

E-LEARNING STRATEGIES ACHIEVING QUALITY AND SUSTAINABLE DEVELOPMENT WITHIN THE DECENT LIFE PROGRAM, AN EMPIRICAL SURVEY STUDY IN SOME VILLAGES OF MENOUFIA, EGYPT

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Abstract

"A decent life" is a strategy launched by the Egyptian state in June 2021 for the development of the Egyptian countryside. It includes plans, programs, and projects to improve infrastructure and services, increase family awareness and improve the quality of life, in about 4,500 villages inhabited by more than half of Egypt's population. The program is divided into three phases according to the percentage of need: the first phase including villages with poverty rates of 70% or more - the second phase which includes villages with poverty rates from 50% to 70% - the third phase includes villages with poverty rates less than 50%.

Among the basic criteria for determining villages in most need: low education rate, high school classroom density. Therefore, the educational sector is one of the eleven sectors covered by the program's targeted plans.

The development plan in the educational sector is based on three pillars: providing equal educational opportunities for all, achieving comprehensive quality, and improving the competitiveness of education systems and outcomes.

Digital transformation is key to access to higher standard of education. It can be achieved through modifying traditional learning models.

Teaching online requires different types of interactions with students, regular check for all links, resources, modules, and activities.

The current study tackles within an analytical approach the findings of the field survey covered schools benefited decent life program in some villages in Menoufia Governorate, Egypt, looking how far E-Learning strategies could improve education quality and development sustainability [Bul. Soc. Géog. d'Égypte, Special issue, 2022, PP. 197 - 224].

Key Words: Egyptian countryside; E-Learning strategies; Decent life program; Sustainable development.

1) Introduction

Education for Sustainable Development (ESD) was an effort overseen by UNESCO. Delivering the quality of education capable of elevating human capital is important to address increasingly globalized sustainability challenges.

In the last decade ESD was launched to help chalk out an approach to teaching and learning that promotes sustainable development in educational institutions. Since then, it has become a global movement and the understanding of the concept of sustainability has evolved.

Online learning offers students a flexible way of up skilling to the highest life level. The ubiquity of smart devices and the rapid penetration of high-speed telecommunications networks are gradually lowering the barriers to education, providing emerging opportunities for more people especially in remote areas.

Integration of ICT in education has created new horizons in the form of electronic learning (e-learning). The lesser benefits of e-learning are accessibility, flexibility, and lower levels of risk transmission.

The potential use of informational and communication technologies (ICTs) in remote, low-income communities around the world is that most products, services, usage models, expertise, and research related to ICT use in education come from high-income contexts and environments (Trucano, 2014).

One consequence is that technology-enabled 'solutions' are imported and 'made to fit' into what are often much more challenging environments. When they don't work, or where they are too expensive to be replicated at any scale, this is taken as 'evidence' that ICT use in education in such places is irrelevant -- and possibly irresponsible (Trucano, 2014). However, getting internet to the school is just one piece of the puzzle in closing the digital divide and the growing "homework gap" in which students lack residential and community broadband access (Lee, 2020).

The use of ICT-based instructional strategies is in conformity with global best practice. It repositions instructional model from lecture to student-centered instruction, thereby increasing all forms of interaction and incorporating formative and summative assessment.

The current study tackles within an analytical approach the findings of the field survey covered schools benefited Decent Life program in some villages in two districts of Menoufia Governorate, Egypt. The study purposes to investigate

how far e-learning strategies could improve education quality and development sustainability in these rural communities.

The significance of this study comes from exploring the impacts of IT infrastructure services in the success of e-learning systems. This study examines IT infrastructure services in the context of an empirical measurement model to investigate its validity and reliability for the success of e-learning systems. Two perspectives will be gained via a survey of two groups of e-learning systems stakeholders: teachers and students.

Ozkan and Koseler (2009, p. 1286) state that “the development, management, and continuous improvement of e-learning system is quite challenging both for the educational institutions and for industry. In that, assessment has become an essential requirement of a feedback loop for continuous improvement”.

IT infrastructure services is deemed to be a critical factor which affects the organization’s activities. Modest attention has been paid to investigate the impacts of this construct on the success of e-learning systems which depends on the two stakeholders’ perspectives: academic staff and students (Alsabawy et. al. 2013 p. 432).

2) Theoretical Insights

2.1) Education for Sustainable Development

UNESCO (2005) defined it as: "Education for Sustainable Development means including key sustainable development issues into teaching and learning. It also requires participatory teaching and learning methods that motivate and empower learners to change their behavior and take action for sustainable development. Education for Sustainable Development consequently promotes competencies like critical thinking, imagining future scenarios and making decisions in a collaborative way."

2.2) The concept of e-learning

Marc J. Rosenberg (2000) outlined “E-Learning” as strategies for delivering knowledge in the digital age. Rosenberg recommends identifying key stakeholders to be involved in the strategy development, analyzing the current business environment, and assessing the alignment of the goals of the initiative with the goals of the business. He concludes the text with a list of challenges to e-

learning that include effectively leveraging the phenomenal explosion in the e-learning industry, understanding that learning effectiveness is critical and good instructional design cannot be underestimated.

E-Learning has become a particularly attractive educational method, as the use of web-based tools reduces the costs of sharing vast amounts of data, reduces communication barriers and geographical distance gaps between individuals, increases academic mobility in higher education, provides people with disabilities to have better access to higher education, and allows smaller institutions to gain international visibility through studying online. In short, eLearning must respond to its stakeholders' needs, involving quality assurance (Grifoll, et al., 2009).

In 2011 Bjørke, S.A. tried to describe the difference between the following terms: ICT-supported education, online education, distance education, e-teaching, and e-learning. He stated that ICT emphasizes communication while e-learning adds peer interaction, tutor guidance, and a holistic view on education. In addition to computer skills, the teacher needs the more advanced competence of being able to combine subject mastery with appropriate learning activities, progression, assessment, quality assurance, grading system and student support system – all required to ensure the achievement of learning objectives or learning outcomes (Bjørke, 2011).

It is still a matter of controversy whether E-Learning has in fact triggered a new educational paradigm. However, it is not overstated to claim that E-Learning nowadays is ubiquitous and has transformed our way of thinking about teaching and learning. Since the first occurrence of E-Learning in the mid-1990s, this transformation has been observable in manifold fields in higher education and has had enormous ramifications for the prevalence of sustainable development. However, attempts to grasp the main idea behind E-Learning are puzzling as the term itself is in constant flux and hence elusive. A first glance at the literature reveals that even though the term E-Learning is well established, it is still loosely defined (Otto, Becker, 2019).

The Commonwealth of Learning (COL) uses e-Learning as an umbrella term to refer to the use of any digital device or multi-media for teaching and learning. e-Learning can take place without any reference to a network or connectivity. The digital device used by the learner need not be connected to a digital network. The connection can be to a local area network or the Internet.

Blended learning is a combination of online and face-to-face interaction. Some examples of blended learning are the flipped classroom, online interaction followed by face-to-face teaching, or in person practical. Hybrid learning is often used interchangeably with blended learning primarily in the USA and was used more frequently during the Pandemic. At a more granular level, hybrid learning is a combination of online and in-person teaching and learning at a programme level, where different courses could be offered in either face-to-face or online or blended mode creating a multi-modal approach to teaching and learning (Kanwar, 2021).

2.3) Smart Classroom

Smart Classroom is a setting that incorporates electronic devices and software into the learning environment. Typically, it is a digital classroom where a physical classroom extends into a digital space. This digital environment makes it possible for users to collaborate or continue their work outside the classroom. A smart classroom is technological-based which dwells on integrated multimedia software and ICT resources to function. Students find it engaging and easy to access learning resources, networks and track their learning progress. Instructors also find it resourceful in highlighting students' work in a smart classroom. The UN Sustainable Development Goal 4, Target 8 emphasized on education facilities, that is to build and upgrade education facilities that are child, disability, and gender sensitive and provide safe, nonviolent, inclusive and effective learning environments for all (United Nations, 2015). Smart classroom contains the features of intelligent technology, intelligent application, and wisdom management (John, Izang and Awolabi (2018)..

2.4) Sustainability of e-learning quality

Farid, et al (2018) stated that the most important aspects of e-learning quality are user, manager, and developer aspects. Most of the e-learning quality models (80 per cent) are proposed in educational perspective only and are lacking to consider the software aspect of the e-learning system. However, some of the identified models (18 per cent) have considered only one quality factor, i.e., usability, functionality, and efficiency, up to some extent.

According to the proposal of Timbi-Sisalima, C., Sánchez-Gordón, M., Hilera-Gonzalez, J. R., and Otón-Tortosa, S., (2022), the accessibility criteria to sustainability of e-learning quality were identified and integrated into an evaluation model. Such a model is divided into four dimensions: (1) organization,

(2) student body, (3) teaching, and (4) infrastructure. The model also includes 16 standards, 48 requirements, and 63 evidence that apply to each dimension. Moreover, self-assessment guidelines for accessible virtual education were proposed. As for infrastructure, its standards contain: Technological infrastructure and equipment, Learning management platform, and Assistance and technical support (Timbi-Sisalima, et al, 2022).

The technological infrastructure and equipment are characterized by aspects related to the technological infrastructure supporting the virtual education system, the LMS platform (learning manager system), and the equipment made available to users who need it. Infrastructure and equipment are conditioned to be accessible, robust, safe, and, continuous.

3) Methodology

The current study adopts an analytical approach to tackle with the findings of the field empirical survey, looking how far it corresponds education quality and development sustainability.

In the light of Cathy Gunn's study (2010) on the sustainability factors for e-learning initiatives, then focusing on the reality and dimensions of the current topic of study, three assumptions could be underlined:

- The e-learning initiatives in focus have potential to scale up to enterprise-wide application.
- The creative work of the enthusiasts that drive the e-learning initiatives deserves greater acknowledgement than it currently attracts.
- The investment of time, effort and resources in the e-learning initiatives could achieve greater educational and economic returns if appropriate forms of support were available.

Having presenting the theoretical framework of the study, including the literature related to e-learning strategies that achieve quality and sustainable development, the study comes to discourse and analyze the reality of reactions and attitudes towards the application of e-learning strategies, from carrying out two procedures: the first is collecting data about the e-learning infrastructure and equipment within schools benefited from the Decent Life initiative in some villages of Ashmoun and Al-shuhada districts in Menoufia Governorate, while the second is applying a questionnaire on a sample of teachers and students belonging to those schools.

The questionnaire was designed to monitor the degree of technological awareness of e-learning and the extent to which the digital infrastructure is equipped and effective for schools of all kinds. The initial form of the questionnaire has been submitted to some arbitrators who made observations and proposed reformulating and rearranging for some phrases, so that the questionnaire was formulated in its final form as in (Table 1) and appendix one.

Table 1. Questionnaire dimensions and variables

N	Questionnaire dimensions	Variables
1	Attitudes towards developing and establishing schools through the decent life initiative	6
2	Technological infrastructure in the established and developed schools through the decent life initiative	11
3	Technological awareness among school students and teachers in schools that have been developed through the decent life initiative	8
Total		25

A random sample was adopted to represent the study's community composed of teachers and students at various stages in schools benefited by the Decent Life Program in some villages of Ashmoun and Al-shuhada districts in Menoufia Governorate. The sample size was 150 individuals; their identifications are shown in (Table 2).

Table 2. Identifications of the study sample

Categories		Number	Percentage
Gender	Male	85	57
	Female	65	43
Job	Teacher	82	55
	Student	68	45
School stage	Primary	28	19
	Preparatory	42	28
	Secondary	80	53
District Location	Ashmoun	89	59
	Al-shuhada	61	41
Total		150	100

The apparent validity of the questionnaire was verified through reviewing it by some experienced arbitrators and experts, followed with competence and modifying the inappropriate vocabulary.

Applying “Pearson correlation coefficient”, the self-honesty was calculated between dimensions of the questionnaire. The degree of self-honesty within all dimensions was positive and strong, as shown in (Table 3).

Table 3. Pearson's correlation coefficient among and within dimensions of the questionnaire

Questionnaire dimensions		Pearson's correlation coefficient
1	Attitudes towards developing and establishing schools through the decent life initiative	0.81
2	Technological infrastructure in the established and developed schools through the decent life initiative	0.79
3	Technological awareness among school students and teachers in schools that have been developed through the decent life initiative	0.76

The stability of the questionnaire was verified applying the (analysis of variance, or ANOVA) method through calculating the internal consistency, and the extent to which its items are related to each other, as well as the correlation of each item with the questionnaire.

The Formula used in this analysis is:

$$F = \{n(n-1) - m(m-1)\} / (n-1)(n-2)$$

Where:

F = Variation of questionnaire scores.

m = the average score of the sample on the questionnaire,

n = the number of sub-vocabularies for the survey.

If no true variance exists between the groups, the ANOVA's F-ratio should equal close to 1 (Fisher, 1992).

The calculated stability coefficient of the questionnaire vocabulary was high (equal to 0.92%) and was not less than 0.90% for the total of each of the three dimensions.

4) Findings

4.1) The infrastructure of modern technology provided by the Egyptian Ministry of Education to its public schools

On May 2017 the minister of Education and Technical Education discussed with the minister of Communications and Information Technology the means to develop the educational system through using IT tools in various stages of education, especially with modern technology and high-speed Internet access to schools (MCIT, 2017).

The technological infrastructure in the three educational stages is as follows:

4.1.1) The elementary stage:

Computer labs have been provided inside schools including regular computers. Unfortunately, most of that lab's equipment is old. Some of the newly established schools have more modern lab equipment. In some primary schools in villages, such as Manshat Sultan in Menouf district, Menoufia Governorate, the so-called smart classrooms were established by providing a tablet device for the first-grade student to support the "Discovery" curriculum approved by the ministry.

4.1.2) The preparatory stage:

Schools have computer labs called network labs, and the ministry replaces new devices with a laptop in every classroom linked to an interactive white board display.

4.1.3) The secondary stage:

Computer labs and learning resource labs (multimedia) were abolished, and a tablet device was provided for each student, as well as for teachers of basic subjects and the school administration. Each school was also supported with a server with high capabilities to facilitate the connection of students within the school to the multiple educational platforms of the Ministry.

Each school of the three stages is provided with one or more ADSL internet lines to ensure a stable and continuous connection, whether while students were

attending the school or during exams for different classes. Every classroom is also provided with promethean smart interactive touch screens.

To support digital programs and services, the Ministry of Education has provided three main components:

- The educational email for all school students, in cooperation with the Ministry of Communications to provide Microsoft office 360 services free of charge to all students.
- The Ministry of Education platforms, which are: the Egyptian education platform, the e-learning platform, the Egypt classes platform, the direct broadcast platform, the technical education gate.
- The Egyptian Knowledge Bank (EKB), which includes a huge collection of educational resources available online such as: videos, articles, images, audio files, interactive materials, and learning guides to create a rich library of millions of educational resources. The Bank's resources can be accessed free of charge for all Egyptians.

4.2) Interests of the decent life program for technology development in schools

The Decent Life Initiative will stimulate economic development and build fundamental infrastructure. It will also fund and set up educational services by building 13,000 classrooms (Sedky, 2022).

The decent life initiative relied on supporting technology in schools in several indirect forms:

- Through the establishment of schools, either through the maintenance and upgrading of the existing schools, or through the establishment of completely new schools in the neediest areas and equipping their infrastructure of network lines and wireless communication devices.
- Replacing fiber communication lines with copper communication lines for landline phones and ADSL Internet, which allowed the delivery of high-speed Internet in schools and in the homes of the villages of the two districts for the use of computers or tablets. Thus, the problems of accessing some exchanges in the villages to the maximum capacity of internet connection were solved, and new users were prevented from connecting to the terrestrial internet.

- Regarding the development of human cadres and the dissemination of technological culture for students and teachers, the Decent Life Foundation signed a cooperation protocol with the Vodafone Corporation to provide digital education in 100 schools in the villages participating in the Decent Life initiative by integrating technology and digital infrastructure in education. According to that protocol, Vodafone Corporation equips schools with the latest technological devices, connects them to the Internet, and provides digital content through an educational platform that includes various educational curricula for all school levels, and training programs for students and teachers on how to use technology and advanced solutions in education.

The Ministry of Communications and Information Technology (MCIT) role in Decent Life involves upgrading the telecommunications infrastructure, installing fiber optics cables, and building mobile towers in villages to improve the quality of telecommunications services (MCIT, 2022).

4.3) Schools benefited from the “Decent Life Program” in Menoufia governorate

Until March 14, 2021, the "Decent Life" initiative, according to its coordinator in Menoufia governorate, settled on building in the first phase of the plan 56 new schools in in two districts: Ashmoun, and Al-shuhada districts; 42 schools in the first, and 14 schools in the second. Besides, 42 agreed-upon schools are being fully constructed, as well as other schools in the two districts will be renovated and maintained (elwatannews, 2021).

The author’s field survey in Jan. 2022 followed up schools benefitted by the decent life program in villages of Ashmoun and El-shuhada districts as shown below and in (Fig. 1).

4.3.1) “Decent Life” projects for school construction in Ashmoun District

Those projects include thirty schools distributed in twenty villages: (Egypt’s Projects Map, 2022)

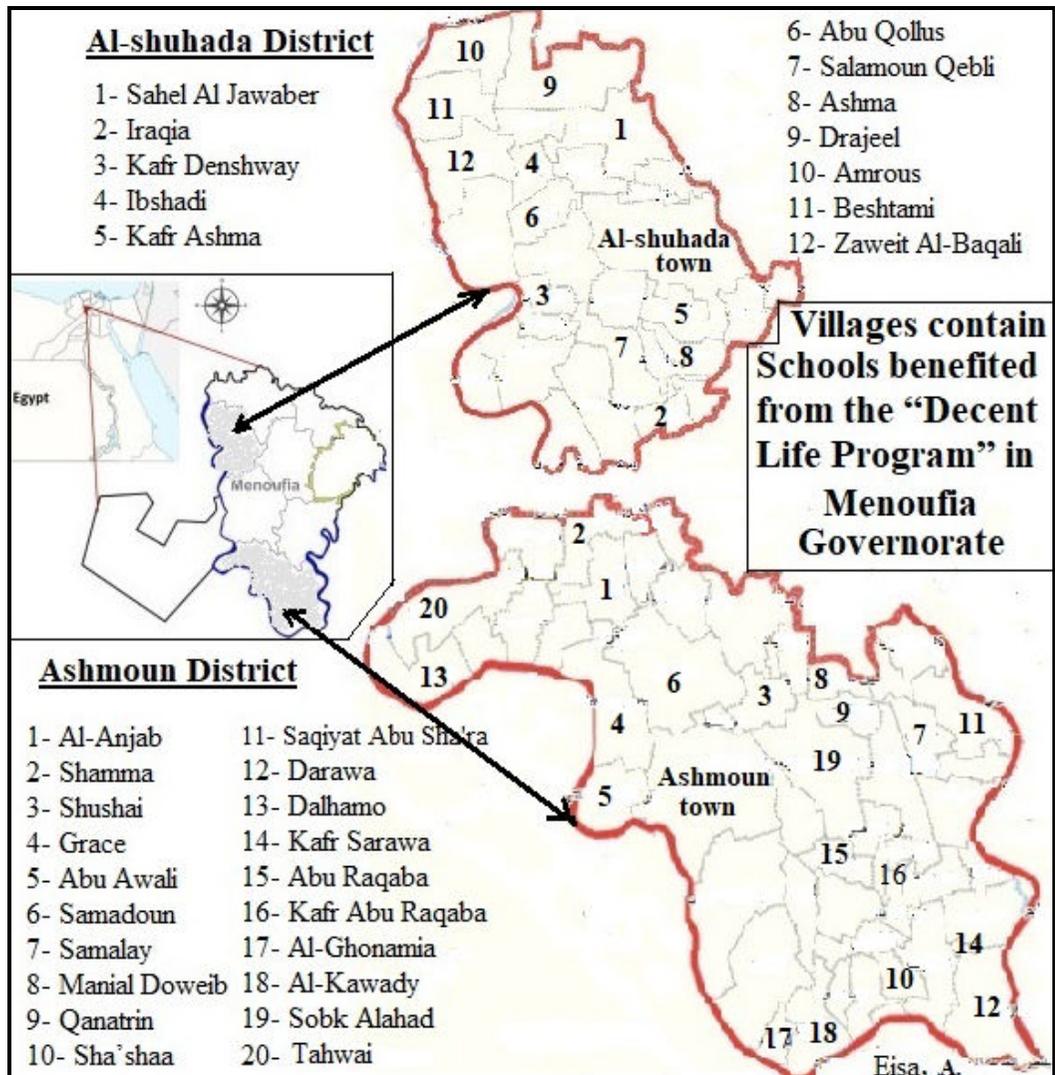
1- Al-Anjab village: new construction of Alshuhada School for Basic Education comprising 11 classrooms.

2- Shamma village: Raising the efficiency and developing four schools: Al-Shaheed Muhammad Al-Alimi School, Al-Shaheed Muhammad Wahdan School, Al-Shaheed Ayman Al-Afifi School, and Al-Shaheed Islam Qandil Commercial Secondary. Besides, the supplement of Abdel Salam Wahba School has been

delivered, and works are underway in the supplement of Al-Shaheed Sameh Tahoun School.

3- Shushai village: Establishment of Shushai Primary School on an area of 1300 m².

4- Grace village: Establishment of a new supplement at Al-Shaheed Abdullah Al-Hilali Primary School, and another new supplement at Khaled bin Al-Waleed Primary School (www.elwatannews.com November 23, 2021).



Source: Prepared by the author depending on field survey and official data up till Jan. 2022

(Fig. 1)

5- Abu Awali village: Establishment of Abu Awali School for Basic Education (Fig. 2) on an area of 1325 m² (<https://m.akhbarelyom.com/> February 17, 2022).

6- Samadoun village (7 schools): The construction of Khaled Sotohy basic education school, Samadoun primary school, and Ali Elshazli primary school in Ezbet Saleh. The construction and handing over of the supplement within Shaheed Faris Al-Nomani Industrial Secondary School (Fig.3) on an area of about 510 m² (www.youm7.com/story/ January 14, 2022). Partial replacement in Shaheed Badawi school. New Supplement within Shaheed Kholaf school and in Sayed Yahya preparatory school.

7- Samalay village: Expansion of Hassan Al-Shoura School.

8- Manial Doweib village: Partial replacement at Shawki Abdel Hakim School, basic education.

9- Qanatr in village: Establishment of Ezbet El-Hadary School for Basic Education.

10- Sha'shaa village: Partial replacement of a combined elementary school.

11- Saqiyat Abu Sha'ra village: Establishment of Abdul Azim Saleh Primary School.

12- Darawa village: Establishment of Darawa Secondary School.

13- Dalhamo village: Establishment of Ezbet Al Taji School for Basic Education.

14- Kafr Sarawa village: Establishment of an official language school.

15- Abu Raqaba village: Expansion of a primary school, and a supplement within Abu Raqaba secondary school.

16- Kafr Abu Raqaba village: Expansion of Muhammad Suleiman School for Basic Education

17- Al-Ghonamia village: Complete replacement of a combined elementary school

18- Al-Kawady village: Partial replacement of a primary school.

19- Sobk Alahad village: Expansion of Abu Bakr Al Siddiq Primary School.

20- Tahwai village: A supplement within Tahwai secondary school. The beginning for rebuilding of Nasser Preparatory School, on an area of 565 m² (m.akhbarelyom.com/ January 12, 2022).



Figure 2. Abu Awali School for Basic Education



Figure 3. The supplement of Al-Nomani Secondary School, Samadoun

4.3.2) “Decent Life” projects for school construction in Al-shuhada District:

Al-shuhada district witnesses educational projects for raising the efficiency of fourteen schools conducted in the following twelve villages (<https://www.wataninet.com/2022/03/03>):

- 1- **Sahel Al Jawaber village:** Sahel Al Jawaber Primary School
- 2- **Iraqia village:** Al-Shaheed Ashraf Habib Primary School

3- Kafr Denshway village: Kafr Denshway Primary School

4- Ibhadi village: Al-Shaheed Islam Badr Primary School

5- Kafr Ashma village: Beside raising the efficiency of Abdul Khaleq Mutawa School in Kafr Ashma, there was a partial replacement in Alshaheedain Basic Education School (Fig.4) which includes 40 classrooms: 4 kindergarten classes - 24 primary classes - 12 preparatory classes (Sada Al-Balad, February 13, 2022).

6- Abu Qollus village: A partial replacement for Major General Essam's school

7- Salamoun Qebli village: Establishment of Suleiman Omar School

8- Ashma village: Establishment of the new Ashma school for basic education

9- Drajeel village: Establishment of a school in Izbat Suad Sa'ir and expansion of the Al-Wahda Collective School Basic education and partial replacement of Shawki El-Feqi Preparatory School

10- Amrous village: Partial replacement of Ali Al-Amrousi Secondary School

11- Beshtami village: Partial replacement of Beshtami Primary School

12- Zaweit Al-Baqali village: Expansion of the combined unit school primary education.



Figure 4. A partial replacement in Alshaheedain Basic Education School, Kafr Ashma

5) Discussion

5.1) Assessment of the statistical processing methods

After the responded questionnaire was receipt electronically from the target sample, it was unloaded into an Excel table using methods within the Statistical Package for The Social Sciences (SPSS) version 32, namely the following:

1. Arithmetic mean and standard deviation: to identify the average responses of the sample members on each item of the questionnaire dimensions, then to identify the standard deviation of those responses.
2. Relative Importance Index (RII), or the (relative weight) which helps to determine the affectivity rate of each item and its order within each dimension of the questionnaire. The relative importance is calculated by giving a score for each of the five responses according to Likert scale which are: strongly agree (score 5), agree (score 4), neutral (score 3), disagree (score 2), strongly disagree (score 1). The relative weight could be calculated using the following formula:

Relative weight (RII) = (5 x frequency of “strongly agree” + 4 x frequency of “agree” + 3 x frequency of “neutral” + 2 x frequency of “disagree” + 1 x frequency of “strongly disagree”) / number of sample x 5.

The Likert quintuple range in which the relative weights range into five equal categories is divided into the following relationship:

Likert range for the response = 1/5 of the total range, or dividing 100/5 that gives 20. So, Likert quintuple range starts from 0.20. Table (4) shows the corresponding range for each five responses or degrees of importance in items and dimensions of the questionnaire

Table 4. The Likert quintuple range corresponding for each response

Likert Relative Weight (RII)Values	Degree of approval
1.0 – 0.80	too high
0.79 – 0.60	high
0.59 – 0.40	medium
0.39 – 0.20	low
0.19 – 0.00	too low

5.2) Distribution significancy of schools benefited by “Decent Life” program in study area

The implementation plan of benefitted schools during the first stage of Decent Life program in Menoufia governorate covered 44 schools in only two of its nine districts, Ashmoun and Alshuhada. This total number forms a humble percentage (3.2%) of the 1352 schools in the governorate, (Table 5).

Table 5. Schools in Menoufia districts. Jan. 2022

District	Primary	Preparatory	Second General	Sec. Agri.	Sec. Comm.	Sec. Indus.	Sec. Sport	Total
Ashmoun	134	65	16	1	7	2	-	225
Shebeen	108	51	20	2	4	6	1	192
Menouf	109	48	14	2	5	4	1	183
Quesna	85	39	16	1	4	6	-	151
Albagour	87	41	10	-	4	3	-	145
Tala	64	35	12	1	3	2	-	127
Berket Alsaba	64	25	11	-	4	4	-	108
Alshuhada	49	30	10	-	2	2	-	93
Sadat	36	20	7	1	1	3	-	68
M. Gov.	736	414	126	8	34	32	2	1352

Source: Egyptian Education Gate, (<https://egyedu.net/Result>)

Ashmoun district is the largest one in Menoufia Governorate in terms of the number of villages, as it includes 54 villages, representing 17.2 % of the 313 villages in the governorate. Therefore, the district has the largest number of schools equivalent to 16.6% from the total in Menoufia. Anyhow, the thirty schools that benefited from the Decent Life program in Ashmoun district form 13.3% of its all-kind schools. In contrary, Al-shuhada district that has 27 villages (8.6 % of Menoufia) shares by 6.88% of Menoufia schools. The fourteen schools that benefited from the Decent Life program in Al-shuhada district form 15.0% of its all-kind schools.

Most benefited schools in the two districts belong to Basic education (Primary and Preparatory stages).

A degree of concentration for benefited schools is noticed in some villages, namely, Samadoun & Shamma in Ashmoun, and Kafr Ashma & Drageel in Alshuhada.

5.3) Interpretation of the empirical study results

1- The results of the study showed that the total average of the respondents' responses to the survey items was 3.8 degrees out of 5, which is higher than the arithmetic mean (2.5 degrees), but it is still insignificant. On the other hand, the relative weight of the questionnaire reaches a high level equal to 0.76. This means that there is an influential gap in the support of e-learning strategies equals to 1.2 out of out of 5 degrees. This gap requires greater activation of e-learning strategies for students in schools.

2- It is clear from (Table 6) that the total average of the sample individuals' responses to the phrases of each dimension of the study lies between 3.5 and 4.2 degrees out of 5 degrees, a value higher than the arithmetic mean (2.5 degrees). The average relative weights of those phrases range between 70% and 84%.

Table 6. The average responses for the importance of the questionnaire as a whole

Dimensions		average	Relative weight		Order
1	Attitudes towards developing and establishing schools through the decent life initiative	4.2	0.84	Too high	3
2	Technological infrastructure in the established and developed schools through the decent life initiative	3.8	0.76	High	2
3	Technological awareness among school students and teachers in schools that have been developed through the decent life initiative	3.5	0.70	High	1

3- It was found that the first dimension of attitudes towards developing and establishing schools through a decent life initiative achieved a score of 4.2, which is a very high degree, meaning that it is the most verified dimension for the examined sample. This is because most of the sample are students and teachers who have in advance touched the most recent developments of e-learning in their schools.

The second dimension related to the technological infrastructure in the established and developed schools through the decent life initiative, has a high score of 3.8, owing to upgrading and replacing copper communication lines with

faster fiber-optic ones in technological infrastructure in villages, as well as giving Tablets to students in the secondary stages and some primary stages in smart schools.

The third dimension concerning the technological awareness of students and teachers in the school benefited by the decent life initiative, has also a high score of 3.5 degree. This dimension was supported only by training courses through the ministry of education to raise awareness among students or teachers,

4-The results about of the relative weights and average order of the six phrases (1-6) included in the first dimension are shown in (Table 7).

Table 7. The overall results of the study sample's responses to the first dimension

Attitudes towards developing and establishing schools through the decent life initiative in your district		Average	Relative weight	
1	I know that the Decent Life initiative has developed schools in Ashmoun and Al-shuhada districts in Menoufia Governorate	4.1	0.82	too high
2	I work or study in schools developed or established by the Decent Life Initiative	4.4	0.88	too high
3	The schools developed by a decent life really needed to be established and developed	4.4	0.88	too high
4	School infrastructure was good and met all our needs before development process	3.9	0.78	High
5	I felt the positive traces of school development incident in my village	4.4	0.88	too high
6	Developed schools meet specific study needs well	3.8	0.76	High

It is noticed that all phrases except the fourth one has high average grades exceed 4 degrees indicating to the importance of the decent life initiative and its impact on the development of schools, especially the new construction of schools in places of overcrowded students, or at risk of falling due to the old building schools.

5- The results of the second dimension (Table 8) show that the phrases from (7-17) related to the technological infrastructure in the studied schools fell within the order of an average ranging between (3.4-4.8) degrees, which is higher than the arithmetic mean of 2.5 degrees.

Table 8. The overall results of the study sample's responses to the second dimension

Technological infrastructure in the established and developed schools through the decent life initiative		Average	Relative weight	
7	Technological infrastructure was good and efficient in schools before the development of a decent life initiative	3.7	0.74	High
8	The development of the technological infrastructure in schools made the education process better and easier	3.5	0.70	High
9	The school you study or work in has been upgraded technologically	3.4	0.68	High
10	Each classroom has an interactive display	3.5	0.70	High
11	In each classroom there is a normal display screen	4.1	0.82	too high
12	Computer labs were provided in the schools that were developed through a decent life initiative	2.8	0.56	Medium
13	In every classroom and in every corridor, there is an internet signal booster unit	4.8	0.96	too high
14	Internet speed at school remained the same or became lower	4.4	0.88	too high
15	Internet speed in villages where fiber optic networks have been developed has become better	4.7	0.94	too high
16	Every school has servers for communication	3.7	0.74	High
17	The developed infrastructure supports modern e-learning technologies	3.6	0.72	High

It is remarked that all the previous phrases, except the twelfth one, have a high average score exceed 3.4 degrees. Most of those phrases focus on the extent to which students and teachers feel and make efficient use of the technological development occurring in the infrastructure. On the other hand, the twelfth phrase, obtaining low average score of 2.8 degrees, indicating a low satisfaction with the Internet connections and with the plan for renewal the technological laboratories in schools.

6- The results of the third dimension (Table 9) show that its eight phrases (18-25) addressing the technological awareness among students and teachers in the studied schools have been approved within an average score ranging between (2.2-4.8) degrees.

Table 9. The overall results of the study sample's responses to the third dimension

Technological awareness among school students and teachers in schools that have been developed through the decent life initiative		Average	Relative weight	
18	Teachers or students were trained to use advanced technology in teaching prior to implementing the Decent Life Initiative	2.2	0.44	medium
19	Technology awareness raising workshops have been conducted for teachers or students through the Decent Life Initiative or its strategic partners	2.4	0.48	medium
20	Teachers and students have the necessary technological skills to deal with the technology used in the teaching process	3.9	0.78	high
21	Introductory meetings were held by the school administration or the educational administration with teachers or students to clarify the development taking place in schools, whether from new construction or raising special efficiency in the technological infrastructure.	4.2	0.84	high
22	Introductory meetings were held with parents to familiarize themselves with the development taking place in schools, whether from new construction or raising the efficiency of a special technological infrastructure.	4.3	0.86	too high
23	Teams of teachers have been formed to plan for the implementation of e-learning in schools	2.1	0.42	medium
24	Teachers and students use computers or tablets	4.8	0.96	too high
25	There is a plan for the directories to build the technological skills of teachers and students	4.1	0.82	too high

It is clear that five phrases (the twentieth, twenty-one, twenty-two, twenty-four and twenty-fifth) have a high average score exceeds 3.9 degrees. Most of those phrases concern the extent to which students and teachers feel the skills of

using tablets or computers as a result of the educational system applied for more than four years. As for the three phrases: eighteenth, nineteenth and twenty-third, with an average below 2.5 degrees, they denote to doing exercises or providing courses to students or teachers through a decent life initiative to raise technological awareness.

6) Conclusions

6.1) Concerning results of the empirical study:

- A decent life initiative has significantly affected the development of the infrastructure for the establishment and development of schools in the current research sample
- The technological infrastructure for Internet connection has been effectively upgraded, which has a positive impact on the research sample.
- The infrastructure of computer labs in schools, especially primary and middle schools, still needs to be developed, improved, and increased in the number of devices or converted to a personal tablet system, as applied in the secondary stage.
- Students and teachers still need to raise technological awareness in general, as well as raise awareness of e-learning strategies, methods and tools applied in pre-university education, whether through trainings by the Dignified Life Initiative or through the Ministry of Education.
- All measures of digital programs and services come under an integrated strategy to develop Egypt's educational system, that will see a significant shift towards digital learning methods. Ministry of Education and Technical Education has activated the remote education system during the period of suspension owing to the Corona Pandemic (Covid-19) (SSCHR, 2022: 8).

6.2) concerning the analytical investigation of e-learning strategies capability to improve education quality and development sustainability in rural communities, the study tested the following three assumptions:

- The first assumption: **“The e-learning initiatives in focus have potential to scale up to enterprise-wide application”**. This assumption is valid, because of the E-learning facilities set up in Egyptian schools before launching the Decent Life Initiative have witness high spread and promotion embedded in the initiative programs.

- The second assumption: **“The creative work of the enthusiasts that drive the e-learning initiatives deserves greater acknowledgement than it currently attracts”**. This assumption is valid, as it noticed that the huge notifications by the State government, ministry Of Education and, ministry communication and Information Technology in specific, do not matter at the same level in the awareness among teachers and students relating the necessity for applying E-learning strategies.
- The third assumption: **“The investment of time, effort and resources in the e-learning initiatives could achieve greater educational and economic returns if appropriate forms of support were available”**. This assumption is valid, because there are varieties of rural communities in terms of environmental, economic, cultural circumstances, such as. In small scale, communities of Menoufia villages. So, the full success of e-learning initiatives is tied up to availability of appropriate forms of support provided to those communities.

7) Recommendations

7.1) The proposed e-learning strategies in the schools of a decent life in the Egyptian villages could include:

- Making use of e-learning techniques and digital libraries during class activities
- Focusing on virtual trips and experiences in what is not easily accessible from direct knowledge resources
- Conducting the exams and tests via the multiple choice in paper and not electronically until the full security of the communications network is available at the time of conducting the tests through communications and information networks.

7.2) Some strategies outlined by Trucano (2014) could be benefited in raising the quality of eLearning education in Egyptian villages such as:

- Sharing one device with lots of people can bring about lots of interesting benefits to children outside of formal schooling. Caching on-line content for offline use in places where Internet connectivity is sporadic, unreliable, or intermittent innovative.
- Developing content and tools locally in places where learners are not familiar to language for which lots of educational content already exist in digital formats.

7.3) The effectiveness of implementing the rewarding mechanisms to the Moodle courses via E-Learning Platforms has been confirmed by various Romanian researchers (Donath, et al, 2020). Moodle Learning Management System (LMS)

allows gamification of the on-line courses to some extent using separate plugins such as Level Up, Stash, Game, Quiz venture and similar.

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Appendix one

A survey of teachers and students about supporting e-learning in schools developed within the initiative of the decent life in Menoufia Governorate

Teacher/student information:

Position: (teacher/student)

Gender: Male/ Female

The stage in which you teach or study:

The school address:

The current survey aims to determine the extent of satisfaction with the development of the decent life initiative in developing schools to equip them to support e-learning.

Dear teacher/student: please, you are required to express your opinion about each of these statements, by placing a mark (√) in the cell that agrees with, namely: Strongly Agree, Agree, Neutral, Decline, and Strongly Disagree.

I- Your attitudes towards developing and establishing schools through the decent life initiative

N	Statements	Strongly Agree	Agree	Neutral	Decline	Strongly Disagree
1	I know that the Decent Life initiative has developed schools in Ashmoun and Al-shuhada districts in Menoufia Governorate					
2	I work or study in schools developed or established by the Decent Life Initiative					
3	The schools developed by a decent life really needed to be established and developed					
4	School infrastructure was good and met all our needs before development process					
5	I felt the positive traces of school development incident in my village					
6	Developed schools meet specific study needs well					

II- Technological infrastructure in the established and developed schools through the decent life initiative

N	Statements	Strongly Agree	Agree	Neutral	Decline	Strongly Disagree
1	Technological infrastructure was good and efficient in schools before the development of a decent life initiative					
2	The development of the technological infrastructure in schools made the education process better and easier					
3	The school you study or work in has been upgraded technologically					
4	Each classroom has an interactive display					
5	In each classroom there is a normal display screen					
6	Computer labs were provided in the schools that were developed through a decent life initiative					
7	In every classroom and in every corridor, there is an internet signal booster unit					
8	Internet speed at school remained the same or became lower					
9	Internet speed in villages where fiber optic networks have been developed has become better					
10	Every school has servers for communication					
11	The developed infrastructure supports modern e-learning technologies					

III- Technological awareness among school students and teachers in schools that have been developed through the decent life initiative

N	Statements	Strongly Agree	Agree	Neutral	Decline	Strongly Disagree
1	Teachers or students were trained to use advanced technology in teaching prior to implementing the Decent Life Initiative					
2	Technology awareness raising workshops have been conducted for teachers or students through the Decent Life Initiative or its strategic partners					
3	Teachers and students have the necessary technological skills to deal with the technology used in the teaching process					
4	Introductory meetings were held by the school administration or the educational administration with teachers or students to clarify the development taking place in schools, whether from new construction or raising special efficiency in the technological infrastructure.					
5	Introductory meetings were held with parents to familiarize themselves with the development taking place in schools, whether from new construction or raising the efficiency of a special technological infrastructure.					
6	Teams of teachers have been formed to plan for the implementation of e-learning in schools					
7	Teachers and students use computers or tablets					
8	There is a plan for the directories to build the technological skills of teachers and students					