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Industrial education in Egypt reality, vision and future

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ABSTRACT

Industrial education considers the major and strong pillar for expecting education a renaissance to developed and activate new Egypt renaissance after the great revolution on the twenty fifth of January this renaissance will be developed To work on the development and activation anew generation of skilled and trained cadres of human to support factories and supplying elements who posses expertise craft and scientific culture and this is very important as the presence of skilled. Manufacturer basically and integrative with existing of factories and skilled engineer they are two sides of the same coin through them we can achieve leadership and industry progress. The role of the engineer is the design and the role of the specialist of industrial education Is to implement this design on the ground practically. In addition to training staff and to work up elevation their industrial culture and this role is so vital and important for the industrial development. As the specialist of industrial education's functions is teaching, practical and theoretical train for students of industrial secondary schools. As well as the super intermediate of industrial institutes to provide who is suitable to work in factories and job training in all fields. The specialist of industrial education has to work on the training and super vision of training institutions position on the level of the republic to activate its role and revitalization for the provision of train labor and also scientifically and practically qualified the prominent examples of the industrial renaissance are existing in countries like china and India recently these countries joined the G20. The big industrialized countries have moved to set up branches for them in these countries because of the abundance of skilled and trained labor and also cheap labor. At the same time the integration which has been referred to previously.

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Introduction

Recently a lot of developing countries have a chilled large industrial boom in various industrial fields and this renaissance had a deep impact on the economic and social development in these countries such as the Asian tigers, India and Brazil. After the Arab spring revolutions we are looking forward to achieving a big industrial renaissance in various fields to achieve prosperity and self-sufficiency. The most important mechanisms to achieve this vision we have to develop. Modernize and activate the role of industrial education support this process. This matter is old and modern at the same time. It has been a lot of seminars, meetings about it. Also different versions issued such as the Arab labor organization in this field other bodies and institutions.

Among the most prominent of speaking in this regard a lot of professors in educational fields as well as in the engineering fields. Graduates of industrial educational colleges and the staff who are working in these faculties haven't Participated and given the opportunity to participate in this subject. Although they are the most important and the most prominent elements in it. These elements are aware of the proposed solutions they were assigned to play a key role effectively in this matter. As described in [1] the description and an analysis of the reality of industrial education graduates needs to re-considered and address its deficiencies. Also Dr. Ahmed El Geyoushy and others) [2-5] in numerous articles including what was publishing in the Al-Ahram Egyptian on 27/5/2008. Also as in [6] "Product

design is the convergence point for engineering and design thinking and practices. Until recently, product design has been taught either as a component of mechanical engineering or as a subject within design schools but increasingly there is global recognition of the need for greater synergies between industrial design and engineering training. Product design engineering (PDE) is a new interdisciplinary programmed combining the strengths of the industrial design and engineering". To provide industry there should be a technical professional who transforms engineering designs to productivity integrated process as well as a real economic renaissance the technical can be key line between the industrial and technical education is one of the most important specializations need by the Egyptian society to achieve up swing being deserves and sought by. Egypt's renaissance will not be with out the technology and scientific development. This development should be in all fields. In my opinion to achieve progress in the field of computer and electricity technology we should take care of the following proposals. 1) Focus on areas of scientific research for the master and PhD students on applied filed research and directing many of them to the filed of manufacturing educational aides with components which aren't expensive and invent new ways to use in training and elevate the real practical efficiencies in all the collage labs and practice them, make expansion in all the industrial secondary schools in all geographic parts which are near the faculty of industrial education and the different geographic areas. 2) Focus on the production of educational

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software used in simulation work and practical, theoretical training for continuous improvement according to the need of the lab or market fields.

"According to the results of study about secondary technology education teachers place the lowest emphasis on assessing the use of mathematics to optimize and predict design results (Traditional 2.42 %, Block 3.70% of assessment practice time). These results are strong indicators that the engineering analysis phase of the engineering design process is not emphasized very much in assessment practices. This is a major concern considering a number of leaders in technology education have indicated that a major difference between the technological design process and the engineering design process is analysis and optimization" as in [7-10]. It can be argued that the mathematical modeling and analysis is the heart of engineering design and that without this focus on the design process little or no actual engineering is taking place.3) Permanent co-operation with factories located in Eastern Nile and Bayad Elarab (a known area near the faculty in Beni Suef) which work in the fields of electrical and Computer. Also we should know their production fields, the practical problems, that they face and make applied innovation research to solve these problems. We should prepared trained cadres to contribute for increasing the production and approved a lot of scientifically. Practically available labor in all fields of electrical and computers. Encourage small scale industries, providing new specialization required by the labor market. It has to overcome their problems under the scientific research. 4) work to reduce the density of students in industrial secondary schools by dividing the time of students attendance for the theoretical teaching at the same time modernize the workshops and convert them to industrial workshops work with economic pay to produce teaching aids and service community in accordance with the research innovation referred to giving this students a share from the selling price of these meams. The workshops will switch into production units. Also these workshops will train and raise their practical efficiencies to be suitable for schools cheaper than buying them from specialized companies. This will lead to the provision of government spending and the elimination of unemployment and preparing scientifically, practically qualified cadres. 5) Work to increase industrial schools for preparing many scientifically and practically qualified coders and linking these schools through industrial education collages in factories and industrial organizations to develop industry and reducing employment. 6) supervision on directorate of man power and reformulate them well to be activated in the fields of training and make co-operation protocols work with them and use their position in training industrial secondary students. 7) Devise recent ways according to the labor market needs to rehabilitee education graduates, to work as a direct technique. It means the technical work with his hands not theoretically as administrator or a super visor in addition to their work as theoretical and practical instructors in various industrial fields to supply the community a lot of coders according to the need of the labor market and all industrial fields. 8) Expanding the use of computer and it's applications process to raise efficiencies and considered a main pre requisite at all levels. 9) converting workshops to training and productive centers will lead to improve ways and incomes without fatigue state budget and with the help of vocational training workshops. 10) making co-operation protocols with institutions of advanced technology in these sectors, specially G20 because they are the

most advanced countries in the world in this field and this to rehabilitate and prepare distinct cadres . Also they are the best countries in the world in almost all industrial fields. Egyptians hope to rise new Egypt to become one of the advanced countries in industrial integrative renaissance. 11) The industrial education faculties are existing in (Beni Suef - Suze - Cairo and Sohaj) all diversity competencies according to the industrial development which will be distributed to these areas to develop the Gulf of Suze, Sinia and upper Egypt, which will lead to work proposed development to keep up with the frame work of the country for the overall development in these areas. To achieve this we need to: a) reduce the intensity of students in classes. b) Modernize the hardware in the workshops. c) add new specialization required by the labor market. d) increasing the number of industrial schools. e) increasing computers in all industrial schools to help students in learning. f) Linking the vocational and training schools with factories for increasing the efficiencies of students in the denominational district. g)reduce the number of admission system for students to keep worker out the machines and appliances. h) training teachers to raise their efficiency on using the latest teaching methods and training. i)improving the teacher skills in both practical and theoretical parts. j) providing job opportunities for students after graduation or provide them with small projects to benefit them and their community beside solve the unemployment problems. k) developing textile industries and modernize machines, then spearing them in industrial schools and link schools with factories. After all of the above, let us ask several different questions, then try to answer them in this article. Industrial education is the same as Industry oriented education, it is an approach to learning from an industry perspective. With traditional technical teaching methodologies in educational environments, the conventional pathway is to build the foundation learning through subject based teaching of mathematics, physics and science independently. Subjects based on the knowledge required for the discipline usually follow on from this. The problem with this traditional methodology of learning is that there is no close relationship with industry requirements. So let us answer some questions as:

What is the reality of the development and modernization of industrial education in Egypt and its guarantees?

About the fact of the development and modernization of industrial education in Egypt, we can find that: the government made a great efforts and spent a lot of money for this development, but it hasn't reached the desired result so far as each section of the participants in these institutions keep their specialization and didn't integrate with others to get the expecting product, which is a scientifically and practically "valedictorian" student. To work in factories, companies and training centers. A lot of problems faced the graduates, such as their lack of understanding of what is required from them, what is the future of their profession and what is the exact definition of their job. To solve these problems we should activate getting different scientific degrees in the field to be responsible for the development and achieve what is required of it.

Have we been making conferences or workshops for industrial education in industrial education colleges since its inception up tell now to discuss the mechanisms of devolving and upgrading them?

As for the last question about conferences and workshops related to industrial education even now there is no scientific conference or workshops has hold through the industrial

education colleges. These faculties belong to the Egyptian universities, but we haven't discussed and consider how to develop this field. For the sake of industrial education and making industrial renaissance especially after the great revolution on the twenty -fifth of January. We hope to make integration between engineering and industrial sectors for all the community. Now we have a clear integration between the medical sector and the natural treatment with nursing sector. We hope to activate and achieve integration between engineering and industrial education sectors to create a trained caders. Who can work in factories and training sectors to provide skilled to be a strong source for national income. The best models in this context are India. China. Malavsia and South Korea . they have made industrial renaissance and there for a lot of international factories have been transferred their factories to these countries. As the abundance of trained main power and a sophisticated education also they have a cheap pay. So we hope that Egypt pursues this direction to provide many job opportunities and this will lead to economic refreshment, which will reflect on all the society. Also we can make co-operation protocols with the powerful advanced countries in this field like G20 as we have been pointed out previously.

That way a large industrial educational renaissance will be realized.

What is the role that needs to be implemented and achieved to active the development of industrial education?

Regarding the role which is needed to be implemented to achieve and activating the industrial education sector by opening the door to the faculty staff, who are recruited now in this colleges to live up degrees assistant professor and professor Dr. in this sector. The industrial education sector is new born to strong then the affiliation of these colleges where they will be promoted through the work in improving (developing) these colleges. The government has spent a lot of money as loans from the World Bank to develop industrial education in Egypt. There is a lot of equipment and advanced workshops in these colleges. In the same context many engineers travelled to Netherlands to get a master degree in the field of industrial education, and I was on of them. This was in the late nineties of the last century. I hope that continue in that field until we get achieve Dr. Professor. But the project stopped for a period of time due to the lack of affiliation of these colleges to the supreme council of Egyptian universities, but was under the supervision of ministry of higher education. Now these colleges are affiliated to Egyptian universities and have its scientific regulations, supported by the supreme council of Egyptian universities. The early graduates were appointed as demonstrators and some of them access to a M.Sc. in the industrial education now registered PhD in the industrial education field. Giving the opportunity to the current staff in these colleges will invigorate this sector. The best example in this context is the computer science sector which opened the door for the upgrade to the professor dr. this for the staff in computer science faculties, however they graduated from science, commercial and of course the engineering college. The relation between engineering and industrial education sectors are closed and integrated relation. So a good outcome will be reflected on the entire community, God willing. As observed from fig. 1 from 1997 - 2012



We can note that the new numbers of graduated has relatively low in 1997, the year we got M.Sc degree in industrial education from Netherlands. Before that we hold a bachelor's degree in different engineering specializations. The graduates number swing gradually between high and low convergent relatively until 2001. In 2001 the faculty start offering scholarships abroad for us to solve our problem with industrial problem field. In 2005 it was the highest % of graduated, also it was the year when we back to our faculty as member staff with doctorates degree in engineering specializations. In 2006 our faculty became part of Beni Suef university and in 2007 the faculty began to accept demonstrators from the early graduated. Some of them already got a masters degree and have registered for a PhD in industrial education. The percentage of the staff in the faculty divided into 2 sections from demonstrators 55.5% graduated from industrial education college, 44.5 % most of them engineering graduated. Therefore they should have the opportunity to the interested members of the faculty employers. For promoting to be professor dr. in industrial education to develop the scientific research in this scientific institution and achieve international quality standers and applicable in all scientific institution.

What is the expected role for the industrial education, if we development it to serve the community and industry?

In my opinion about the expected role industrial education sector, when activated it will work to raise the level of technical education in industrial secondary schools. This will done by splitting the study into three parts. The first part will study scientific and theory material for two days as long day. The second part will work in the practical training in workshops which belong to the vocational training and the school lows workshops and this will be in a productive competitive frame.

The third part will be free for two days as a vacation for studying or work free for them. As a result of what he had trained. I think it is good to give the students a pay for their work to encourage and ensure its perfect. It is possible to sell these products to the ministry of education and to domestic market in competitively prices much lower than of the prices of the market. A large part of the production of these workshops for training it will be a key part to the industrial education graduate work. A lot of conferences and studies have been done by professors in education and engineering faculties, were all spin in the ideas and visions are compatible and complement with what made and its proposal in the field of industrial education. Now already there is sector for industrial education colleges. This sector has its regulation governing access to degree of graduate diploma, master and PhD in this field. These regulations have adopted from the supreme council of Egyptian universities. We aspire confer the degree of associate professor and professor dr. in this field until the system fully and can develop this sector to serve and develop the industrial education

which is expected to be one of the effective elements in making the desired industrial renaissance. The integration between the industrial sector and engineering sector will develop the real industrial renaissance to Egypt, after the revolution of the twenty-fifth of January.

The conclusion

To achieve the industrial renaissance which we hope to realize, we should attention to education in general and industrial education in particular. Also we should change the name of the graduates from the industrial education colleges to a specialist in industrial education instead of the current title which raised and still a lot of troubles. Give the staff in these faculties the opportunity to get professor dr. degrees. This will be in different departments of the industrial education colleges. Making co-operation protocols with international universities and institutions in this branch. By doing all of the above notes we hope that, to develop the industrial education and to success this field to make renaissance, promotion and prosperity to our country Egypt.

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