	Ministry of Housing. Utilities and Urban Development
NCHRD	National Center for Human Resources Development

On interviewing a DS administrator, he explained the evolution of technical and vocational education in Egypt since the 80s. According to the DS administrator, before the 80's,

there was no problem with technical workers because there were 50 training centers used to train workers from public sector so they were well-trained. However, during the early 80's, the government divested itself of the responsibility for providing jobs, but still provided training programs, which resulted in a gap between training and employment. At the late 70's, the employment curve started its decline because of the emergence of privatization as well as obsolete curricula which were not developed since 60's. Accordingly, the well trained workers sought better job opportunities in the Gulf area.

According to interviews conducted with MKI program staff, in 1995, the Dual Education System started officially in the Tenth of Ramadan, Sadat and the Six of October. In the Six of October, it started by thirty-two students and with time the number of students increased according to labor market needs. The DS administrators conduct surveys to identify the job profiles required in labor market to know how many students will be needed in each job. They also provided the schools with labs and equipment to enhance the practical part of education in case it was not provided in factories where students practice. To guarantee the basic technical information needed by students, they sent students to five external training centers.

He witnessed the fact that the Dual Education System started by three hundred students in three governorates (Sadat, Six of October and Tenth of Ramadan) till they reach thirty three thousand students today in all the governorates except the ones on the Egyptian boarders. In Fayoum governorate, the DS School Principal says that the project started in Fayoum in 2000 by forty-four students but they now reached eight-hundred students with approximately three-hundred students graduating per year. In Fayoum, there are twenty one traditional technical secondary schools, eighteen of which are three years and three are five years with just one DS School. The DS classes are provided in two traditional technical secondary schools. He adds that

RUDS facilitates the procedures between the schools and the workplaces. They follow up on students' attendance and performance acting as a mediator between the private sector and the students. RUDS provide the schools with what they need in regards to equipment and teaching materials, while MoE provides the project with schools and teachers, their salaries and schools furniture.

Explaining the role of RUDS, he states that it normally advertises for the DS program in April each year in schools and streets. They start by identifying the needs of the labor market in regards to the number of students each year in each profession to know the number of students they will accept in each profession for the coming academic year. Each governorate asks for specific specialization depending on the labor market needs of each one. Afterwards, they inform the MoE to provide them with the minimum grade required from third preparatory students to join the DS program. They receive many applications from which they filter the eligible students through three tests: Arabic, English, Math as well as the "skill exam" which are normally done through schools, besides the medical examination. Once the applicant is accepted to join the program, he/she should be interviewed by the employer who chooses from the applying students. Each student has the right to change the workplace once in the whole program.

He clarifies that RUDS is self-financing since it provides each applicant with an application file that costs sixty Egyptian Pounds. It gets its money from the private sector which pays twenty five Egyptian Pounds for each working student, under the condition of the students' punctuality. According to the contract between RUDS and private sector, the stipend of first year student is eighty Egyptian Pounds, which reaches one hundred Egyptian Pounds in the second year and one hundred twenty Egyptian Pounds in the third year. However, the employer can set his/her own salary, which can be higher than the contract.

The main specializations are: mechanics, garment industry, electricity and executive management. The DS School in Fayoum consists of twenty five classes for year one, seven classes for year two and eleven for year three. Private sector helps the school financially in the students' training.

VI. Institutional Findings and Challenges to the Dual Education System in Egypt"

A. The Dual Education System

DS administrator explains:

> *"The Dual Education System relies on three edges: hand, head and heart. The students get the knowledge they need to be skillful workers through the head, they learn the skill of their profession through the hand and the behavior required in the work place through the heart."*

Dual Education System is a unique kind of education in Egypt because whether in general secondary schools or traditional technical secondary schools, students do not show up. In general secondary schools, students rely on private lessons while in traditional technical secondary schools; they do not practice what they learn in addition to the excessive theoretical curriculum that has nothing to do with the profession they need to acquire.

The schools lost its role in providing the required theoretical and practical kind of education needed in the workplace. Thus, secondary students generally lost the work culture because they normally do not attend their classes, so they lack punctuality and the willingness to learn. Work culture and behavior are much more important than any other kind of skill the student may acquire in the workplace. These behavior skills are taught to the DS students at a very young age when they get introduced to labor market.

DS administrator states:

> *"The DS curriculum is concise and concentrated with no additional or unnecessary information required from the students."*

On the other hand, DS teacher says:

"In traditional technical secondary schools, students are required to study seventeen subjects in the first year, including Physics, Chemistry and Philosophy which will never be used by a practical worker in the workplace. The DS students study only six subjects, three of which are Arabic, English and Religion and the other three are technical subjects depending on each specialization."

In formulating the DS curricula, German experts together with representatives from Ministry of Education as well as private sector worked on developing the curricula of each specialization. Twelve workers from each field helped in analyzing and categorizing the information provided to identify the main requirements for the students, ending up with formulating the practical part of education. Thus, the DS curricula provide its students with the information they need in their professional life. No additional or unnecessary subjects are required from the students. The curricula are based on the main contents that the students would need in their practical work environment.

DS administrator adds:

"As DS administrators, we re-evaluate the curricula every seven to eight years by relying on ADD. A; analyzing the labor market skills that the students need to acquire in the work place; D; designing the curricula in accordance to the labor market needs; and D; developing the curricula accordingly every certain period of time."

The Dual Education System curricula are frequently evaluated and updated to ensure that the offered materials are coping with the advanced technology. As opposed to traditional education system, the DS curricula are not obsolete and are not based on memorizing. It mainly relies on the theoretical part of education that is only required in the labor market in addition to a great concentration on the practical work experience.

In regards to the Dual Education teaching system it is divided into two days (sixteen hours) at schools and four days at the workplace (thirty four working hours). Thus, the main benefit that DS students gain is the practical education they acquire from the four days they spend at the

work place, rather than the other theoretical education they gain from school. The two days spent by students at schools as a problem to the work stream but he solves it by training students from year one, two and three who have different schedules at schools so that he has working students throughout the week.

The four-two day's system is cutting cost on the government, because the schools are not expected to encompass all the students during the whole week, but the schools are operating only two days for each year, ending up with six days for the three years. .

B. The Dual Education System Students Compared to the Traditional technical Secondary Students

DS School Principal states:

> *"DS students are the best technical education seekers because they get the highest grades in the third preparatory compared to traditional technical school students."*

In this regard DS teacher adds:

> *"The DS students' behaviors are different because they are meticulously selected, as they pass through several exams and are interviewed by employers."*

The DS school in Fayoum has a small number of students (around seventeen students) in each class versus around fifty students in traditional technical secondary schools. This is because they are controlled by the number of students needed in the labor market.

The main difference between the DS students and the Traditional Technical Secondary School students is that the DS students start their profession and are exposed to labor market at a very young age so when they graduate they do not fear the machine and they have an experience and a profession. Once they enter the work place, they're treated like employees, they sign when

they come and leave, they have breaks, and they are provided with transportation, so that when they graduate they become familiar with the work place environment.

On the other hand, traditional secondary school students barely gain anything from schools and at their graduation, although they are at the same age of their DS counterparts, yet they lag three years behind in regards to their work experience. Thus, to be fair in comparing the DS students to the traditional secondary school students, the latter should be provided with the same type of practical education and training. However, this can never be generalized because the number of labor market needs in regards to the number of students can never encompass all technical school students.

C. Problems faced by the Dual Education System School in Fayoum

On interviewing the DS School principal and teachers in Fayoum, they all agreed on the fact that the school space is very small. They only have three offices for management and there is no sufficient place for the teachers as well as the administration staff.

According to one of the program administrators:

> *"The DS lacks the tools that can guarantee the sustainability of this kind of education. There is no godfather for this project; someone responsible to seek his/her advice or help in case needed"*

According to one program official, when the project used to hold the name of the two political figures Mubarak and Kohl, it had a certain prestige when dealing with the employers. During Mubarak era, the employers used to deal with the project differently and they used to offer their willingness to train the DS students. Moreover, when the project was run by the Germans, procedures and facilities used to be accommodated easier and faster. They used to have the *"foreigner prestige"* which facilitated all the procedures that might take months for

approval. Now, the project lacks a lot after changing its name to "the Dual Education System" instead of "Mubarak Kohl Initiative", after Mubarak stepped down, and after the Germans left.

RUDS director expresses his concern that each academic year he becomes so anxious because there are no guarantees for the sustainability of the project. Nothing and no one can guarantee that the employers can still accept the training of the DS students.

Thus, the DS School principal suggests that the government should set up rules on factories by Ministry of Foreign Trades and Industry so that if any investor needs to found a new factory, he/she should provide training opportunities for a certain number of technical students according to the size of the new founded project. This would help in improving the training process for the students and they won't suffer in case any employer refuses to train technical students.

D. Points of Analysis on the Dual Education System

1. Costs to Employers

On interviewing one of the employers who trains the DS students regarding the benefits he can get from the DS working students, he points out:

> *"Although the DS project is very successful, yet it is costly for the factories. It's very costly for me, as a business owner to invest in students for three years by training and teaching them while they break equipment and do not provide efficient products, and after bearing all the costs, the students quit for higher education after their graduation. Since the starting of the project, I trained seventy to eighty students, only two out of which continued working with me after their graduation."*

According to the Dual Education System contract, the students should continue working at the factory, where they receive their training, five years after their graduation. However, nothing guarantees that the students would stick to work with the employer after the three year training

they receive during their study. In fact, most of the DS students leave their training employers to seek higher education in institutes or universities. Surprisingly, in a country where the unemployment rate is very high even to the university graduates, the employers are the ones who seek the trained DS students to work with them after graduation. Thus, more restrictions should be applied on the new DS students that they should work for a certain period of time with the employer who trained them to encourage employers to invest in students.

When asking the above-quoted the DS employer if training DS students presents a loss to his factory, why he would accept new students, he says:

> *"I'm from Fayoum and I aim at helping Fayoum youth to become skillful workers. I lose because I teach the DS students the skills that could make them professionals so I take the trouble of the training losses with the high turnover afterwards. Other factories use the students as a cheap labor, so they let them work in minor tasks that would cut cost for the factory but would not be useful for building the students' profession. The least wage a worker can take is five hundred Egyptian pounds, so it would be cheaper for other employers to accept training the DS students with eighty Egyptian pounds or maximum one hundred twenty Egyptian pounds."*

On the other hand, another DS employer has a different point of view in regards to the cost of DS students represent on employers. He believes:

> *"I gain from all types of students: those who want to learn, they work with a comparatively lower salary than their counterparts, and those who do not, they are still cheaper than getting a worker who can do the same job. Moreover, I guarantee the working students' sustainability for three years till graduation."*

It can be concluded from the above that from a businessman point of view, to run a successful business, no business owner would bear to lose for the sake of his town, otherwise this business would close. On the other hand, finding and training a good worker is costly, especially if these workers are not productive and quit frequently. Generally speaking, DS students are cost saving because the employer might lose during the first three months from training damages and time lost but once the student becomes efficient, the employer gains. On the other hand, the

stipends these students get are still cheaper than the salaries these employers might give to other workers. However, the benefits that the DS employers might gain would definitely be much more if the investment they put in DS students would be of a return to their running business.

2. Earning Students

As stated by a DS employer:

> *"I provide the working students with higher stipends than those agreed on in the contract to be an incentive for them to work in my factory upon their graduation. I give first year student: three hundred Egyptian pounds instead of eighty Egyptian pounds, while second and third year students take four hundred Egyptian pounds instead of one hundred Egyptian pounds and one hundred twenty which are still cheaper than getting similar workers with five hundred or fix hundred Egyptian pounds. However, the students' ambitions overpass this incentive and seek higher education so most of them quit after graduation*."

The Dual Education System is unique in allowing the secondary students to study, be trained and be paid till their graduation, in addition to providing job opportunities after graduation. This kind of education is supposed to be targeted to the working category that could benefit from the on-the-job training in their future career as technicians and could also need the stipends to support their living expenses as well as the guaranteed job opportunity after graduation. On the other hand, the employers prefer to hire DS students because of the special kind of education they receive and they even pay them more than the amount agreed in the contract to be an incentive to continue working with them after graduation. However, there is a deadweight loss in the whole system because this investment goes to those who do not need it and thus do not end up with the desired outcomes.

The students who join this education system do not have the intention of taking the technicians career path. They benefit from the on-the-job training as well as the stipends provided while they take a completely different education and profession path after graduation.

This special type of education could have been provided more efficiently if offered to those who really need them and could make the utmost benefit from the offered training as well as the supporting stipends and guaranteed jobs.

3. The Dual Education System Teachers' Salaries and Fringe Benefits

Regarding the salaries of the DS teachers, a DS teacher says:

The DS teachers deal with high level students to provide them with an elevated kind of education. To have high level of DS graduates, they should be provided with efficient DS teachers. However, DS teachers are not given a proper attention to promote their teaching level and living standard. Their salaries are far less than the trainee students who work four days per week as a part of their study. On the other hand, their counterparts in traditional technical secondary schools are given the same salary levels taking into consideration the incomparable rate of absenteeism in these schools. There is no control over the attendance of the students or the teachers in traditional technical secondary schools. Besides, DS teachers are not given any additional privilege for providing dual system education.

> *"The teachers' salaries are around four hundred fifty Egyptian pounds, whereas the working students can earn five to eight hundred Egyptian pounds, so there is a lag between both salaries."*

On the other hand, another DS teacher adds:

> *"Despite the high absenteeism by teachers in traditional technical secondary schools, yet as DS teachers, we get the same salaries with no additional privilege whatsoever."*

The DS teachers are not justly rewarded despite the special kind of education they provide. Their salaries are less than their students and are the same as their absent counterparts in traditional technical secondary schools. In addition to the fact that there are no additional

privileges for teaching in the DS schools. Thus, this unjust reward would never result in a productive kind of teachers. DS teachers should be given much more attention because promoting the level of DS students would never happen without promoting the level of their teachers.

4. Insurance on Students

As RUDS director states:

> *"Once the student becomes enrolled in the Dual Education System, RUDS proceed with health and life insurance coverage on each student. This kind of insurance is essential for saving the students' right as young workers."*

DS employer adds:

> *"This kind of insurance helps the students to feel they are actual insured workers, and once they get graduated, they become no longer insured as DS students by RUDS but as real workers by their employer."*

The Dual Education System does not only provide its students with education, training, work experience, stipends and transportation, but also health and life insurance. DS students are insured through RUDS. This is very unique in any technical and vocational education system. DS students are treated as workers to save their rights and to be legally protected as young workers. Once they graduate, they are no longer insured by the RUDS but by the employer if they intend to continue working with the same employer.

Health and life insurance coverage to DS students is considered another privilege of the DS which should also be righteously directed to the students who are willing to become future workers. The blue collar category needs more attention to save their rights and lead a better living standard. However, those who join the Dual Education System are not the needy category and are normally the favorites and the creamy category. Thus, there should be strict regulations

to prevent the inefficient use of these privileges by those who are taking the place of the needy targeted beneficiaries.

5. Young Age of Working Students

One of the main advantages of the Dual Education System is the young age of the working students. Students join the Dual Education System after third preparatory so they are approximately fourteen years old. Having young students to train them to become future workers is a point of strength for the employers. At that young age, the employers can easily shape young students to whatever they need. On the other hand, the students' willingness and readiness to learn is relatively higher than the graduates from traditional technical secondary schools who start working in the labor market at the age of seventeen or eighteen.

As DS employer believes:

> *"DS students start their working career at the age of fourteen, which enables me as an employer to shape them to what I want. At this young age, the students learn and work easily so they become more skillful by time."*

Another DS employer points out another advantage of training DS students at this young age:

> *"Young DS working students are less likely to cause problems at the work place. Still, in case of any problem, RUDS is responsible for solving this problem through the control they have over the students' grades at the end of each year."*

The DS students are trained in the work place through a contract between the RUDS and the training employer. Their performance in the work place is supervised by the RUDS who have control over their grades. If the RUDS receive any complaint from the employer regarding any problem caused by any of the students or in case of any bad performance or unpunctuality, the RUDS can affect the students' grades and thus their graduation.

Young DS working students are still children who put their first steps in the labor market. They mainly aim at learning and working to graduate and then start their career or seek higher education. Thus, they normally do not cause any problem in the work place due to their young age. However, in case of any problem caused by any student, the RUDS can solve it due to the full control it has over their grades which can affect their graduation.

A third advantage of the young working DS students as RUDS director believes:

> *"The young age of working students allows them to bear the responsibilities of the work place, to learn how to protect their machines, and to get used to punctuality."*

Young DS students are introduced to the labor market at a very young age so they gain experience of various kinds. Not only do they gain the technical experience of the work they perform, but they also gain the behavior skills that would last with them in whatever profession they decide to join. They learn to be punctual and to respect the working hours of the workplace. They also learn to bear the work responsibilities and to be responsible for the machine they work on.

From a DS graduate point of view:

> *"When I graduate at the age of seventeen or eighteen, I'll have a job and a fixed salary that may reach seven to eight hundred Egyptian pounds. Upon my graduation, I can start saving money and having my own independent life at a very young age."*

The DS students, as distinguished from their counterparts in traditional technical secondary schools, are introduced to the labor market at a very young age (fourteen years). They learn, work and gain money through the three year of their education. When they graduate at the age of seventeen or eighteen, they become three year experienced in what they do, they have a fixed salary that exceeds any secondary school graduate at the same age and they can start their independent life so early.

6. Controlling Students' Attendance

One of the most challenging matters that facing schools nowadays is reducing school absences. It is well known that a most significant key to children's academic success is having them attend school on a regular basis. Students will not be able to achieve well academically when they are usually absent from schools. An individual student's low attendance in the schools is considered as a symptom of disengagement and academic difficulties. However, when the number of students who are not attend their classes getting increased, this behavior threaten the capacity of all students and teachers to pursue high quality of education.

Regarding the working students' attendance, DS employer states:

> *"I suffer from the absence of a first year DS student who didn't show up for two weeks. I know that the RUDS director should follow up regarding this student's attendance, but if his parents already know, it's a disaster, but they do not know, it's a bigger disaster."*

Once the students are accepted, the employers face the problem of controlling their attendance if they do not go to work. Each student has his/her own report for the academic year so that the employer can write the remarks on the student's performance each day. Throughout the year, the employers evaluate the students' performance based on three criteria: First; students' punctuality and attendance; second; students' ability to work in team, and third, students' gained skills and productivity improvement throughout the year.

RUDS director comments on this:

> *"Some students are absent because they work in the field with their parents who already know about their absence. Their parents call me and ask for a solution so I do my best not to harm the students."*

When the student is absent, the employer reports to the RUDS who would in turn inform his/her parents. Sometimes, the parents already know about their children absence and no action

from their side is taken. According to the DS contract with students, excessive absence should lead to the student's termination. However, this is never the case in reality because the parents' usually seek the forgiveness of the RUDS's director, who would in turn search for a different employer for the unpunctual student.

On the other hand, DS administrator points out:

> *"One of the DS problems is that the RUDS do not usually follow up on students' performance and attendance. Thus, the performance of RUDS should be supervised by a higher entity that should be held responsible."*

The RUDS is the official entity responsible for the students' performance and attendance in the work place. It should have control over the students through their grades and graduation certificate they approve. However, the RUDS director is well known for his kind heart so he doesn't harm any student even in the cases of unpunctuality. He seeks other solution so that everyone becomes happy. That's why RUDS should be reporting to a higher entity that should ensure that the rules and regulations are applied. This higher entity should be held responsible for the performance of RUDS and should ensure that every party is doing its role.

7. Students' Working Culture

DS employer states:

> *"In training DS students, I face a serious problem: when the students have cigarette and mobile card, they stop working. They only seek to work when they need their stipend after they run out of these two items. When a fresh DS student is interviewed, he usually asks how much he would gain from this job, which can never be evaluated without testing his work productivity."*

There is a culture problem in the students' perception about work that they need work when they need money and as long as they have money, they ignore work. They should first seek to learn and build a profession which would then lead to better performance and higher salary.

8. Students' Training Session

DS administrator states:

> *"The DS students are provided with six week training sessions at school every year to acquire the technical skills the students might not gain at the workplace."*

On the other hand, DS employer points out:

> *"The six weeks the students spend in training sessions affect work so that I need to brain wash them when they're back because they forget all what they've learnt. I believe that a worker is like a sportsman who needs to practice every day and any drop in his practicing would affect his efficiency and productivity."*

The main purpose of the training sessions is to provide the students with the technical skills they would need for better performance. However, if these sessions are not that effective and would affect the students' practical training in the work place, then it should be organized in a more efficient way. In fact, leaving the work place for a month would definitely affect the work productivity which would affect the employers. Thus, these sessions could be scheduled in the vacations or for a shorter period.

9. Perceptions of Change in the Program upon the Withdrawal of Donor Support

From DS Administrators' Point of View

DS administrator states:

> *"When the Dual Education System was under the German administration, from 1993 to 2008 and throughout this period, the total expenditure was Euros 28.5 million. Part of the project expenditure was dedicated to training the Egyptian teachers in Egypt and Germany to acquire the technical and pedagogical skills since the budget allocated for teachers' training is 50 piasters / teacher / year."*

After the Germans' left, the teachers trained by the Germans started training their colleagues but they are not as efficient and effective as the Germans. Moreover, most of the Egyptian

trained teachers by German experts are no longer available. Other part of the expenditures was set to develop the curricula.

> *However, DS employer states: "there is no difference in the DS effectiveness before and after the Germans left the project."*
>
> *From RUDS director point of view: "the Germans used to care about the psychological incentive to DS employees as they used to invite them to Iftar in luxurious places during Ramadan."*

From DS Teachers' Point of View:

According to a DS teacher:

> *"The Germans provided me with forty three training sessions in five years in Egypt and Germany. I learnt a lot from them as they never waste time; they provide these sessions during vacations not during the academic year."*

These training sessions were tackling everything related to pedagogical as well as scientific methods in each specialization. The Germans provided them with practical trainings, starting from the scratch till the advanced level.

During these training sessions, the teachers had financial incentive represented in thirty five Egyptian pounds per day of training in addition to a fixed amount of one hundred fifty Egyptian pounds per month throughout the project under the Germans' management. This is considered a huge amount compared to their salary at the time which was three hundred sixty Egyptian pounds. They used to be trained by the Germans but now the teachers who were trained by the Germans are training DS teachers following what they learnt from the German expertise.

Now, the training provided by MoE is just a traditional form of training which is totally different from the one provided by Germans. German trainers were so punctual, they were present before the trainees teachers and they provided them what all what they need to know effectively and efficiently.

Another DS teacher adds:

> *"The training now provided by MoE is once or twice per year without any financial incentive. On the contrary, it might be costly for us to join these training sessions because we have to spend from our own money to reach the location where the training is provided. Thus, we normally ignore attending these training sessions provided by MoE."*

This shows the ineffectiveness of the training MoE provides as being a traditional form of training which is totally different from that provided by the Germans. D Steacher narrates his own experience in this regard, saying that when he attended the training provided by MoE, he spent several sessions in an introduction about the electric circular resistance and when he asked the trainer to start having a practical experiment, the trainer told him who asked you to attend this training since you are an DS teacher, this is just for traditional technical secondary school teachers.

Besides, based on the Egyptian culture, Egyptians generally respect foreigners. While the project was under the German management, whenever they needed anything, the Germans used to get all what they ask for immediately. However, now after the Germans left, they have to write reports and petitions to MoE to get what they need.

Before leaving the project, one of the DS administrators says that the Germans provided DS administrators to guarantee the project's sustainability. First, the project should be sponsored by a well-defined entity on the national level. Second, there should be a long-term intervention to guarantee the project sustainability. The key behind the project's sustainability is the lack of financing from the government and all their finances are provided from private sector.

VII. Why do Students Join the Dual Education System although they do not intend to continue in Technical and Vocational Jobs?

The Dual Education System mainly aims at improving the level of technical and vocational education in Egypt. It targets the blue collar category to improve its educational level and living conditions. However, those who actually benefit from this type of education are those who do not need it. The types of students who join the Dual Education System are from middle class who just take it as an easy means by which they can seek higher education. This ends up with the inefficiency and ineffectiveness of this education since it does not reach the targeted beneficiaries.

This section will shed light on this dilemma, through interviews with the Dual Education System employers and students. The interviews conclude that there are five main reasons for which students join this education system although they do not intend to join vocational jobs. First, the Dual Education System chooses the best preparatory students although the aspirations of this type of students will not be joining vocational jobs. Second, the Dual Education System pays for the failings of general secondary education due to its heavy curricula as well as costly private lessons. Students in the Dual Education System are provided with concise and concentrated curricula with special attention on training and with the possibility of seeking higher education upon graduation. Third, students who join this system are the favorite who can join it with their powerful social connections, not the original targeted beneficiaries. Forth, the type of students who join the program do not need the stipends provided because they are not the blue collar class who should be future workers. Lastly, this type of education is prestigious in the society because it's known for being a German education system.

To put it in a nutshell, the students seek the Dual Education System because it is easy and cheap in addition to the fact that it allows its students to seek higher education.

A. The Dual Education System Chooses the best Applicants

According to the interviews, it is clear that one of the main problems of the Dual Education System is "creaming". It chooses the best students who do not want to be in vocational jobs. Although the Dual Education System is one of the most successful models of technical and vocational education, yet creaming the applicants hinders its desired purpose. On preparing technical and vocational workers, there is no need for choosing students with the highest grades and best skills and capabilities. Those students would definitely look for a more prestigious education and career especially that the blue collars do not acquire the social position that these students might aspire. Thus, creaming technical and vocational applicants would never end up with high category of workers; it would rather end up with giving a good kind of education to those who do not need it.

According to one of the school principles of the dual education school, he states:

> *"The DS students are the best technical education seekers because they get the highest grades in third preparatory compared to traditional technical school students".* (School principle, interview, November 2012)

The same notion was repeated by a teacher, who describes certain traits of these students that relate to the fact that they are above average students. He notes:

> "The *DS students' behaviors are different because they are meticulously selected, as they pass through several exams and are interviewed by employers".*

Regional Unit for Implementing the Dual System (RUDS) is "an autonomous body responsible for promoting MKI-DS and following up on in-company training" (Grunwald& Becker, 2009). It normally advertises for the Dual Education System program in April each year

in schools and streets. They start by identifying the needs of the labor market in regards to the number of students each year in each profession to know the number of students they will accept in each profession for the coming academic year. Each governorate asks for specific specialization depending on the labor market needs of each one. Afterwards, they inform the MoE to provide them with the minimum grade required from third preparatory students to join DS program.

RUDS receive many applications from which they filter the eligible students through three tests: Arabic, English, Math as well as the capabilities exams which are normally done through schools, besides the medical examination. Once the applicant is accepted to join the program, he/she should be interviewed by the employer who chooses from the applying students. Each student has the right to change the workplace once in the whole program. The Dual Education System School in Fayoum has a small number of students (around seventeen students) in each class versus around fifty students in traditional technical secondary schools. This is because they are controlled by the number of students needed in the labor market.

B. The Program Pays for the Failings of the General Education System

General Secondary schools fail to attract preparatory students who are willing to join upper education upon graduation. This is due to the heavy curriculum and the many subjects that they should be studying. Besides, it is mainly based on memorization which requires extra effort by the students. In addition to the fact that this type of education requires excessive private lessons because all the students compete for the top universities. These private lessons present a huge burden on the parents in regards to the money, effort and time loss.

One of the Dual Education System employers expresses with frustration:

> *"Parents take the DS as a means of escaping from general secondary education to avoid the excessive costs of private lessons. For them, their children can get easier and cheaper means of secondary education through the DS that enable them to join institutes easily afterwards."*

Another DS employer affirms:

> *"Special attention should be given to those who join the Dual Education System because a factory can run by a technician without an engineer but an engineer can never run a factory without a technician."*

On interviewing DS students, thirty nine out of forty stated that they *"seek higher education after graduation."*

The Dual Education System is much easier than any other secondary education system, whether general secondary education or traditional secondary education. Thus, students join DS as a "bridge" to higher education. They are only required to study six subjects, three of which are Arabic, English and Religion and the other three are technical subjects depending on each specialization. Even the curricula of the technical subjects are concise and concentrated with no additional or unnecessary information. Besides, DS students only study two days at school and work four days in the workplace with a monthly stipend and a means of transportation to and from the work place.

Having all these privileges in a secondary education system, which allows its graduates to seek higher education by joining institutes and universities after graduation, motivates preparatory students to join the Dual Education System. It's also cheaper for the parents because they won't have to pay huge amount of money in private lessons, besides the waste in energy and time. Thus, there is a sort of inequity because the joining students take the place of those who really need to continue working as technicians.

Higher education should be separated from the DS, which should only be provided to the needy technicians who decide to continue their career as technicians, and should not be used as an easier means for a higher education. Thus, the DS requires more restrictions on the students willing to join to guarantee that those who join need to learn and work.

Moreover, the profession these students acquire through their three years training is far better than any other certificate. Higher education graduates are jobless and do nothing except spending their time at the coffee shops. On the other hand, the DS provides students with education, job and salary, yet they seek higher education for the sake of attaining higher certificate.

C. The Power of Social Connections in Getting into the Program

RUDS receive many applications from which they filter the eligible students through three tests: Arabic, English, Math as well as the capabilities exams which are normally done through schools, besides the medical examination. Once the applicant is accepted to join the program, he/she should be interviewed by the employer who chooses from the applying students.

When asked about the criteria from which they choose the applying students, one of the DS employers stated:

> *"A new student with no experience has nothing to be examined, so he bases his choice on RUDS' (the director of RUDS) recommendation about the student's punctuality, team-work, and willingness to learn."*

On the other hand, the RUDS director in Fayoum adds: "*I receive calls from prominent figures who ask me to enroll their relatives in the DS and I can never refuse."*

Normally, RUDS provide factories with an application before the coming semester to set the number of students needed in each specialization so that by the beginning of the year, they interview several applying students to choose from them. However, favoritism plays a major role

in the process of choosing the preparatory applicant which ends up with inequity in having the needy in the right place.

D. Stipends are not Enough Incentives for Students

According to the DS contract with employers, working students should receive a stipend from the employer. First year student gets eighty Egyptian pounds, while second year student gets one hundred Egyptian pounds and third year student gets one hundred twenty Egyptian pounds. The DS employers provide the working students with higher stipends than those agreed on in the contract to be an incentive for them to work in their factories upon their graduation. However, since the joining students are rich and favorite, they do not care about money and they seek higher education upon their graduation.

One of the employers affirms:

> *"I give first year student: three hundred Egyptian pounds instead of eighty Egyptian pounds, while second and third year students takes four hundred Egyptian pounds instead of one hundred and one hundred twenty Egyptian pounds which are still cheaper than getting similar workers with five to six hundred Egyptian pounds."*

On asking a DS employer about the sustainability of the DS graduates in the workplace, he says:

> *"The students' ambitions overpass the incentive we provide and normally quit after graduation to seek higher education."*

The Dual Education System students join this education system because the prestige they get from the society or from the employers. They mainly have no intention to continue the career of technicians; they just need to get this prestigious look from the society. This ends up with the failure of the system to give high quality of vocational and technical education, which should lead to professional technicians. However, it results in having the type of students who only seek

a prestigious look with no intention whatsoever to make use of this special kind of education rather than being a means for a higher certificate.

According to one of the Dual Education System employers:

> *"The Dual Education System students are totally different from their counterparts, they are introduced to labor market at a very young age and they get acquainted with all market needs and workplace culture and requirements, in addition to the elevated kind of education they receive."*

As for the Dual Education System students themselves, they believe:

> *"The Dual Education System students and graduates are better than their counterparts in Traditional Secondary Schools because of the kind of education we acquire through on the job training at young age. Besides, the Dual Education System is known to be German education system which receives a special prestige in the Egyptian society."*

E. The Dual Education System as a "Bridge"

One of the DS employers expresses his frustration from the fact that:

> *"Parents take the Dual Education System as a means of escaping from general secondary education to avoid the excessive costs of private lessons. For them, their children can get easier and cheaper means of secondary education through the DS that enables them to join institutes easily afterwards."*

The Dual Education System is considered an easy and cheap secondary education, in addition to the fact that it allows its graduates to seek higher education. The DS selects the best preparatory students and offers them an easy kind of education, which mainly relies on training more than studying. This drives the students to use it as a "bridge" to avoid general secondary education with its many subjects and hard work. For the parents, it's a solution to the general secondary education dilemma for its costly private lessons. Their children can join the Dual Education System, study less, work with stipends and still seek higher certificates upon graduation. Accordingly, the end result is that this kind of education is not provided to the blue collar category, who is supposed to be the targeted beneficiary. Thus, the DS requires more

restrictions on the students willing to join to guarantee that those who join really need to continue working as technicians.

VIII. Conclusion and Recommendations

The results in this thesis reach a conclusion concerning the DS vocational education that the program provides values for the private sector that is worthy to its investors. The Dual Education System has achieved a remarkable success in applying the principles of the dual education system as applied in Germany. Moreover, the DS has shown its potential to smoothen the transition from school to work for youth in Egypt. From both perspective employers and youth, the DS has significantly improved the image of the technical vocational education in Egypt. In fact, the DS has been more than just a project, it has been an investment in building new institutions like the NCHRD and RUDS and creating a new reform program for technical vocational education. The RUDS played a significant role helping open training places in industry and supervise the students in factories.

As a mediator between the private sector and the government on employment and skills development of youth the program is an important shift in the country's policy. Such partnership opened a door of influence for employers with the MoE. . The positive assessment of the DS employers can be measured by their willingness to pay for its services. The DS brought new private financing to technical vocational education as the employers agreed to accept some trainees in the their work place, provide them with practical training four days a week along with the theoretical training they received in schools two days a week, and pay trainees a stipend that consider an incentives for the DS students during their three year program leading to a secondary certificate by the MoE. On the other hand, employers contribute of purchase some of equipment for schools adding to funds provided by the MoE.

Another benefit to the program is saving costs for the DS schools as students only attend school for two days per week in comparison with traditional vocational secondary school

whereas students attend six days per week. Such a reduction in the number of days in school provides more flexibility that enable the DS schools to absorb additional students without increasing the number of teachers. There are also list of benefits that provided to the DS teachers. At the top of this list was the training that they used to get before the withdrawal of the foreign donor. Upon the withdrawal of the German donor, there is no dedicated source for teacher training in the DS schools with the result that the teachers felt they were losing the benefits of the initial training provided by the Germen donor and their skills started to depreciating. There were another concerns about subsequent revisions of the curriculum and instructional materials that has been made without German input which has been dramatically affected.

Analysis in this thesis shows that there are five main reasons for which students join the DS although they do not intend to join vocational jobs. First, the DS chooses the best preparatory students although the aspirations of this type of students will not be joining vocational jobs. Second, the DS pays for the failings of general secondary education due to its heavy curricula as well as costly private lessons. Third, students who join this system are the favorite who can join it with their powerful social connections, not the original targeted beneficiaries. Forth, the type of students do not need the stipends provided because they are not the blue collar class who should be future workers. Finally, this type of education is prestigious in the society because it's known for being a German education system. To conclude, the students seek the DS because it is easy and cheap in addition to the fact that it allows its students to seek higher education.

It is obvious that the Dual Education System is paying for the failures of the general education system in Egypt. Ideally, fixing the problem with the traditional technical secondary education system will alleviate the problem facing by the DS in Egypt. Therefore, MoE should link the benefits of the work experience, courses, and activities that contribute to the

development of employability and technical skills to the curriculum. Moreover, the market needs should be analysed and updated constantly to cover all aspects and skills needed by the work place. It also should impose some restrictions to students who are applying for the Dual Education program to guarantee their willingness to continue as skilled laborers upon graduation.Meanwhile, the problem of program creaming should be addressed. When the program only chooses the best students, these students tend to want to continue in higher education institutions. Finally, the problems faced by DS teachers and administrators in terms of incentives structure and equipment maintenance should be addressed through a reformed incentive structure.

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