

**MARG ADULT LITERACY LEARNING
WITH CELL PHONES STUDY**

**Reinforcing Literacy and Numeracy Skills
through Use of Cell Phones**

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CHAPTER I: INTRODUCTION AND METHODOLOGY

I. Executive Summary

Use of a limited set of cell phone learning materials was tested in Marg; a poor section of urban Cairo. A group of facilitators worked with technical advisors from the Education Reform Program (ERP) to introduce some teaching ideas and exercises in their classes that are centered around the learning of ways to use simple cell phones for making calls, calculating numbers, finding addresses (using contact lists), sending holiday greeting messages, and texting. Following some discussion and coordination with concerned technical advisors from ERP, six facilitators from the Adult Education Authority (AEA) introduced applications of cell phones into their classes back in November 2007. The main reasons were to meet the demand of the few learners who had expressed interest in learning how to use cell phones, and to test out a set of simple instructional materials related to use of simple cell phones that might eventually prove useful in developing a learning module for use in the literacy classes. The special target was the usual nine-month-long functional literacy course that AEA offers to prepare for a successful outcome on the official adult literacy proficiency exam that is currently used in Egypt.

In response to the demand for assistance in using simple cell phones expressed by a few AEA facilitators in the Marg Idaara, six facilitators in Marg and ERP adult literacy field staff in Marg undertook to develop a simple pilot curriculum module to assist learners to use cell phones, SMSs, contact addresses, calculation, and other functions, and to reinforce basic literacy and numeracy skills learners acquire in the literacy classes. Following introduction of letters and numbers and other basic symbols, the facilitators gradually blended use of cell phones with the literacy curriculum. The curriculum consists of three units: 1) how to use the landline telephone; 2) how to use the calculator professionally; and 3) how to use the cell phone with a main concentration on sending and receiving SMS's.

Almost one year later, World Education Inc. (WEI) and ERP field staff returned to Marg and inquired if and in what ways the six teachers and a non-random sample of a small number of former learners from the six classes last year had benefited from being exposed to some practical uses of cell phones to reinforce basic concepts of numeracy and literacy. Using a structured interview, a seasoned member of the World Education Egypt, with logistical assistance by the ERP staff in Marg, carried out interviews with five of the six teachers and a collection of some 20 former learners, who could be located and be convinced to devote their scarce time to an interview. The conversations the interviewer had with the five teachers surfaced some interesting observations, as well as some views expected but not expressed. Likewise, the twenty learners, although in no way representing a systematic sample, also pointed out some interesting reactions and views that

increased our picture of how the cell phone materials – as rudimentary as they were – were received.

The reactions cited from the participants to this initiative, whether learners or teachers, largely demonstrate their appreciation for being a part of such a unique learning process, to wit: “use of cell phones is effective, in terms of enhancing retention of literacy and numeracy skills among the literacy learners involved in this opportunity”. In addition, the involved teachers felt that they could serve as “excellent role models for other AEA teachers in other administrations”.

II. Introduction

During the implementation of needs assessment tools (related to AEA and using PRA) and after analyzing the data, it became clear that some illiterates come to the integrated literacy classes because they need to communicate with their husbands, who work outside Egypt, they need to send them SMS's or receive either from them, and/or from their relatives in Upper Egypt and elsewhere in the country. They need also to communicate with their sons and daughters while they are outside home or during the school day. They need to check on their children using the cell phone, which makes them free to contact their children if they are out anytime through the day. Finally, it is obvious from use in class and after class - as learners practice what they have learned in a family and community setting - that using the cell phone SMS and contact address systems confers significant pride and perceived status. This opportunity has encouraged the field workers and supervisors to incorporate the use of cell phones in the literacy classrooms. It is worth noting that the pilot activity was carried out in Marg more than a year ago to explore the use of cell phones as part of the menu approach in AEA classes.

The pilot cell phone module was introduced by facilitators in six classes in November 2007. A different group of six other classes were led by experienced facilitators not using the module curriculum. Attempts were made to reduce bias, e.g., while the 6 facilitators without the cell phone module knew of the pilot study, their learners did not. Within the six classes taught with the module, strong efforts were made to ensure a ratio of at least 1 cell phone to 5 learners. There were about 15 learners per class.

The literacy exam results of those learners, who were in the six classes, were relatively positive. They were compared to learners in the other six classes where cell phones were not used as part of the learning curriculum, and their results in both the arithmetic- calculation part of the exam, and the reading and writing part were higher (30% calculation and 10% reading and writing) than those not exposed to cell phone learning. While not representing a systematic comparison, there appears to be some indication that test scores among those with cell phone materials introduced as part of the instruction did at least as well or better than the learners who did not use cell phones in their literacy course. This might suggest that at the least the introduction of cell phones did not deter learners from learning the material required for the literacy exam. Annex (1) portrays the score of learners in the six classes, where cell phones were introduced, and six other classes going on in the same timeframe. In addition, in the interviews conducted earlier with the six teachers, they suggested a number of ways they thought which we might eventually see some benefits to introducing a cell-learning module into the adult literacy classroom. They outlined the different ways in which the teachers thought there might be detectable impact from a well-designed and well-administered cell-phone-learning module (see Annex 2).

In summary, the purpose of this evaluation activity is to describe the situation that has been observed and recorded, more than one year later, and to document any discernable differences among learners in the six literacy classes in which cell phones were introduced as part of the set of learning materials. In these classes the module and use of cell phones for learning letters, numbers, phonetics, reading, writing, calculation, and texting, appear to have given a boost to the motivation and speed of learning. It is worth noting that all the respondent learners passed the final literacy exams successfully.

III. Research Purpose, Objectives, and Methodology

Design of the Questionnaires and Interview Methodology

World Education designed two questionnaires to measure the impact of integrating cell phones through using a set of learning materials in the AEA classes. The questionnaires, which included a list of illustrative questions related to the content of specific areas of knowledge, were solely shaped by the practices promoted by this pilot initiative in the literacy classes. The main goal of this study was to solicit feedback from the six teachers, and a sample of former learners from the six target classes, about their learning experience with the practical use of cell phones to reinforce their basic literacy and numeracy skills.

The teacher's questionnaire was administered to explore and document teacher's experiences while using the cell phone to teach literacy and numeracy in the literacy classes. The data collection process was designed to document the impact of the use of cell phones on literacy learners from the teachers' perspective towards cell phones, and to probe opinions and teaching experiences with the cell phones.

With the exception of the first section, the learner's questionnaire was applied in an interview style in order to limit any language-skill related difficulties that may arise if respondents were asked to read and/or write. The learner questionnaire included structured, semi-open and open-ended questions. An aim for the interview was not only to collect information that can be analyzed quantitatively, but also to elicit open-ended views of learners to build insight and collect quotes that may be useful for proposals, report writing, follow-up, etc.

Using a structured interview format, a seasoned member of the World Education, with logistical assistance from the ERP literacy team, conducted intensive one-on-one Arabic-language interviews with five of the six teachers and a non-random sample of 20 former learners out of approximately 90 learners in the six classes who could be located and be convinced to devote their scarce time to an interview.

Further background of the rationale for exploring the potentials for cell phones is found in Annex (2). The columns indicate potential benefits that might accrue to learners who learn literacy by incorporating lessons that include cell phone use, literacy and numeracy.

Overview of Respondent Sample of Learners and Teachers

The study included five out of the six AEA teachers, who participated in the pilot initiative of introducing cell phones in literacy classes. All teachers in the study were women. One of the teachers involved in this process could not participate in this study. This was largely due to logistical limitations and time constraints of the

study. Obviously, the teacher was not available the day and time that the interviewer visited the particular site of interview.

A non-random sample of 20 learners was drawn from a wider population (i.e. from all learners of every teacher included in the teacher questionnaire). This decision was made after taking into account constraints of logistics, time and the vast size of the learner population. As expected, most of the learners included in this study were women, approximately half of whom were married. Table (1) gives an overview of the respondents' data. This table details the number and demographic data of learners interviewed in the study in Marg.

Table 1: Number and demographic data of learners interviewed in the Marg study

Gender:	Male Respondents				Female Respondents				Totals
Marital status:	Married		Single		Married		Single		Married: 9 Single: 11
Age Groups:	25&<	>25	25&<	>25	25&<	>25	25&<	>25	
Totals	0	1	4	0	5	3	5	2	20

Limitations of the Study

The specific approach and methodology to be used depended in part on the resources at hand. An ideal approach would ensure a systematic sample of learners in the six classes according to a range of categories to be considered. A key aim would be to briefly assess current literacy skills, including reading, writing, use of numbers, and use of cell phones, where appropriate.

CHAPTER II: PRESENTATION OF TEACHER DATA

I. Quantitative Analysis of Teachers Responses

The purpose of the teachers' questionnaire is to explore the experiences that teachers had while helping their learners to use cell phones to reinforce their basic literacy and numeracy skills. In general, the teaching experiences reported by the literacy teachers were very positive. All the teachers interviewed expressed their appreciation for being provided with this opportunity of incorporating cell phones to teach their learners. They also reported that their learners were enthusiastic about using cell phones to reinforce their literacy and numeracy skills.

When literacy teachers were asked if cell phones should be used in the literacy classes, a remarkable of 80% strongly agreed that it should. Teachers who had some concerns regarding use of cell phones in their literacy classes explained that not all their learners own or have access to cell phones in the classes. According to some teachers, this would compromise the results and outcomes expected from this learning opportunity. However, they all concurred with the statement that using the cell phone helps teachers with teaching literacy and numeracy.

About 80% of the respondent teachers felt that cell phone learning experiences help foster good teaching for adult literacy, and increases the opportunity for integrating cell phones in other areas of the curriculum for reading, writing, and numeracy. They also cited that cell phones offer the literacy learners an opportunity to develop their four capacities; i.e. being successful learners, confident individuals, responsible citizens, and effective contributors. A strong majority of the literacy teachers felt that teaching using cell phones was not difficult. Among those teachers who did report difficulties, their main concern was that not all their learners had access to cell phones in their literacy classes.

Many of the teachers also reported that using cell phones in adult literacy classes increases motivation of learners to join classes and continue attending. One of the respondent teachers agreed with reservation. She stated that learners join the literacy classes anyway to receive their literacy certificates. However, she also emphasized that cell phones can encourage and motivate learners to continue their classes. In addition, 80% of the interviewed literacy teachers disagreed with the statement that introducing cell phones in adult literacy context wastes the class time and hurts the learning process. One of them, however, noted that cell phones have to be rationally used in the classroom setting.

About 40% of the literacy teachers felt that unless learners have a cell phone, it is not fair to use them as a learning aid in the literacy class. One teacher indicated

that it is highly recommended that each learner should have his/ her individual cell phone. She added that if this is not available, then learners could share cell phones with each other. One teacher felt that individual learners should have his or her own cell phone, in order to maximize the outcomes of the learning opportunity.

Table (2) documents the information gathered from the respondent teachers, which is analyzed quantitatively, and which is rated against a continuum of 'strongly agree', 'strongly disagree', 'agree with reservation', 'disagree with reservation', and 'do not know'.

Table (2): Responses Shared by Respondent Teachers and Analyzed in a Tabular and Quantitative Format:					
Statements/ Questions Provided to Respondent Teachers	Five-Point Scale				
	Strongly Agree	Agree with Reservations	Do not Know	Strongly Disagree	Disagree with Reservation
Using the cell phone helps teachers with teaching literacy & numeracy.	4	1	0	0	0
Cell phones learning experiences help foster good teaching for adult literacy.	4	1	0	0	0
Use of cell phones in literacy class increases the opportunities for integrating learning in other areas of the curriculum.	4	1	0	0	0
Using cell phones in adult literacy classes increases motivation of learners to join class and continue attending.	2	1	1		1
Taken together, literacy and numeracy skills and cell phone experiences provide opportunities for development of four capacities (i.e. successful learners, confident individuals, responsible citizens, and effective contributors).	5	1	1	0	0
Using cell phones in adult literacy class helps learners retain what they learn.	4	1	0	0	0
Using cell phones in adult literacy class wastes valuable class time and hurts the learning process.	0	0	0	1	4
If I had my choice, I would not bother with using cell phones in my literacy class. They are too much of a distraction.	0	0	0	0	5
Unless all the learners have a cell phone, it is not fair to use them as a learning aid in the literacy class	2	0	0	1	2

II. Literacy Teachers' Responses, Testimonials and Reactions

The following section provides an illustrative and intentionally balanced summary of the detailed findings and key responses shared by the teachers during the interviews conducted with them.

- a. What do you see as the main strengths of combining literacy and numeracy skills with cell phone experiences?
 - We have different learners with different learning styles. Some were highly excited to manipulate with new things. Others were less excited. In the slums, some people do not perceive the value of cell phones. However, after having tried cell phones, they found out that cell phones are of a great value. Now, they take cell phones as their companions. They have changed their mind. I am very pleased. In the beginning, I was quite worried. I myself was concerned about how to introduce cell phones in my literacy class in an effective way. After having used cell phones for a while, my learners were able to cut down the transportation cost and reduce the time taken when they had to travel long distances to visit their parents, friends, children, etc. Today, they can communicate with their relatives, parents, etc., using a cheaper means of communication. Initially, we started with six cell phones in the class, including the teacher's cell phone. Later, learners began to save money to buy used cell phones. However, some could not afford buying one.
 - Cell phones are a supplementary tool. Instead of having to carry notepads as they go to and come from the class, learners now use cell phones to keep track of things that matter to them. They feel more proud of themselves; having learned how to use cell phones. Cell phones enabled them to acquire new skills, and become more adapted to their community. This will sustain their skills. Sometimes they send me text messages (although their text messages sometimes include some spelling mistakes). I take much pride in that.
 - Cell phones are increasingly replacing traditional calculators. They make math easier. However, with literacy, we introduce cell phones four months following the start-up of the teaching process. These are very helpful, especially with texting and calculation. Having learned how to use cell phones, one of my female learners started to text her fiancé. A second one, could not go to her work one day, and was able to text her employer to explain to him the reason why she did not show up. It is an important, supplementary tool, especially in the teaching of numeracy and literacy skills.

- The learners were happy using the cell phones. I produced a diagram, with a picture of a cell phone, in order to teach them how to use them. Only a couple of them had cell phones at that time. However, they were not quite willing to share their cell phones with other classmates. They wanted to maintain privacy and confidentiality.
- b. How far did using the cell phone help the teachers with teaching literacy and numeracy?
- Using cell phones makes teaching more comfortable and appealing. However, when learners make spelling mistakes, they need to be corrected immediately. After a while, it becomes usual that they text each other as they demonstrate mastery. This enhances their relationships. Their network of relationships becomes more expanded.
 - This approach, using cell phones, helped me tremendously. It is an exciting tool to attract the attention of learners. It helped me to bring everyone on the same page. Cell phones help learners become tuned on the same wavelength. Cell phones are becoming more popular and affordable.
- c. How did using the cell phone help you teach literacy and numeracy?
- Cell phones encouraged my learners to write whatever they wish to write, and to relate their learning process to their real life situations.
 - Letters are written on the keypad. It is a mutually reinforcing and impactful process. Sometimes, I would write math problems on the board and ask them to solve them on their cell phones.
- d. In what ways could integrated literacy, numeracy and cell phone learning approaches be developed further?
- Cell phones are a good tool. At the outset, literacy learners might need financial support. We need to have someone to support us. The majority of learners do not have any cell phones. Here, they live in slums. They cannot afford having cell phones, as they can hardly provide for their families and keep them barely alive. We need donors to help us with this initiative.
 - With the introduction of active learning strategies, cell phones can be used as a fundamental tool to reinforce literacy and numeracy skills. However, this will require more effort by the teachers in the beginning. After a while, teachers will only serve as facilitators or promoters. Learners will own the learning process. We only try to get their feet into the door.

- In terms of texting, cell phones are becoming so important. My learners appreciated the fact that texting is less expensive than making phone calls. Communication becomes more affordable. During the time I was using cell phones in my class to help learners, my mom had to be hospitalized. My learners kept calling and texting me to check on my mom's health.
 - Cell phones are particularly important, especially when we try to help learners to gain integrated literary skills. Sometimes, they would text their daughters, sisters, mothers, children, etc., to check on their health. Mostly, they send brief messages to them.
 - Cell phones can be used as an introduction and as a supplementary tool.
- e. What kind of professional development opportunities are needed to help teachers incorporate cell phones in teaching literacy and numeracy skills to their adult learners?
- Teachers may need some more creative ways of teaching literacy and numeracy through cell phones.
 - In Egypt, we have a common saying that literally translates as: *'a smart woman can do spinning and weaving with a donkey's leg'*. I believe we are up to this job, in spite of the limited resources. In terms of cell phones, there are different cell phone models. I need to learn more about how to use different models and develop familiarity with cell phones. In as much as I am qualified with literacy and numeracy, I need to acquaint myself with how to use the English letters in texting, as well as the English numerals. Now, learners use more sophisticated cell phones, with additional properties. We need to be more familiarized with these advanced models.
 - Out in the market, there are different models, with different technologies. For example, I need to know how to access the internet on my cell phone. Some learners asked if I could help them to access the internet on their cell phones. I really need to learn more about different properties of different models.
 - We need to receive further training. Cell phones have more properties than merely using them to dial up numbers and call others. As teachers, we need to receive training in these different properties.
- f. In sum, how can cell phones learning experiences help foster good teaching for adult literacy?
- I do not know. However, we are the real process owners; cell phone learning experiences will benefit others.

- I strongly agree. Cell phones help me gain the confidence I need to help my learners acquire the skills they ask for. I can help them to get over their feeling of intimidation and fear. I have been able to master proper techniques of how to use cell phones to teach literacy and numeracy skills.
- g. How does use of cell phones in literacy class increase the opportunities for integrating learning in other areas of the curriculum for reading, writing and numeracy?
- Use of cell phones will allow for integration of math and literacy skills. I have seen this happening.
 - Regular calculators are less appealing. Cell phones serve different purposes. They have different properties and functions.
 - When we help our learners out with dictation, it is important to spell out words letter by letter. Using cell phones allows learners to spell out letters and look for these letters. Cell phones help them to organize their thinking. However, in terms of numeracy, learners have to master the skills first, before we get them to use and practice numeracy using calculators.
 - I strongly agree. Learners use cell phones to practice the literacy and numeracy skills they acquire. They use their *contact list* to look for names and words that start or end with different letters.
- h. Using cell phones in adult literacy classes increases motivation of learners to join class and continuing attending:
- Most of the literacy learners, especially women, do not like to learn math. They like to read and write, but not math. However, learning through cell phones motivates them. We have to introduce cell phones progressively.
 - Learners usually enroll because they feel curious to learn more about cell phones. They find out that there are other things they can do with their cell phones than calling others. For example, they feel excited, as they learn how to use different functions and properties on their cell phones, including alarms and reminders. However, retention and continuity of learners in the classroom lie heavily on the teacher. Teachers have to learn how to continue to keep their learners involved.
 - Use of cell phones will ensure that learners will continue in the classrooms. Cell phones are regarded as an adequate replacement of the pen-and-the-paper strategy. Cell phones also provide learners with an opportunity to practice numeracy and literacy skills acquired in the literacy classes. This is called functional literacy. In terms of regular textbooks, learners only acquire

literacy and numeracy skills for the purpose of passing the exam. On the other hand, learners can use cell phones in the future as they travel by buses, as they text others, etc.

- I disagree. Mostly, literacy learners join the literacy classes to receive their certificates.
 - I strongly agree. They can continue to practice texting and reading text messages, after they go home, and after they complete their literacy classes.
- i. Would you agree that taken together, literacy and numeracy skills and cell phone experiences provide opportunities for development of four capacities (i.e. successful learners, a confident individual, responsible citizens, and effective contributors)?
- I wish you could see women in the class receiving calls. They can improve their literacy and numeracy skills and communicative potentials, as they use cell phones.
 - Learners feel more self-confident and comfortable. They know that they can do something and feel good about knowing how to do it.
- j. Does using a cell phone in the literacy class help learners retain what they learn?
- Cell phones are concrete tools that help learners to learn. To teach reading and writing skills, we use active learning strategies. However, it is a double-edged sword. Cell phones can waste time if not used properly and as appropriate. Yet, if used effectively, they can be of a great value, in terms of reinforcing literacy and numeracy skills.
 - Cell phones are handy, and learners can use them at any time and as they wish. Backsliding to illiteracy would not be a problem any longer. This can be genuinely pronounced, especially, when learners learn how to practice reading and writing, through texting. They can practice literacy and numeracy skills all the time.
 - I strongly agree. When my learners began to practice the newly acquired literacy and numeracy skills, they were able to retain what they learn in the literacy classes.
- k. Using cell phones in adult literacy class wastes valuable class time and hurts the learning process. Agree or disagree?
- Everything has its advantages and disadvantages. Using cell phones to learn and reinforce literacy and numeracy skills might not be appropriate for

women of a certain age, or people with disabilities. Again, within the classroom context, we have to segment learners. We have to respond to individual differences effectively. It might waste time in the beginning. However, they will be highly motivated to read and write texts, afterwards. They will feel excited to explore this challenging tool.

- Using cell phones in adult literacy classes breaks routine. It is a new method. It helps teachers break down barriers. Cell phones are a new tool that captures learners' attention. It is very helpful in the classroom.
 - I strongly disagree with this statement. However, this statement can be particularly true only if a few learners have cell phones; thus wasting the class time.
 - I disagree. However, it would only waste the time of those who do not have a cell phone, or who feel embarrassed because they cannot afford buying one.
 - I strongly disagree. However, it would only hurt those who do not have cell phones.
- l. If I had my choice, I would not bother with using cell phones in my literacy class. They are too much of a distraction. Agree or disagree?
- I strongly disagree. The literacy classes provide the learners with access to this service. However, these cell phones have to be Arabic enabled. The keypad has to put in Arabic, as well.
- m. Unless all the learners have a cell phone, it is not fair to use them as a learning aid in the literacy class. Agree or disagree?
- I strongly agree, if we can guarantee that the majority of learners have cell phones that would be great. If we can make sure that each two learners would share one, that should also be good. That would yield good fruits. In addition, privacy has to be maintained.
 - I do not agree. If cell phones are lacking in the classroom, we can always divide learners into groups, and get learners to share cell phones with each other. However, we have to be cautious, because privacy has to be maintained. It is always recommended to get everyone to use his or her phone.
 - I strongly agree. Sharing cell phones can cause distractions. The number of learners with cell phones was limited. Only 4 or 5 cell phones were available in the classroom.

CHAPTER III. PRESENTATION OF LEARNERS' DATA

A second component of this study was to assess the impact of introducing cell phones in the literacy classes to reinforce acquisition and retention of the literacy and numeracy skills from the learners' perspective. As described in the methodology section of this report, the initial section presents a written piece for the learners to complete, including, name, address, family members, phone number, etc. Completing this sheet enabled assessment of the learner's writing and reading ability. The section combined some questions that test literacy and numeracy in addition to family data. Where information was incomplete, additional data were collected in the rest of the interview. The remaining parts of the interview include structured, semi-open and open-ended questions. Although this is not a systematic survey, an aim for the interview was not only to collect information that could be analyzed quantitatively to gain impressions, but also to elicit open-ended views of learners to build insight and collect quotes. Such quotes and testimonials may be useful to not only technical literacy staff and programmers, but also to provide illustrative material for report writing, follow-up, and proposals etc. The learners' questionnaire was field tested and adjusted according to this multi-purposed framework. The following responses from learners provide interesting material to better track the introduction and use of cell phones in the AEA literacy classes – especially the extent to which cell phones as learning tools were valued by literacy learners. This section of the impact assessment study is structured as follows:

- Section A: Written Sheet of Personal Information Completed by Literacy Learners
- Section B: Cell Phone Use
- Section C: Selected Individual Snapshots

Section A: Written Sheets of Personal Information Completed by Literacy Learners

In order to gain a preliminary conception of the level of reading and writing demonstrated by the literacy learners after they have completed their literacy course, the interviewer asked the sample learners to respond in writing to the questions listed in their answer sheets. Interviewer corrected with learners and entered corrections before going to Section B. The following are highlights of the findings identified from the answer sheets:

- The learners elaborated the Arabic alphabets in a very good manner, and did not make any spelling mistakes;

- The learners demonstrated a very neat style of penmanship and handwriting, basic writing skills, and fluency of writing;
- The learners can read in an acceptable way;
- The learners were able to read in a clear manner; and,
- The learners could form sentences using scattered Arabic words, and were good in dictation.

Section B: Use of Cell Phones

The second component of the learners' questionnaire aims to present specific data in relation to the use of cell phones in the literacy classes. The following section records and advances views strongly indicating the validity and the feasibility of using cell phones in the literacy classes. Table (3) provides information about the percentage of learners with cell phones, against those without cell phones, after they engaged in the cell phone learning experiences.

Table (3)			
% of Learners with Cell Phones versus % of Learners without Cell Phones after they engaged in the cell phone learning experience			
	Male	Female	Total
# of Learners with Cell Phones	5	13	18
# of Learners without Cell Phones	0	2	2

As demonstrated in the above table, a total of 18 learners from the sample group of respondents (13 females vs. 5 males) have their own cell phones now.

In response to a question raised about how long they have had a cell phone, responses gathered from the respondents spanned between five years to a few months ago. Specifically, a total of 11 respondents stated that they already had their cell phones before they enrolled in the literacy class. Nine learners from the respondent group stated that they got their cell phones during their engagement in the literacy class, or after they completed the literacy course.

A sizeable percentage of learners noted that their experience in the literacy class influenced their decision to buy cell phones. However, only a few of them, who do not have their own cell phone, or who only recently got a cell phone, indicated that they currently access, or used to get access to, cell phones through family or a vendor.

I bought my cell phone after I joined the literacy class. My teacher helped me to explore and use it. Now, I can text my husband. I can use my cell phone in different ways. I use it in my accounts to keep my financial books and records.

In response to another question about the challenges to getting a cell phone, the following are highlights of key statements shared by respondent learners in this regard:

- Learners might feel challenged and constrained when they know not how to use cell phones. Before I bought my cell phone, I did not feel like I needed it. Now, cell phones are indispensable. I have a cell phone, and my wife too has one of her own.
- Financial constraints can be a key reason factor why literacy learners do not own cell phones.
- Today, you cannot function without cell phones. I use my cell phone all the time, and for different purposes. I do not think that getting a cell phone represents a challenge.
- After I joined the literacy class, I decided to buy a cell phone. I use my cell phone for different purposes. For example, my clients call me on my cell phone. Now, I can read the text messages that I receive on my cell phone.
- I do not think there are any challenges to getting a cell phone.
- Some learners cannot afford getting a cell phone. Money is a constraint.
- Learners may not be willing to getting a cell phone, if they are illiterate, financially incapable, or if they think that cell phones are unaffordable.
- I had a cell phone before I joined the class. However, I never knew how to use it effectively, until my teacher helped me to explore it and manipulate with it.
- Some learners might have financial hardships, or do not feel that these cell phones are much needed. However, I have to say that I use my cell phone now too often.
- Getting a cell phone does not pose a problem; not any more. Many people, more and more, buy cell phones. Cell phones are now prevalent.
- Some learners are ignorant of the key benefits of cell phones.
- I bought my cell phone before I joined the literacy class. However, I learned how to use it properly and effectively after I joined the literacy class. Now, I can send text messages. I can also register names on my list of contacts. My teacher taught me how to use it.

Although I had a cell phone a long time before I joined the class, I used it merely to answer incoming calls. Now, after I learned about the more sophisticated properties. I can send my teacher and classmates text messages. After I became more acquainted with my cell phone, I felt encouraged to buy another cell phone. I have to give credit to my literacy class.

A second area of interest that is measured and assessed by this study was to investigate and verify how frequent the literacy learners, with their teachers, used the cell phone in their literacy classrooms. Most of the responses gathered from the respondent learners spanned between 'often' to 'all the time'. Many of them also indicated that they currently practice and apply the information they acquired in their literacy classrooms using their cell phones. Use of cell phones by the literacy learners in their everyday life ranged the whole continuum of functional activities, in the following order of preeminence: making calculations, texting, using contact list, and voice calls. The following is a bullet summary of the key responses solicited from the respondents regarding the frequency of using cell phones in the literacy classes, and whether learners practice the information acquired in the literacy class:

- We learned more about the English and Arabic alphabets using the keypad. All the alphabets are included on the keypad.
- Of course, we all used to use cell phones to make calls. Now, we use cell phones to text others and reach people in a less expensive way.
- Our teacher used cell phones to teach us the numbers and alphabets. She taught us how to use cell phones in different ways.
- We used the cell phones in the literacy class all the time. Our teacher used to ask us to write down words and sentences on our cell phones. She would always come back to check the accuracy of our answers.
- I do practice the information I gained from the literacy class using my cell phone. Now, I can save names on my contact list. I can read text messages. When I receive calls, I can read the name of the caller, if his/ her name is already recorded to my contact list.
- The alphabets recorded on my cell phone's keypad serve as an opportunity to practice the information we gained in the class in a manner that is related to our real life situations. I use my cell phone to make calculations and to return messages. I use it very frequently in special occasions.
- When we were still in the literacy course, our teacher used to encourage us to text each other. This was a great opportunity for us to practice what we learned during the literacy class.
- Our teacher developed an illustrative poster with a picture of a cell phone to explain to us how to use the keypad, and practice the alphabets and numbers

We used cell phones in the class frequently. Before I learned how to use the cell phone, I used to be duped by the poultry seller. Every time I would do some shopping, my husband had to double check and to verify the prices and weights. This is not anymore the case. I make all the calculations myself.

we learn. This was an effective way to explain how to use cell phones practically, rather than theoretically. She did that because not everyone in the literacy class had their cell phone at that time.

- I use my cell phone to write and send text messages. I also use my cell phone's organizer to keep birthday dates of my close friends and relatives, and keep track of appointments. Now I feel that I can be easily accessed through my cell phone. I also use the calculator to solve difficult math calculations.
- When the teacher first explained to us the alphabets and basic numbers, we were told to use the pencil and paper to practice. However, this stage did not take a long time. Shortly after that, she told us that we can practice writing words and sentences and making calculations using cell phones. This was very interesting and exciting.
- We now practice and apply the information we acquired from the literacy class to read and write text messages. We also used to practice reading and writing skills using cell phones with our classmates. I read the instructions on my cell phone. Before I learned how to read and write, I always wondered about the reason why I would have a cell phone that I cannot use. My teacher helped me a lot. She made me like my cell phone.
- We practice literacy and numeracy skills all the time using our cell phones. I send text messages to my friends and relatives. Texting saves time and money.

Interestingly, the majority of learners emphasized that they use the calculators on their cell phones to make calculations. Although a few of the respondents demonstrated familiarity with voice calls, many of them reported that they either are unfamiliar with this service, or do not feel comfortable using it. It is worth noting that many of the respondent learners appreciated the fact that their teachers were willing to help them to learn more about their cell phones, and to encourage them to apply and practice the information they acquired in their literacy classroom, using their cell phones.

When the learners were asked about how frequent they use their cell phones to make calls on a daily basis, their answers varied largely between two times to 30 or 40 times everyday. Many of the respondent learners reported that they do not keep track of how many text messages they receive every day or week. However, in terms of the frequency or volume of texting they do everyday, some of them indicated that they send as many as 20 text messages on average everyday.

A few learners mentioned that they only send a couple of brief text messages everyday. Only a couple of them reported that they do not send any text messages at all. In most cases, however, brief content of such text messages would be largely limited to: 'call me back', 'will call you later', 'miss you', 'please pick me up', 'I have

run out of credit', etc. They also indicated that they would exchange religious supplications and prayers on their cell phones. They would text their friends and family members to communicate to them urgent information. They also noted that they read text messages sent to them by their telecommunications companies concerning their *remaining credit, extra bonus credit, etc.* Most of them, however, noted that they too often send and receive text messages using their cell phones in special events and occasions, including anniversaries, feast greetings, etc. Interestingly, many of them reported their spouses, parents, siblings, friends, and fiancés/ girlfriends to be the top most frequent receivers of their texting. Barely had any of them demonstrated real knowledge about the use of voice mails or smart phones. Those learners, who knew about these properties, do not really use them.

It is particularly important to note that when the respondent learners were asked about how many classmates in their classes had cell phones; the answers varied largely, and spanned the range between three or four to 20 learners in each. In those classrooms, where there was only a few number of cell phones, there was a split in views gathered from the learners. While some of them said that they shared with their classmates their own cell phones, another group of learners indicated they had problems sharing cell phones in the classroom. The following is a highlight of the key problems and challenges cited by the learners in response to the above question:

I do not think that sharing cell phones with other classmates would cause any problem. In some cell phones, there are folders where you can keep your own private information, and no one else can log in.

- I prefer that everyone should have his or her own cell phones.
- Other classmates would not allow me to share their cell phones.
- Not everyone is willing to share his/ her cell phones.

It was also made clear that many of the respondent learners stayed in touch, by the cell phone, with other learners in the classroom, since they completed their literacy course. In terms of how many of those classmates they did not know before the class started (i.e. number of new friends/ contacts), the responses extended between three or four to ten.

In response to a question about how far the learners feel that cell phones can help reduce backsliding to illiteracy, almost 80 percent of the learners concurred that cell phones are a practical method that helps them to reinforce basic literacy and numeracy skills they gained in their literacy class. Learners indicated that they use their cell phones to remember information, keep their appointments, etc. Many of them agreed that illiteracy is a major drag on the country's economic, social and political advancement. 'If we can not manage cell phones yet, how do we expect to cope with the rest of the world in other fields?'

Interestingly, when the learners were asked about whether they think people need to be literate to make good use of cell phones, or doesn't it matter, most of the learners indicated that it does not matter if users of cell phones are literate or illiterate. However, many of them emphasized that illiterates are less likely to manage cell phones with more sophisticated functions and properties. This is in spite of the fact that some learners noted that users of cell phones have to be made familiar with letters and numerals, before they are expected to handle cell phones, thus suggesting that illiterates cannot handle cell phones effectively. They emphasized that it takes a slightly literate person at least to handle cell phones. Only a few learners expressed their thinking that it is not necessary for people to be literate to use cell phones.

Using cell phones reinforces numbers and letters and can help learners improve their learning. Yes! This is because they can continue to send and read text messages. Cell phones can be useful as a practical tool to reinforce basic skills and knowledge of literacy and numeracy.

Despite the fact that nearly all of the respondent teachers indicated that learners had shared cell phones, learners' levels of knowledge was relatively lower overall. Only 60 percent provided clear examples about how cell phones were used effectively in their classes to reinforce basic literacy and numeracy skills. However, it is unclear if either those learners were not shared specific details about how to use cell phones effectively, or they did not sufficiently understand this information.

Many of the learners emphasized that cell phones can be a useful tool for the teachers, as they teach their learners basic skills of literacy and knowledge.

Section C Selected Individual Snapshots

The final portion of this chapter aims to document some individual snapshots of how a cell phone helped some of the literacy learners out in a special way, whether in their professional or personal life, or in the learning process. This section probes in a practical sense whether cell phones are particularly important to the literacy learners, and whether they were previously used in the same large scale, as they are used today. Some of the statements listed below give an example of a selection of a fairly dire circumstance in which cell phones were used, including dealing with emergencies.

- I was coming back from visiting my parents in Fayoum. I had my children with me. When I arrived at the Ramsis Station, I got lost, and could not find or tell my way back. With a cell phone being so handy, I was able to call my husband, who came quickly and picked us up.
- Recently I broke my leg twice. I was on my own. Nobody was around me to give me some help. Having a cell phone was so useful. I was able to call a friend of mine, who came along and gave me a ride to the hospital.

- One month ago, I was invited to attend the wedding of my cousin. During the wedding, my brother fell down and broke his leg. Unfortunately, at that time I did not have my driving license with me. I was worried that if I drive my brother to the hospital, I would come across some traffic/ police checkpoint. I was concerned that if I am caught without having my driving license, I would be ticketed or I would cause my driving license to be proved. I made a phone call to a friend of mine, who was able to fetch my driving license from my house, and I was able to drive my brother to the hospital.
- I was once in the market selling some homemade goods and products. By the end of the day, I collected my stuff, and loaded everything that was left over in a taxi. When I was still putting my stuff into the taxi, a thief showed up, robbed some of my stuff, and ran away. When I looked around me, I did not find any help. I called my husband using my cell phone. We were able to report the robbery to the police. The police found the thief, and all my stolen stuff was restored.
- One time I was doing some errands, and I had my son with me. In less than a second, I looked around, and could not find my son. I called my husband and other friends. We all came together, and were able to find him.
- By the time I was still in class, I went out to do some errands, and I got lost. I quickly called my husband. Having learned how to read and write, I was able to handle the situation quite well. Previously, my husband used to feel worried about me every time I would ask him to allow me to do something on my own. Now I have gained courage and confidence. I used to feel intimidated and embarrassed by my illiteracy. Now I can read the names of stations on the subway. Before learning how to read and write, I used to count how many stations I have to pass, before I finally get off in my target station.

CHAPTER IV: ANALYSIS AND CONCLUSION

The data in the preceding chapters shows a very positive impact, as a result to integrating the use of cell phones in the learning experiences on the literacy and numeracy skills and knowledge of learners. Based on the first indications and findings from this evaluative activity, it appears that the introduction of a cell phone module has a relatively significant impact on the achievement and motivation of adult literacy learners in six classes in a poor area of Cairo. In these classes, conducted by six different facilitators, the module and shared use of cell phones for learning letters, numbers, phonetics, reading, writing, calculation, and SMSing appear to have given a boost to the motivation and level of achievement among literacy learners. Potential key factors can be summarized as follows: a) shared learning in class, 2) increased amount of out-of-class learner time, as learners may borrow phones from family or friends to master phone use, 3) learning quality of shared time with family members e.g., spouses and children in using their cells, and 4) increased pride and status offered to the learner from competent phone use.

Reactions cited by the respondent groups, both teachers and learners, demonstrated real gains as a result to their engagement in this unique learning opportunity. The intervention learners also demonstrated measured gains against a control group. There was a positive correlation of use of cell phones in the literacy classes with the level of achievement of the literacy learners. Specifically, the literacy exam results of those learners who were in the six intervention classes were relatively positive. They were compared to learners in six other classes where cell phones were not used as part of the learning curriculum, and their results in both the arithmetic- calculation part of the exam, and the reading and writing part were higher (30% calculation, 10% reading and writing) than those, who were not exposed to the cell phone learning experience. The final literacy exam provides the opportunity for comparisons and further hypotheses regarding the two sets of classes. That is, greater exposure to the cell phones resulted in higher exam scores. These findings underscore the value of introducing cell phones to give a boost to the acquisition and retention of numeracy and literacy skills.

The findings reached from the teachers' interviews underscore the fact that cell phones helped motivate learners to: (a) come to class; (b) learn faster in class; (c) get higher test scores; and, (d) particularly, retain reading, writing, calculations/ numbers. Although it was not made clear by teachers, whether cell phones increased demand during and after time of class, many of the teachers and their learners emphasized the fact that introducing cell phones in the learning experiences helped them to boost the learners' literacy and numeracy skills.

The learners who had been exposed to some practical uses of cell phones keyed to teaching literacy and numeracy. It was clearly demonstrated by the respondent learners that they valued literacy and numeracy, their teachers, and sustainability

from use of cell phones. In addition, the test scores were high, penmanship was relatively good. This can also be attributed in part to the fact that they had excellent teachers. From the one-on-one interviews conducted with the literacy learners, it became clear that they highly valued cell phones, which in turn allowed them to recognize the value of the learning process.

Some of the answers we might have expected, even because of the way they were asked, were answered in the affirmative. Of the group of 20 interviewed, for example, 20 learners indicated that they thought that cell phones were useful in class learning. Almost the same percentage indicated that cell phones helped them with the retention of skills of literacy and numeracy (reading, writing and calculations – working with numbers). Retention of these skills is likely to be stronger due to fact that learners would be using these skills afterwards.

In addition, 18 out of 20 learners clearly reported the value of calculations. Many of them appreciated the use of cell phones as calculators, e.g., for business (at least the initial, “driving” motivator). At the same time, 12 learners mentioned and clearly reported the value of reading and writing as the prime benefit in using cell phones. While, fourteen learners reported that they still use texting after the literacy class, an equal number of learners reported using calculators/ calculations, year after the literacy class. Most of them were also convinced that pride and status in cell use drives the motivation, which drives the higher intensity of learners in class, and longer hours “on task” - at home and locally - exploring, using, and showing off phone use.

Socially, it was clearly made clearer that introduction of cell phones in the learning environment expands the learners' social network and business options where a cell makes more sense.

It is recommended that future research should include the impact of the introduction of cell phones on the literacy acquisition and retention of the learners, since the focus of this research targeted the attitudes and reactions of both teachers and learners, rather than the aspects of literacy retention and acquisition of this initiative. It would also be interesting to follow literacy learners over time, both from an intervention group and from a control group, to ascertain impact of the cell phones on literacy and numeracy skills. A final recommendation for future study would be to assess teacher training and classroom material needs in order to inform future program development in the area of instructional effectiveness.

Because this research also clearly demonstrates that the introduction of cell phones in the literacy classes is a sound and successful means of content information delivery, it is recommended that this initiative be expanded. Expansion could include more content materials, that are more organized and systematic, as well as into more geographic regions of Egypt. This study also demonstrated that the literacy teachers would like to devote more of their classroom time to such efforts. It should be noted that along with the recommendation for expansion of this

initiative, it is highly recommended that the more emphasis on teacher training and teacher support be provided, to improve the effective delivery of the content materials.

In summary, the findings of this survey confirm a strongly positive impact of this initiative of introducing cell phones in the literacy classes. This should be combined with tailored curriculum and strong teacher-training course in enhanced use of cell phones in the literacy classes. It is ably demonstrated that not only is the cell phone-related curriculum considered by teachers and learners to be appropriate and useful in literacy courses, but a critical variable in reinforcing necessary information to a target population.

Annex (1): Results from a Literacy Exam for Learners in "A" Classes (with Learners Having Studied WITH Cell Phones) and "B" Classes (with Learners Studying WITHOUT Cell Phones)

No	A-1		A-2		A-3		A-4		B-1		B-2		B-3		B-4	
	Arab.	Math	Arab.	Math.	Arab.	Math.	Arab	Math.	Arab.	Math	Arab	Math.	Arab	Math.	Arab.	Math.
1	85	100	90	100	65	95	82	100	82	100	3	85	60	75	80	100
2	70	100	100	100	60	90	80	100	80	100	30	85	88	65	100	95
3	55	85	95	100	70	90	77	100	77	100	55	57	70	80	50	80
4	70	100	70	70	85	80	80	98	80	98	60	85	70	75	50	93
5	70	90	85	70	65	85	80	100	80	100	50	85	60	75	75	83
6	75	85	80	65	97	95	80	100	80	98	35	100	30	80	70	80
7	75	85	75	75	60	95	80	100	80	100	70		25	75	85	93
8	75	95	60	75	80	95	80	100	80	100			55	70	80	88
9	70	95	65	100	60	95	80	90	80	100					80	88
10	50	70	70	80	70	85			80	100					30	30
11	75	90	80	95	65	80			80	90						
12	35	90	100	90	70	85			80	90						
13	65	95			90	100										
14	70	80			95	95										
	Enrolled	15m	Enroll	15f	Enroll	15m	Enro ll	14f m	Enroll	15f	Enrol l	5m +5f	Enrol l	8f +4m	Enroll	6m +6f
	Retained	15m		15f		15m		15f + 1m		15f		5m +5f		8f +4m		6m +6f
	Signed for test	15m		15f		15m		15f1m		12f		5m+5f		8f +4m		6m+6f
	Took test	14		12		14		11f1m		8f		1m +5f		3m +6f		4m +6f
	Absent	1		3		0		3		4		3		3		2

Annex (2): Potential Benefits Accrued by Literacy Learners through the Use of Cell Phones to Reinforce the Literacy and Numeracy Experience

Endemic Challenges	ERP/WEI Improvements, with AEA	Cell SMS and Calculating Introduced into Literacy Curriculum as Value-added
Low enrollments	Better facilitators (teachers) Improved supplemental materials Involve Civil Society Organizations (CSOs)	High demand for cells among urban learners Need for SMSing dispersed family, including in Gulf Need for privacy in sending SMS (avoid having to ask others - literates - to compose and read message)
Low status of lit. classes	Campaigns with CSOs effective	Cells have cachet, use attracts illiterates to classes
High dropout rate	See above, better supervision, monitoring	Status enhanced status by displaying SMS use within family and community, also calculation
Slow learning rate, with irrelevant, low interest materials and rote learning	Action learning - not rote in class Use of phonetics High interest supplementary health materials Minimal homework (little practice outside class)	Active learning by making and sending practice messages, doing calculations High interest leads to buying (and borrowing) cells, practicing SMS at home and in neighborhood ("buzz")
Math more difficult	No systematic focus on math	Pilot shows cell-as-calculator a good learning tool
High failure at exam	9 month class period used more effectively Much higher motivation, see above	Pilot shows high results, suggests shorter class period Perhaps most learners exam-ready in only 6-7 months
30% drop in literacy after exam among learners	With active learning, higher interest, stronger, more sustainable post literacy skills	Post-literacy sustained given action learning with keyboard and calculation and increased SMS use
Longer term prospects for sustainability are weak	Some effect with improved methods - see above, but no post-literacy materials Reforms include AEA connecting with CSOs	Cells are prevalent (40 mil subscribers). Low cost access to cell use & ownership expanding among the illiterate (28%), the poor in urban and rural areas
Lack of access to non religious reading materials.	Limited books, e.g., health	Increased use of SMS is anticipated nationwide SMS broadcasts could include alerts re avian flu, e.g.
Difficult to supervise facilitators, track learners	Strengthening of supervision, mentoring, monitoring, with AEA re literacy program E.g., collecting class attendance once monthly	Many branch and idaara offices have computers All supervisors, most facilitators have cells, so can send announce, record class attendance with phones

Annex (3): List of Respondent Learners by Literacy Teacher

1. Aziza Rawda
2. Asmaa Ahmed Ali Abdel Wahb
3. Doaa Fahmy Hassan
4. Aziza Ibrahim Abdel Haei
5. Hanna Mohamed Salam

List of Respondent Learners	Name of Teacher
1. Belal Ibrahim Adam	Aziza Ibrhaim
2. Sherief Mohamed Mahmoud Hassab Allah	Aziza Ibrahim
3. Ahmed Nagah Farid	Hanaa Mohamed
4. Ahmed Helmy Abdel Ghani	Hanaa Mohamed Salem
5. Ibrahim Hussein Mohamed	Hanaa Mohamed Salem
6. Marwa Moaawad Mohamed	Karima
7. Hanaa Mohamed Abdullah	Karima
8. Yassmin Eid Abdel Rahman	Doaa
9. Rehab Mohsen Abdel Azim	Karima
10. Reda Eid Farahat	Karima
11. Amina Issmail Teleb	Karima
12. Amal Shawky Abdel Rahman	Karima
13. Maha Mohamed	Asmaa
14. Nashwa Mohamed	Doaa
15. Samah Abu Baker	Doaa
16. Safaa Kamal Soliman	Aziza Radwan
17. Ashgan Atef	Aziza Radwan
18. Halima Issmail	Aziza Radwan
19. Laila Mohamed	Aziza Radwan
20. Sahar Khamis	Aziza Radwan