



# Using the educational tablet: An evaluation study of teachers' and pupils' views in Egyptian primary schools

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## Abstract

The current study contributes to revealing the perceptions of primary school pupils and teachers of using the educational tablet, its advantages, and disadvantages, by answering the research question: what are the teachers' and pupils' perceptions about the advantages and disadvantages of integrating the educational tablet in primary schools? The researcher used the descriptive research methodology. The research sample consisted of 306 pupils' and 8 teachers in five primary schools in Egypt during the 2020–2021 academic year. Data collection was based on questionnaires filled in by the pupils without the help of their teachers. The positive and negative dimensions of tablet use were analyzed. The findings indicate that pupils have a positive attitude towards using tablets. There was no variance between teachers' and pupils' attitudes towards the use of the educational tablet as they both agreed on the advantages resulting from the use of the tablet in classrooms, and that the tablet has become a supportive tool in the classroom. The positive attitudes include but are not limited to the following: ending the problem of carrying school bags and printed books, learning has become enjoyable through using an e-book, learning contents contain more interactive materials through cartoon animation, music, and after-lesson exercises. The tablet has a lot of potentials such as browsing, perusing, and communicating with peers and teachers. The results show the positive attitude of teachers towards the use of the educational tablet as it contributes to increasing pupils' motivation towards learning, increasing academic achievement, improving interaction among them, and developing teachers themselves through free readings and watching videos, drawings, and images.

**Keywords** Educational tablet · Learning technology · Primary school pupils · E-Learning

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## 1 Introduction

The world is witnessing many technological and high-tech challenges, in addition to cognitive and cultural advances. As a result, life has changed in economic, social, and cultural terms, so technology has been an important and prominent element in building society. There has been an interest of the new technical and technological progress to raise a generation capable of keeping pace with this development.

In the vision of technical development, all components of the educational context have been affected, so teachers' role has been changed from transmitting knowledge to facilitating the learning process through designing the learning environment, diagnosing pupils' levels, selecting appropriate educational materials for pupils and guiding them until the required goals are achieved. Moreover, pupils' role has been changed as a result of the emergence of technical innovations; pupils are no longer passive recipients, but rather active and positive participants. Learning has become pupil-centered, not teacher-centered and school programs have also been affected by the emergence of technical innovation. This influence included curriculum components such as objectives, content, and teaching methods, as well as activities methods of presentation and methods of evaluating pupils (Al-Saeed & Ahmed, 2015).

Multimedia technology plays an important role in providing academic materials to pupils. The studies of Van Deursen, Ben Allouch, & Ruijter (2016). Ricoy & Sánchez, (2019). Pruet, Siang, & Farzin (2016). Nassif (2018). Ivus, Quan, Snider (2020). Haßler., Major., & Hennessy, (2016). Goodwin (2012). El-Behairy (2017). Dündar, & Akçayır (2012). Al-Hammar (2021) proved the effectiveness of teaching materials using multimedia technology such as tablets and computers. In addition, multimedia technology attracts pupils' attention and provides an easy and useful informative content for pupils (Norfadilah, 2015).

The tablet is a computer device distributed on android operating system with screen resolution 1024×600, screen size 7 inches. It has a touch screen that can open many electronic documents in many file extensions such as, doc, docx and pdf, in order to help pupils to improve their educational performance (Dündar & Akçayır, 2019).

Al-Saeed and Ahmad (2015) defined the tablet as a small laptop computer larger than a mobile phone in size, which works with touch screen technologies. The screen is compatible to use of a digital pen; instead of using a mouse and a traditional keyboard in computers. The tablet enables pupils to interact with it, and it has a virtual lab for developing and mastering practical skills in academic courses.

The researcher states that the educational tablet is a mobile electronic phone that contains some educational programs and applications connected to the internet which are useful in facilitating the learning process and increasing chances of effective communication between pupils, teachers, schools and parents. The integration of educational tablet in primary schools will help the decision-makers' overview of implementing any project related to the educational tablets in primary schools.

The advantages of using educational tablets Nassif (2018):

- Ease of use, information storing and sharing.
- Facilitating the process of direct communication between parties concerned of the educational process inside and outside schools.

- Making a lot of attractive learning resources available in less time and faster, using it as an assistant in doing homework.
- Enabling teachers to use multiple learning methods that are compatible with pupils' needs and characteristics, the thing that helps in overcoming individual differences among pupils and consequently leads to improving school performance.
- Reducing the costs of printing school books, and that it is easy to store information in tablets in addition to their light weight.
- Enabling learners to perform faster visual perception processes and write scientific reports, for example: pupils' documentation of their field and scientific trips.
- Improving pupils' skills in dealing with technology and enhancing their intellectual creativity through self-research-based knowledge methods.
- Helping teachers in evaluating pupils easily and it also saves effort and time consumed in the evaluation process.
- Facilitating learning simulations for pupils.

As mentioned above, it is clear that the use of tablets in education is of great importance. Tablets serve specific educational and training goals that cannot be implemented with traditional educational methods. On the other hand, tablets contribute to a long-term effect on pupils' learning retention and help them to develop their skills, knowledge and experiences. Tablets enhance learning with pleasure through a combination between learning while playing and audio with video materials.

Dündar & Akçayır (2012) indicated that tablet computers should be used in schools because they make learning enjoyable and that they represent the best way to end the problem of carrying school books in addition to the fact that tablet computers are much lighter than regular computers and textbooks. The results of study showed that doing homework using tablets is easy, besides finishing homework in a short time.

Al-Huneini., Walker., & Badger (2020) discussed the effect of tablets on activity systems (such as staff collaboration and partnership between teachers and pupils) of a rural primary school and concluded that tablets contributed to supporting the technological knowledge of teachers, which had a great impact on the education process and use of technological tools. The study concluded that pupils' desire towards using tablets either at home or at school has increased and that some pupils used tablets as a means of entertainment and enjoyment.

Dündar and Akçayır (2019) showed that one of the positive aspects of tablet computers is the ability to download any educational program or external application, in addition to acquiring the skill of writing on tablets without pens. Tablet computers positively affect social communication and they orientate some pupils towards a passion for learning.

Vrasidas (2015) indicated that teaching using technological tools or means may take less time than traditional time if pupils and teachers have the ability to use those means and the technological skills related to their operation in addition to the ease of access to the internet.

An Nahas (2013) concluded that the integration of educational tablets will help schools review the available capabilities of using information and communication technology, and added that teachers also need to use. The study indicated that there are priorities for teachers' technological training needs.

Based on the above mentioned, the integration of technology in the teaching and learning process should be expanded in accordance with local capabilities. The success of the tablet experience depends on readiness of schools and their resources, readiness of operating systems and provision of working technical personnel. Computers have begun to be used effectively in teaching and learning environments and the use of computers in education has different global dimensions due to the widespread use of the internet. Therefore, many countries aim to increase the use of computers in education. Since 2010, the iPad and touch-screen tablets have gained wide acceptance in schools (Walczak & Taylor, 2018).

In the United States of America, tablets popularity was continuing to rise and the marketing of educational tablets improved by 103% during 2012. Schools that allowed pupils' to bring their own smartphones increased, approximately 25%. Pew Research Centre's Internet and American Life Project indicate that tablets are being used by 43% of teachers and students in the USA (Clarke., Svanaes, & Zimmermann, 2013). Clark indicated that American pupils felt that the tablet benefited them in several ways such as the access to many utilities such as searching, communication, dictionaries, presentation software, and note-taking on a single device. Some pupils felt that the tablet helped in certain areas, example in writing and spelling.

In addition, tablets work to provide adequate wireless capabilities to serve every pupil within school community, expand the possibility of communication outside the classroom so that pupils can access and obtain information in a fast manner. In order to ensure the successful integration of technology into teaching and learning experiences, there should be a focus on the skills of technology to ensure that graduating pupils possess 21st century skills (Smart Schools Commission, 2014).

In Europe, England has relied on tablets to provide an educational environment to facilitate access to information and communication technology learning sources anywhere and at any time. The aim of using tablets is to enhance self-learning and stimulate cooperative learning between teachers and pupils (Balanskat., Bannister., Hertz., Sigillò., Vuorikari, & Kämpylis, 2013). Samsung Corporation has established e-school projects in England through providing teachers and some classrooms with personal devices, such as Windows 7 Series 7 multi-use version that works with touch, Galaxy Tab or Galaxy Note devices that run Google Android. The school software package includes Samsung's interactive management solutions, which include a mobile learning management system and pupil information system solution. The main goal of the program is to provide effective personal technology-based learning in addition to a classroom solution that provides a digital educational package made up of Samsung tablets, internet service provider and software. The Android-based system enables teachers to see their pupils' screens and turn them off if necessary. Teachers can display their pupils' screens on an interactive whiteboard (Jack, 2013).

In Asia, Singapore has responded quickly to the expanded use of tablets in education through providing a tablet for every child in schools across the country since 2013. Pruet et al. (2016) found that pupils with less technology experience were more likely to develop severe anxiety from tablet use. In contrast, pupils who had high experience had a better acceptance of the use of tablets in education. They believed that using tablet computers is fun, exciting, and useful for learning in the classroom.

South Korea has also begun preparing schools for tablet transformation. It has adopted a learner-centred education rather than the traditional teacher-centred one, since it is more meaningful and pivotal. Those efforts exerted in the development of educational applications that are used on these smart devices, which are operable across platforms such as Android, Apple OS and WP7. It is expected that educational applications will contribute to achieve self-orientation which focuses on learners and creative learning (Shuler, 2012). Applications can also be used on multiple devices to aid in their automation processes within classrooms and thus they introduce new ways of learning (Zwang, 2020).

In March 2019, the Government of Ontario, Canada, announced a new vision of its education system by integrating tablets into schools and focusing on new technology in classrooms entitled “Education that Works for You” These efforts aim at continued progress of a new online learning system (Ivus, et al., 2020). Some of the pupils’ interest in tablets is due to their feeling of being more comfortable when using digital technologies and tools. Also, teachers who run this technology enable pupils to use computers and mobile devices to express themselves through presentations and digital videos. Additional methods of technology are applied in these schools such as tablets, smartboards, e-wallets, class websites, blogs, Facebook, YouTube, and Word Press. Shaltry, Henriksen., Wu., & Dickson (2013) indicated that all these methods promote collaborative learning, self-research, and participation in the learning process. In addition, teachers’ use of tablets will enable them to integrate new technologies into their teaching in ways that benefit their students, colleagues, and a larger learning community.

Countries such as Australia, America, England and Turkey have made relatively high investments to increase the use of tablet computers in schools; the Australian government spent about 4.3 billion dollars on educational technology in 2019. In America, Department of Education spent more than 700 million dollars of its educational technology budget. According to British Educational Communications and Technology Agency (BECTA) data, it allocated 1 billion pounds for spending on its educational technology products in 2018/2019 (Dündar & Akçayır, 2019).

Turkey also spent 1.5 billion Turkish liras (750 million dollars) on the IH project, which was launched by the Ministry of National Education (MNE) in 2010, through which it resulted in the distribution of (tablets) devices to about (10.461.944) pupils, besides the distribution of presentation devices and computers to all schools from the first grade of primary school to the third grade of secondary school. About 400 teachers have been trained in experimental schools (MNE, 2013).

Egypt has followed the approach of developed countries in integrating technology into the educational process, so the Ministry of Education has developed a new philosophy, aiming to shift towards full utilization of information and communication technology and its tools as a means of spreading, sharing and forming knowledge, through the signing of partnership agreements between the Ministry of Education and the Ministry of Communications and Information Technology, which has resulted in many projects such as: the smart school, the electronic portal, the knowledge bank, e-government in schools, the electronically-computerised curricula and the educational tablet project.

The educational tablet project came in line with the vision of the Ministry of Education calling for the integration of technology into the educational process. In 2018/2019 the ministry began developing the pre-university education system through increasing the interest in integrating technology in education, so it distributed “tablets” to pupils and provided schools with technological infrastructure of fiber, internal networks and interactive screens. In contrast providing additional content on the Egyptian Knowledge Bank in cooperation with international companies to facilitate the task of pupils understanding of the topics (Egyptian Knowledge Bank, 2018).

Ministry of Education stated that integrating technology into the educational process aims to develop pupils skills in using technology, which is one of the most prominent features of the 21st century. By using electronic examinations the ministry of education can avoid the problems of cheating, exams leakage and guarantee the accuracy of marking pupils’ exams besides reducing their grievances. (Al-Bawaba News, 2019).

Al-Hammar, (2021) mentioned that the Egyptian Ministry of Education in the first phase, distributed 220.000 Samsung Galaxy Tab A6 tablets with advanced capacity with total estimated cost of 500 million pounds, as it comes with 3 GB RAM, 8 MB rear camera and processor Octa-core, with a speed of 1.6 GH, the tablet screen size is 10.1 inch. It is not allowed to download any external programs other than the educational programs specified by the Ministry through the Egyptian Knowledge Bank. Student depends on the school’s internet while they are inside the school, but at home they depend on the data chip of smartphone.

El-Behairy (2017) conducted a study in Egypt on a sample consisting of 120 pupils divided into two groups, 60 pupils from the fourth grade and 60 from the fifth-grade primary, in addition to a sample of 30 teachers. The study proved that tablets play a positive role in the educational process. The study recommended the use of modern technologies in the educational process that leads to the implementation of international quality standards, including all aspects of the educational process to achieve these goals.

Nawar (2019) conducted a study on some secondary schools in Egypt, using the opinions of 62 experts in education and technology education. He pointed out that educational tablet is the most important educational technology for students in schools to get access to the education system. Using the educational tablet to provide pupils with simulation programs and interactive environments through interactive educational tools and methods is important. Whether these methods are through direct communication between students and teachers or through asynchronous communication at different times, where each student receives learning resources at a suitable time. All of these contribute in creating an interactive environment between students and teachers. The interaction between students and their peers and the students’ with the educational content facilitate the learning process in direct and indirect methods.

In response to this tremendous development and progress of knowledge, information and communication technology, the necessity of using technology in education and teaching increased. Experiences and studies have shown a success in using tablets and the accompanying technological applications in schools in improving the

learning and teaching processes. Educational institutions face a challenge imposed by successive developments in scientific and technological projects. There should be an expansion in technological projects in schools to face this development, with the aim of making schools become “electronic schools”.

Due to the fact that this study was conducted in Egypt, this requires a reference to the current situation of primary education in Egypt. Primary education is the first cycle of basic education that represents compulsory and free education in governmental and non-governmental schools. At this stage, education is provided to all individuals, males and females, in rural and urban areas. The span of primary education extends from the age of six until the age of twelve (Ministry of Education, 1981).

The policy of education in Egypt states that education for all children in Egypt is a right funded by the Egyptian government represented in the Ministry of Education (Ministry of Education, 1981). Acts (19), (80), (238) of the Egyptian Constitution also stresses that: ‘All children have equal access to high-quality education, including children of minorities living in Egypt in light of rapid economic and social growth and with the aim of improving the quality of education, provided to all primary education pupils’. The Egyptian constitution guarantees basic education as free and compulsory education, with a commitment to provide learner-centred education and to enhance student and teacher learning using information and communication technology (Egypt’s Constitution, 2014).

Nevertheless, several indicators showed persistent weaknesses in the quality of primary education in Egypt after several years of improvements in education. In the 2019 Global Competitiveness Report, primary education, especially in remote areas of Egypt, ranked 93 out of 141 countries (World Economic Forum, 2019).

The strategic plan for education in Egypt (2014–2030) also showed that there are many educational problems that have weakened the efficiency and effectiveness of primary education in Egypt, the most important of which are the traditional curricula and their poor matching with modern trends, the lack of availability, the increase in classroom density, and the low provision of students with sufficient opportunities for innovation, creativity and critical thinking, as well as the weak training of teachers on technology, the slow integration of information and communication technology into the teaching and learning process, as well as the spread of dropout and failure problems. This led to low quality of education, the absence of optimal use of educational technology, low school attractiveness, and creating a gap between educational outcomes and the needs of society (Ministry of Education, 2014).

Concerning the technological institutional capacity of schools in Egypt, the studies of Al-Hammar (2015), Salahaddin (2018), Hamdi (2019), Abdulaziz (2019), Abdel Moneim (2019), Moussa (2019) drew attention to problems facing the integration of technology in schools, such as: poor technological infrastructure, lack of technologically qualified teachers and lack of students’ experience in dealing with digital devices.

Regarding the aforementioned problems, the Ministry of Education provided schools with educational tablets to improve the quality of education in schools and to get rid of these problems. Therefore, the current study investigated the use of tablets in the fields of education, its advantages and disadvantages. In order to verify

the extent to which pupils' and teachers use tablets in education and their pros and cons that appeared through their use. The current study surveys the opinions of some primary school teachers and pupils' about using the educational tablet and its advantages and disadvantages.

In the current study, the hypothesis discussed the possibility to use the educational tablet in primary schools. Accordingly, the current study will answer the question of 'what are pupils' and teachers' perceptions about the advantages and disadvantages of integrating the educational tablet in primary schools?'

In answering the previous question, the contributions of the current research are to reveal new findings about the integration of tablets into classrooms in primary schools. The general aim of the current study is to analyse the process of using tablets in primary school, and to present what can be unique in this subject so that those who are responsible for the development of primary education in Egypt can:

- Raise the level of attention to pupils' needs and making them a starting point for preparing curricula, activities and educational programs.
- Accelerate the establishment of a good digital infrastructure in primary schools, so that they are equipped with technological devices and means that contribute to the application of modern educational methods.
- Achieve the principle of 'Education for all' while providing a kind of equal educational opportunities for all pupils'.
- Develop Curricula in a way that they become learner-centred with the use of information and communication technology.
- Attract pupils' to attend school regularly.
- Draw the attention of educational leaders to the importance of linking economic development with the integration of technology in the educational process, and considering it the main factor in the progress and development of education.
- Adopt online teaching and doing homework on digital textbooks that can be carried be out via a tablet.
- Create a kind of suspense and passion for studying, and increasing pupils' motivation to learn and academic achievement.
- Accelerate the pace of digital transformation in Egyptian schools, side by side with the preparation and training of teachers in schools, so that schools become "digital schools".

## 2 Methods

In this study, using tablets by pupils were investigated. Teachers help in the management of data collection on pupils' attitudes towards tablet, the research team used classrooms to help in data collection. By aiding the teacher of classroom to introduce research team to the pupils then, the research team explains the aim of the current study and distributes questionnaire sheets. For clear understanding of questionnaire, teachers read the questions in a loud voice and the research team assists pupils with their questionnaire when they meet problems.



## 2.1 Participants

There are 695 primary schools in Qena Governorate, Egypt. Five of these primary schools were used in the study because they were more easily accessible. Tablets were distributed to all of the 6th-grade pupils at the primary schools. Schools were selected for this study in a random way and classrooms, teachers, and pupils were randomly distributed in the school selected.

There are 440 6th grade pupils at the selected schools, and paper-based questionnaires were distributed to all 440 pupils. However, 306 questionnaires were returned as a valid and non-response error and the sample size decreased from 440 to 306. The rest of the questionnaires were 134 not returned. The sample size of this research consisted of 160 male pupils (52.3%) and 146 female pupils (47.7%) The participants were 6th grade students between the ages of 12 and 13. In addition to the pupil survey, interviews were conducted with primary school teachers who volunteered, agreed to the interview and revealed their views about the tablet. These selected teachers are actively using tablets during their lessons as all teachers at the other primary schools.

During the interviews, the positive and negative effects of classroom tablet use, the ways that teachers use tablet in their classes, and their expectations of tablets were discussed. Each teacher was interviewed (which took between 20 and 30 min) separately and made by researcher by directing open-ended questions to teachers about their perceptions of the advantages and disadvantages of the educational tablet, the researcher told the teachers to record the interviews audio and receive verbal consent from them. Interviews allowed us to gain data about tablet usage during the lesson in their own words. Participant numbers, distributions according to schools and gender are presented in Table 1.

## 2.2 Ethical considerations

Informed consent was received from all participants, including pupils, school management, and pupils' parents. All personal data are anonymized including names and precise locations of the schools. The pupils' opinions were collected through a questionnaire. The pupils did not want to be video recorded but audio recordings were made of interviews with teachers. Ethical approval was received from the Ministry of Education in Egypt.

## 2.3 Data collection procedure

The study used a questionnaire developed by Pruet., Siang., & Farzin (2016) was used for evaluating the pupils' attitudes towards tablets to clarify pupils' percep-

**Table 1** The study sample

	Gender	Total	Percentage
Student questionnaire	Male	160	52.3%
	Female	146	47.7%
Teachers interview		8	

tions about the possibility of integrating the educational tablet in primary schools. An interview was conducted after the implementation of the reading test to obtain opinions from all of the students and teachers, audio recordings were made of interviews during the 2020–2021 academic year (September of 2020 to February 2021).

The questionnaires compose of 27 items. The items were presented on a three-point Likert scale (ranging from ‘Yes’ to ‘No’). As a result of exploratory factor analysis, a two-dimensional structure explaining 47.95% of the total variance was obtained. According to the confirmatory factor analysis, fit indices of the model were calculated as GFI (0.85), CFI (0.96), NFI (0.91), RMSEA (0.06), CFI (0.96), AGFI (0.82) and SRMR (0.06) (Table 2).

**Table 2** The dimensions of the tool of the study

Dimensions of the questionnaire	The dimension	Number of items
The first dimension	The advantages of the tablet	14
The second dimension	The disadvantages of the tablet	13

**Table 3** Correlation Coefficients between items and dimensions in the study tool (n=27)

The first dimension		The second dimension	
Item number	R	Item number	R
1	0.778**	1	0.495**
2	0.763**	2	0.757**
3	0.680**	3	0.442**
4	0.588**	4	0.783**
5	0.741**	5	0.752**
6	0.714**	6	0.543**
7	0.807**	7	0.668**
8	0.842**	8	0.740**
9	0.747**	9	0.659**
10	0.695**	10	0.776**
11	0.779**	11	0.747**
12	0.763**	12	0.718**
13	0.842**	13	0.625**
14	0.752**		

**Table 4** Correlation coefficients between dimensions and the overall score of the study tool (n=27)

Dimensions	R
Advantages of the educational tablet	0.919**
Disadvantages of the educational tablet	0.967**

### A- Validity of the questionnaire.

To verify the validity of the questionnaire, the Correlation Coefficient was calculated on the scores of individuals on each phrase and the total degree of the dimension to which it belongs.

Table 3 indicates that the values of the correlation coefficients are statistically significant at the level of significance (0.01).

Table 4 shows that all the values of the correlation coefficients are statistically significant at a level of significance (0.01), and this confirms the internal coherence of the questionnaire.

### B- The reliability of the questionnaire.

To calculate the reliability of the resolution, Cronbach-alpha method was used. The equation was applied to the pilot sample,  $n=45$  pupils, and the reliability of the study sample was verified. Cronbach-alpha equation is based on the variances of the questionnaire questions, and requires that its items measure only one characteristic. Therefore, the researcher calculated the reliability factor for each dimension separately.

Table 5 indicates that the values of the reliability coefficient range between 0.87 and 0.90, which are high values, as all the reliability coefficients function at the level of 0.01, which indicates high level of reliability of the questionnaire.

The KMO statistic (0.865) and the significance level of the Bartlett test ( $p < .000$ ) was psychometrically acceptable, skewness was 1.065 and kurtosis 2.874.

### C. Method of calculating the responses in the questionnaire.

There is no specific time for the response, as pupils choose between a three-dimensional histogram of the responses (yes - somewhat - no) and given yes=3, somewhat=2, no=1, to answer the questionnaire statements for positive phrases, and vice versa for negative phrases, Then, each score is collected after obtaining the dimensions of the questionnaire, and all the phrases of the questionnaire to obtain the total score, and the higher the test scores on the four dimensions of the questionnaire, the higher the responses, and vice versa.

### D. Teachers' interviews.

In addition to surveying students and using audio recording, interviews were conducted with 8 teachers in 5 primary schools in Qena Governorate. The teachers' occupational specializations varied, as interviews were conducted with (2) science teachers, (3) mathematics teachers, and (2) English language teachers, and (1) Arabic and religious education teacher. For gender, there were (3) female teachers, and (5) male teachers. After taking the consent to interview the eight teachers and register their views on the tablet. The selected teachers actively use tablet computers during their lessons. During the interviews, teachers were asked: What are the advantages

**Table 5** Values of Cronbach's alpha coefficient of reliability ( $n=45$ )

The dimension	Number of items	Cronbach's alpha Coefficient $\alpha$
Advantages of the educational tablet	14	**0.90
Disadvantages of the educational tablet	13	0.87**
Total	27	88.0**

and disadvantages of using a tablet in the classroom? After the interviews were completed, the audio recordings were unloaded, and the positive and negative opinions about the tablet were clarified in light of the answers included in the audio recordings.

### 3 Results

Correlation coefficient analysis was used to test the hypothesized relationships between pupils and teachers' perceptions about the advantages and disadvantages of integrating the educational tablet in primary schools.

#### 3.1 Students' perceptions about the advantages and disadvantages of the educational tablet:

Table 6 clearly indicates that:

Phrase No. (14), which states that 'The tablet has ended the problem of carrying school bags' came first according to the pupils' point of view, with a relative weight of (3.0) and with an approval degree of (Yes).

The phrase (12) which states 'I like reading books using the tablet' came in second place according to the pupils' point of view, with a relative weight of (2.89) and with

**Table 6** The results of the educational tablet advantages dimension N = (306)

Phrase	Responses						RW	SD	Rank
	Yes		somewhat		No				
	K	%	k	%	k	%			
1 I find out about a lot of knowledge sources on the tablet	232	75.8	44	14.4	30	9.8	2.66	0.651	14
2 The tablet will help me broaden my intellectual abilities	278	90.8	14	4.6	14	4.6	2.86	0.460	4
3 Studying with the tablet is exciting	260	85.0	22	7.2	24	7.8	2.77	0.579	10
4 I feel self-confident when I use the tablet	254	83.0	20	6.5	32	10.5	2.73	0.641	12
5 The tablet is an interesting tool	240	78.4	40	13.1	26	8.5	2.70	0.619	13
6 I want to use the tablet at home	289	91.5	14	4.6	12	3.9	2.88	0.434	3
7 The tablet will help me develop my personal skills	268	87.6	20	6.5	18	5.9	2.82	0.519	9
8 The tablet has a lot of potential	274	89.5	10	3.3	22	7.2	2.82	0.539	6
9 The tablet is useful outside the classroom	260	85.0	20	6.5	26	8.5	2.76	0.593	11
10 The tablet is useful inside the classroom	274	89.5	20	6.6	12	3.9	2.86	0.450	7
11 I loved study after using the tablet	270	88.2	24	7.8	12	3.9	2.84	0.461	8
12 I like reading books using the tablet	282	92.2	14	4.6	10	3.3	2.89	0.406	2
13 Doing homework with the help of the tablet will be easier	276	90.2	22	7.2	8	2.6	2.85	0.403	5
14 The tablet ended the problem of carrying school bags	306	100	0	0.0	0	0.0	3.00	0.000	1

an approval degree of (Yes), followed by phrase (6) which states that ‘I want to use the tablet in the house’ in the third place according to the pupils’ point of view, with a relative weight of (2.88) and with an approval degree (Yes) followed by phrase (2), which states that ‘The tablet helped me in expanding my intellectual perceptions’ is ranked fourth according to the pupils’ point of view with a relative weight of (2) (2.86) and an approval degree (Yes) according to the responses of the study sample.

Phrase No. (5), which states that ‘The tablet is an interesting tool’, was ranked second to last according to the pupils point of view, with a relative weight of (2.70) and with an approval degree (Yes), followed by phrase number (1) which states that ‘I find out about a lot of knowledge sources on the tablet’ ranked last according to the pupils’ point of view, with a relative weight of (2.66) and with an approval degree (Yes).

The weighted average, according to the pupils’ point of view of the advantages of the educational tablet was (2.86) and with a percentage of (81.93%), with an approval degree (Yes). This indicates that the study sample responses about the first dimension were all with a high degree of approval.

Table 7 indicates clearly that:

**Table 7** Results of the educational tablet disadvantages dimension N= (306)

Phrase	Responses						RW	SD	Rank
	Yes		somewhat		No				
	k	%	k	%	K	%			
1 The study by using the tablet is boring	16	5.2	26	8.5	264	86.3	2.81	0.510	9
2 The components of the tablet are difficult to understand	36	11.8	8	2.6	262	85.6	2.74	0.657	2
3 I am afraid of touching the tablet	10	3.3	12	3.9	284	92.8	2.90	0.400	12
4 Dealing with tablet makes me worried	18	5.9	12	3.9	276	90.2	2.84	0.502	6
5 The tablet wastes my time without gaining benefit	32	10.5	16	5.2	258	84.3	2.74	0.636	3
6 I spend my time outside school in playing on the tablet	10	3.3	16	5.2	280	91.5	2.88	0.413	13
7 The tablet reduces my interaction with school activities	24	7.8	24	7.8	258	84.3	2.76	0.582	5
8 I share satirical content about my colleagues on the tablet	26	8.5	24	7.8	256	83.7	2.75	0.599	4
9 I upload offensive photos and videos on my tablet	16	5.2	20	6.5	270	88.2	2.83	0.497	10
10 The capabilities of my school are not commensurate with the feasibility of using the tablet	232	75.8	44	14.4	30	9.8	2.66	0.651	1
11 Using the tablet is not appropriate to my health	16	5.2	16	5.2	274	89.5	2.84	0.488	11
12 I use the tablet for amusement more than learning	18	5.9	22	7.2	266	86.9	2.81	0.523	7
13 I am not very good at handling the tablet	18	5.9	12	3.9	276	90.2	2.84	0.502	8

Phrase No. (10), which states that ‘The school’s capabilities are not commensurate with the feasibility of using the tablet’, was ranked first according to the pupils’ point of view, with a relative weight of (2.66) and an approval degree of (No).

Phrase (2) which states ‘The components of the tablet are difficult to understand’, came in second place according to the pupils’ point of view, with a relative weight of (2.74) and with an approval degree of (No), and phrase (5) which states that ‘The tablet wastes a lot of my time without gaining benefit’, came in the third place according to the pupils’ point of view, with a relative weight of (2.74) and with an approval degree of (No), and the statement (8) which states that ‘I share satirical content about my classmates on the tablet’, was ranked fourth according to the pupils’ point of view with an a relative weight of (2.75) and with an approval degree of (No) according to the responses of the study sample.

Phrase No. (3), which states that ‘I am afraid of touching the tablet’, was ranked second before the last according to the pupils’ point of view, with a relative weight of (2.90) and with an approval degree of (No), followed by phrase No. (6) which states that ‘I occupy my time out of school by playing on the tablet’, ranked last according to the pupils’ point of view, with a relative weight of (2.88) and with an approval degree (Yes).

The weighted average, according to the pupils’ point of view, of the disadvantages of the educational tablet was (2.81) with a percentage of (79.83%), with a degree of approval (No). This indicates that the responses of the study sample on the second dimension were all with a very low degree of approval. Where most of the sample members see that there are not many negative aspects of the educational tablet in exchange for the advantages it has.

### **3.2 Teachers’ perceptions about the advantages and disadvantages of the educational tablet:**

After completing the questionnaire, we conducted interviews with 8 primary school teachers where the study hypothesis was implemented using audio recordings over the course of one day.

After unpacking the audio recording by the researcher and when teachers were asked about the advantages and disadvantages of using tablets in the classroom, they discussed the characteristics of tablet that pupils’ used, including positive and negative opinions of tablet expectations. From eight teachers who conducted the meetings, only 25% of them have negative impressions towards tablet use and 75% of teachers have positive impressions towards tablet use.

Teachers demonstrated positive aspects; one teacher stated that “the educational tablet helped the students to learn, and it motivated some students who suffered from a weakness in their educational levels towards the integration of the tablet significantly”. Another teacher stated that “the tablet helped teachers in conducting effective communication between them and the students outside official working hours, and in giving advice to students through social media” and a third teacher stated that “the educational tablet contributed to teachers’ developments as they were browsing the internet to review new educational methods, and it gave them a chance for participation in Egyptian Knowledge Bank, which allowed teachers to view hundreds

of educational videos that include how to use active learning strategies, assessment methods, and various tools”.

While another teacher stated that “the educational tablet allows displaying educational videos, illustrations, animations, games and images that attract the attention of students and they interact more with these tools during the learning process, so that the students’ levels improved in the first monthly tests following the implementation of the tablet”.

On the other hand, negative aspects of teachers’ perceptions in using the educational tablet “when pupils started using tablets, pupils’ study was affected negatively and their interesting and analyzing abilities decreased” The teacher in the interview gave an example supporting this idea and stated that “when teachers ask pupils a question and tell them to do research about a topic, only one type of answer is given as they all use the similar tool of the internet in the same way”. Other teachers reported that “because of the absence of computer skills, they are not able to prepare learning presentation, they take more time to make course content and to make one lesson presentation they have to spend three to four hours, teachers need training on using tablets and preparing presentations”.

The teachers concluded that tablet usage has positive and negative characteristics and sometimes pupils’ attention to lessons increases and be able to have the chance for more research, but on the opposite side, pupils may use the internet for additional activities far from education by sending messages to each other.

To sum up the teachers’ opinions, they believe that the use of tablets in schools represents a development and qualitative transfer of education in primary schools in light of the digital transformation of public education in Egypt.

## 4 Discussion

Pupils’ attitudes and expectations in using the educational tablet were examined in the first year in five primary schools. The 306 pupils who participated in the study gave a positive attitude towards tablets. The weighted average, according to the pupils’ point of view, of the advantages of the educational tablet was (2.86) and a percentage of (81.93%), with an approval degree (Yes).

On the other hand, the weighted average according to the pupils’ point of view of the disadvantages of using the educational tablet reached (2.81) with a percentage of (79.83%) with a degree of agreement (No). This indicates that the responses of the study sample in the second dimension were all very low degree of approval.

By comparing the results of the first and second dimensions, most of the sample members see that the disadvantages of the use of the educational tablet are less than its advantages. This indicates that the study sample responses came in favor of the educational tablet advantage, which is consistent with the results of the previous studies.

The detailed studies conducted by Nawar (2019) and El-Behairy (2017) in Egypt. These authors report on the importance of tablets being used in providing interactive environments, and how this contributes to education development through improving the use of information and communication technology in teaching and learning

processes within the school. In addition to providing the student with the opportunity to access the available educational materials on the Internet, supporting individual learning more effectively, and facilitating students' access to the available digital content or e-books on the educational tablet as well as promoting equal opportunities in education for all students.

Many studies described positive attitudes and pupils' enjoyable interacting with tablets activities that helped in the development of learning techniques (Dündar & Akçayır, 2012; Huang, Liang., Su., & Chen, 2012; Furió., González-Gancedo., Juan., Seguí., & Costa, 2013; Nedungad., Raman., & McGregor, 2013; Ward., Finley., Keil., & Clay, 2013; Liu., Lin., & Paas, 2014; Haßler et al., 2016). Educational tablets are easy for students to carry and tablets are appropriate for pupils (Clarke, et al., 2013; Li, et al. 2010). The use of the tablet system can be used to develop pupils' participation in class (Agostiniet al., 2010).

According to pupils' comments, the underlying reason why they had a positive attitude is that they found tablets useful. Pupils see that the educational tablet experience is one of the most creative and intelligent procedures that help them increase their performance in aspects of knowledge, motivation and educational satisfaction. It also represents a unique form of learning that includes the benefits of both traditional learning techniques as well as modern e-learning technologies to provide the best form of learning. Goodwin (2012) study was conducted with three schools in Sydney, five teachers, over 90 students, and 75 iPads were used. The findings indicated that both teachers and pupils thought that tablets supported and enhanced pupils' learning through enhancing engagement and motivation, as well as improving face-to-face and online collaboration amongst pupils. also, Dündar & Akçayır (2012) indicated that a number of pupils stated that their interest in cooperation in the classroom has increased through the use of tablets.

Pupils' desire to dispose textbooks and use tablets instead because the tablet is a tool that facilitates information, expresses the culture and the skills of this generation. Educational tablet is effective in the integration of modern technology in the education process as a part of developing primary education. In fact, the tablet provides a world-class learning environment for pupils, as well as saving great sums for the government as distributing the tablet is much cheaper than printing textbooks. When compared to the tuition fees and traditional individual interactions, the tablet is the best option for administrators and pupils. Moreover, the teaching and learning experience provided by the educational tablet is pleasant and enjoyable for both teachers and pupils. The tablet allows users to computerize audio communication, create online class groups, and make pictorials and graphics more entertaining learning experience than traditional book reading activities. This finding is consistent with the detailed conclusion of the study of Van Deursen, et al. (2016) in the Netherlands concerning tablet use in the classroom of six primary schools, the important advantages of using tablets in classrooms that can be observed by teachers include; first, increasing interest among pupils who use tablets, second, the learning skills of pupils who have socio-emotional problems increased and, third, tablets have enhanced concentration among others pupils.

According to the pupils, tablets are preferred due to their lighter weight and that they are much easier to use than the traditional computers and they ended problem



of carrying old-style textbooks. Pupils who use tablets are said to be highly applied, enjoyable, and they find education entertaining and highly meaningful. Pupils stated that “homework is easier with the tablet”. Some pupils specified that their interest in classes improved with the use of the tablet. Carr (2012) recommended that giving pupils continuous access to technology outside schools may aid to improved learning outcomes.

Other pupils stated that “they were less interested in tablets because tablets dispersed them in the study and textbooks are necessary for education”. This finding is in agreement with other studies; Gikas and Grant (2013) indicated that there are some defects which should also be taken into account, tablets as a media can act as a distraction for students. Moreover, continuous progress of technology and software makes some resources become outdated in a short time. However, the main difficulty and reluctance for tablet integration in the process of teaching and learning has been found to be based on the ‘improper use’ of technology. According to Hwang and Chang (2011) and Geer., White., Zeegers., Au., & Barnes, (2017), the availability of tablet technology does not guarantee its effective use in an educational environment; just looking forward to a new technology does not certify its efficiency for learning. Some studies have revealed that using modern technology in classes produces an extra workload, and teachers must make some additional primary preparations for lessons (eg. Al-Fudail & Mellar, 2008).

Teachers think that problems that face pupils in using tablets can be summarized in following reasons; tablets are not used in a typical and suitable education method, some teachers did not allow pupils to use tablets due to the fact that they make distraction from lesson topics and other teachers thought that tablets should be regulated as monitored of all pupils was impossible. Ricoy., & Sánchez, (2019) with 76 primary education students aged between (6–11) in the northeast of Spain, showed that teachers confirmed that students should care for tablets and deal with them appropriately. Teachers tell pupils to place tablets on tables correctly and turn tablets on when they start suggested tasks.

The important point of teachers and pupils in dealing with tablets is the need of extra supplies to integrate tablets in education. Number of materials and applications that are important to use in tablets may not be enough and teachers suggested that special platform for these materials is the best action. Johnson., Levine., Smith., & Stone, (2010) showed that dealing with online resources is very important in the development of technology. In addition, the tablet increases communication between students and teachers, as well as the desire to access learning in areas where this access is difficult. This result is consistent with the findings of the current study, which clarified the role of the educational tablet in improving communication and the pleasure of learning between students and teachers.

Generally speaking, this study presented some findings that enrich the literature regarding the use of tablets by pupils and teachers in primary schools. The study identified the most significant advantages and disadvantages that pupils’ and teachers perceive about the experience of using the educational tablet. It showed the need to greatly enhance the use of the characteristics of the tablet and its potentialities in teaching primary school pupils’, in particular due to the digital gap resulting from the lack of complete readiness of pupils’ to use mobile devices in school and the high

level of digital illiteracy of teachers in simultaneously with the spread of the tablet use in schools in Egypt.

Despite the fact that previous literature has addressed the benefits of using tablets in the educational process, we find that there is very little relevant literature. Hence, current scientific knowledge on the topic is still scarce and does not allow us to limit the scope of educational activities that are carried out with the use of tablets.

Our study in the literature review resulted in 11 studies that dealt with the advantages of the tablet in various aspects of the educational process and showed the positive attitudes of students towards the use of tablets and its effect on the academic performance of student (Pruet., et al., 2016), (Ricoy., & Sánchez, 2019), (van Deursen., et al. 2016). The studies also investigated differences between the two genders according to the levels of education, and some of these studies indicated that the use of tablets seems to have great benefits for weak learners compared to the average learners (Al-Huneini, 2020), (Carr, 2012). In addition, increasing the weak learners' technical expertise of using the tablet will improve their learning outcomes (Al-Hammar, 2021) (El-Behairy, 2017). Also, when pupils become more familiar with technologies such as computers, the Internet, mobile phones, and tablets they will have more confidence or less frustration (Dündar., & Akçayır, 2019), (Ivus., et al., 2020), and increases their cognitive acquisition more effectively than pupils who have less technical experience (Goodwin, 2012), as well as, increasing the students' academic achievement in various curricula and subjects (Haßler., et al., 2016).

In the current study, we made use of the literature to support our current findings. Moreover, the findings of our study enhance our knowledge about the advantages and disadvantages of using the educational tablet in primary schools in an emerging digital learning environment such as Egyptian primary schools through our interviews. Our interviews showed the classification of uses that students make in the classroom and at home, in addition to the activities they work on.

Moreover, our findings help improve our understanding of education and facilitate greater knowledge of the educational technological context, thus contributing to better planning and development of more innovative educational practice through the use of tablets. Furthermore, our findings draw the attention of the teachers and make them aware of these issues, and contribute to providing appropriate teaching and learning diversification for students who have learning difficulties. The use of tablets also contributes to reducing the gap between average and highly intelligent students, through the possibility of accessing learning anywhere, as well as reducing the expenses of education for students in poor areas, and looking at the tablet as an additional learning tool instead of textbooks. Thus pupils enjoy learning and the use of tablets alleviates their anxiety and increases their acceptance of the use of technology. Not only that, but teachers also acquire the necessary technological competencies to implement digital transformation in education within schools. Technological competencies enhance their ability to employ technology in teaching and increase effective communication between teachers and their pupils at school or at home.

## 5 Conclusions

According to the analysis of the results of the survey which was conducted and evaluated about the experience of using the educational tablet, it was found that the educational tablet has more positive effects on teachers and students, and therefore it could be useful if it is introduced in primary schools. With regard to the advantages of the educational tablet for pupils: it ended the problems of carrying school bags and was a reason for the pupils' love to read scientific books and learn about various sources of knowledge, in addition to its contribution to broadening pupils' intellectual perceptions and that it helped pupils finishing their homework faster and in a short time because of its capability of saving effort and time. The educational tablet includes many options such as browsing and communicating with colleagues, teachers and school management. These properties have greatly benefited pupils inside and outside classroom, which made teaching and studying a great pleasure as the tablet creates a kind of excitement. Also, tablets encourage pupils to explore the contents, methods of usage and their capabilities of these tablets for pupils such as: browsing and downloading sources of knowledge and recognizing everything new in the local and international educational field. Also, pupils used the capabilities of tablet such as watching classroom lessons through available educational channels videos, training in electronic evaluation and the easy access to knowledge, information and data available on the internet. Furthermore, pupils can get the results of their tests and other options that the educational tablet provides to them. All of this has created a great interest in the practice of learning for pupils through the educational tablet.

The benefits of the educational tablet are not limited to pupils only, but teachers will also benefit from the integration of the educational tablet in primary schools through training teachers to deal with the tablet that helps teachers in informational literacy. Moreover, teachers' technological knowledge will increase when they look at explanatory information of using the tablet. This includes how to operate and browse what tablets contain in terms of applications and working on smart boards, video cameras...etc. Additionally, the other helping tools of tablets within schools are that tablets allow teachers to find out learning sources and enhance their professional self-development. Indeed, teachers' possession of tablets will allow cooperation among teachers with each other electronically, using specialized social media networks besides finding innovative ways for teachers to exchange sources and advice with other educators in learning best practices. The educational tablet provides teachers with the technological skills and competencies that help them in the teaching process.

## 6 Recommendations

In order to provide the basic requirements for integrating the educational tablet in primary schools, the study researcher recommends the following:

1. Providing trained technical specialists to use the technological tools in schools and maintain them periodically.

2. Equipping school buildings with the necessary facilities to introduce modern technology.
3. Providing various alternatives to fund the integration of technology in education.
4. Reinforcing cooperation and solidarity among primary education leaders that leads to the success of educational tablet system.
5. Developing teachers' preparation system in line with the integration of the educational tablet in primary schools.
6. Qualifying and training technical mentors for electronic work in schools.
7. Providing appropriate material support to establish school's infrastructure to enable schools to activate and support information technology practice theoretically and practically, especially classrooms, laboratories, stadiums, schoolyards, workshops, training rooms and others.

Finally, a future study is recommended to pursue this research point by answering the following questions:

- How has previous tablet ownership affected the use of school-provided tablets?.
- Are there any gender differences towards the use of tablets?

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