

# Impact of mobility distributed support patterns on teens' awareness towards digital drugs effects

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## Abstract

The present study examines the impact of three patterns of mobility distributed supporting (MDS) on the awareness of pupils towards digital drugs side effects. 123 pupils participants at prep schools in Egypt are divided into four groups. The experiment design is set as three experimental groups and one control group. All groups used a pre, post-test in applying the measure of awareness towards digital drugs side effects with participants. Action study was used to design a framework of (MDS) patterns. The findings showed the following: (a) there were significant impacts of MDS

three patterns on improving pupils' awareness compared with traditional supporting ,(b) there were significant impacts at ( $p<0.05$ ) of mobility supporting centred pupils compared with centred teacher supporting in improving the awareness of pupils,(c) there were significant impacts between mobility multi- distributed supporting and mobility distributed supporting based pupils demands in improving the awareness of pupils towards digital drugs side effects.

Keywords: mobility distributed supporting; student's awareness, teens; digital drugs side effects.

## INTRODUCTION

Modern life has become a dynamic dual system that shifts, between presence in the virtual world and real worlds demands. Cyberspace features offer the opportunity for our teens to express and act without limits. Online disinhibition, as a passive effect, encourages young people to explore the dark underworld of the internet, for example sites that involve in engagement with pornography, drugs, and/or violence. These same young people might never deal with these phenomena in the real world (Hegde, 2016). Digital drugs or I-dosing are new virtual world terms that refer to listening to specific internet audio files via headphones that cause hallucinogenic effects, modify emotional states, biological states and the ability to concentrate (Aniței, Chraif, 2011). Many educators and official is in the legal system are worried that I-Dosing could be a gateway "drug" to other illegal substances. Furthermore, studies have already demonstrated the difficulties that students are having in doing tasks when

they are listening to sound-files while doing these tasks (Furnham, Trew, & Sneade, 1999; Chraif, Aniței Mihai & Sandu, 2009). Historically, therapy involving the use of music is effective for treating a range of physical and mental conditions, (Grocke, Wigram ,2007). This study considers digital drugs as involving advanced types of smartphones addiction. The dangers of these drugs are that their tone engineering affects the brain waves of the listener with the impact of this problem increasing with the prevalence of the use of smartphones. Recent studies showed digital drugs as a danger to middle eastern teenagers through different media channels, and urgent need for an awareness program based on new technologies (Fawzi and mansouri, 2017).The current study highlights the lack of studies targeting development programs based on the use of mobile technologies for improving awareness of young people in rerlation to the side effects caused by digital drugs. The contents of a formal computer science course in a preparatory school in

Egypt not contained instructional materials related to supporting and guided young people when faced with preventing the dangerous effects of I-dosing that result from unsafe use of the Internet. This study seeking to use mobile technologies in accessing support at the point of need, self-efficacy, offer individualized guidance, independent, formal or socialized contexts of learning (Towards Maturity, 2014; Kissinger, 2013; Shih et al., 2011; Frohberg et al., 2009). As well current study represents a trend of researches concerned with the design and adapts support resources based on mobile technologies for facing educational crises caused by the negative effects of virtual worlds upgrades like digital drugs.

#### I. RESEARCH PROBLEM AND QUESTIONS

The problem statement of current research comes from two aspects, a practical and a theoretical aspect. The problem definition based practical evidences collected during reviewing the textbook and activities of computer

science subject, module safety internet for second grade prep schools, published by *Ministry of education, Egypt*. The reviewed results showed do no find instructional material, in/outdoor activities reflected supporting and guided pupils for raise awareness toward the dangerous effects of I-dosing as a result from unsafe use of the Internet. The theoretical background comes from educators' tips and studies which demonstrated the difficulties that students are having in doing tasks when they are listening to sound-files while doing these tasks (Chraif, Aniței Mihai & Sandu, 2009). As well as most of I-dosing products distributed as mp4 files. So current research seeking to use the same mediation environment by examined the impact of mobile applications offer patterns of supporting, independent, formal or socialized contexts for raise awareness toward digital drugs side effects.

According to the above problem definitions the current research seeking to find the answers for the following questions:

- (1) What is the impact of mobility distributed supporting resource pattern (centred teacher) compared with traditional supporting on teens' awareness towards digital drugs effects?
- (2) What is the impact of mobility distributed supporting pattern (centred pupil) compared with traditional supporting on teens' awareness towards digital drugs effects?
- (3) What is the impact of mobility distributed supporting pattern (multisource) compared with traditional supporting on teens' awareness towards digital drugs effects?
- (4) What is the impact of mobility distributed supporting resource pattern (centred teacher) compared with mobility distributed supporting pattern (centred pupil) on teens' awareness towards digital drugs effects?
- (5) What is the impact of mobility distributed supporting resource pattern (centred pupil) compared with mobility distributed supporting pattern (multisource) on teens' awareness towards digital drugs effects?
- (6) What is the impact of mobility distributed supporting resource pattern (centred teacher) compared with mobility distributed supporting pattern (multisource) on teens' awareness towards digital drugs effects?

## II. SAMPLING

The study was conducted during 2017-2018 in the second semester of these two academic years at prep schools of Menoufia region in Egypt. The research sample was selected randomly from Arabic native speaker pupils (385) enrolled at schools in three cities: Menuof, Shibin Al-Kom and Sadat City. Selection was conducted during formal interviews with pupils in computer science subject lessons, while studying unit internet damages and crisis specifically related to the current research topic. Criteria for selecting the

participants were as follows: (1) low-level pupils' awareness cut mean score from (1.7-2.4) based on the results of applying the proposal scale of awareness towards digital drugs side effects,(2) age range(13-15 years old),(3) the time limit of using headphone in listening to the internet music per day range( 2- 4 hr./day) (4) possession of a smartphone or iPad and having account in music store apps. The researcher selected pupils who meet the above criteria. One hundred and twenty-three (123) accepted the invitation, at the end of meeting, to join as participants and completed the procedures of the current investigation.

### III. METHODS

This research designed according to the action research method. Which used in the case of studies that focus on diagnosis and development solutions of problems based on cooperation between the researcher and the educational institution has been used. Meyer (2000) describes action research as a process that involves people and social situations that have the aim of changing an existing

situation for the best. The action research is used as an approach to the development of a solution based on the diagnosis (Bryman and Bell, 2011). The conceptual framework of action study design process based on that assumes social world to be constantly changing. Both, researcher and research are one part of that change (Collis and Husseym 2003). Many previous studies pointed out the main streamline of action research processes, key factors, models and diagrams. For example, Kemmis and McTaggart (2000) suggested four key components of action research represented in action verbs as follows: (1) plan, (2) act, (3) observe and (4) reflect.

Thus, methodology of current research seeks to design the awareness program based on mobile technologies for supporting pupils towards digital drugs side effects by developing mobile applications including instructional material with different patterns of supporting sources, as well as development of psychometric measure applying with participants as a pre- and

post-test to determine and analyze the impacts of these mobility supporting.

#### IV. EXPERIMENT DESIGN

Experiment design of this research is set as extended control group design with three experimental groups with pre/post testing. The flow line chart of experiment process as showed in Fig.1. Before the experiment, we applied the measure of awareness towards digital drugs side effects as a pre-test for check the equal among groups. At the end of the treatments, proposal forms of mobility distributed supporting for each experiment group were used. Participants were given the same measure of awareness towards digital drugs as a post-test. The control group were supported with the traditional

approach; that is, the learning material was used as a supporting tool via printed paper and pencil during interaction with the teacher in the classroom according to the time limit of computer science subject. Pupils in the experimental group one was supported via mobile app directed by the teacher. helping and guiding the pupils through social tools available in proposal mobile app to raise awareness towards digital drugs side effects. Experimental group two was supported via mobile app directed by students demands, related to the side effects of digital drugs. Experimental group three treatment was based on multi- resources of support.

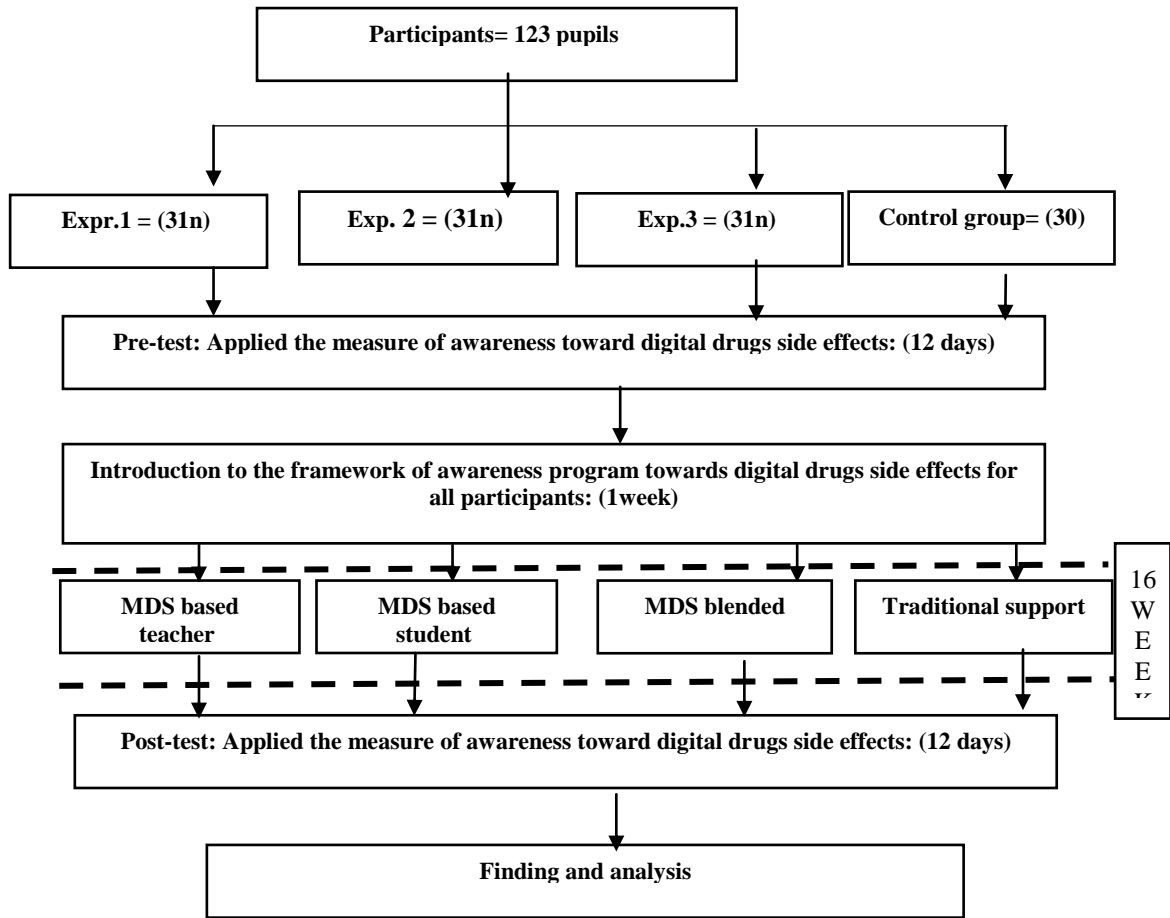


Fig. 1 Experiment Design.

called binaural beats, which are sounds that have the effect of changing brain-wave patterns and inducing an altered state of consciousness like that which results from taking other forms of drugs. Binaural beats is an auditory illusion perceived when two different pure tones, these pure tones are presented to a listener as a dichotic ally; meaning each

## V. BACKGROUND

### 1. Digital drugs conceptualizations

Digital drugs, I-dosing or drugging with sound are new terms which have accrued educational crisis proportions among teenagers in the domain of cyberspace. Literature describes the concept of digital drugs as being based on a physical phenomenon

personal styles is high impact (Furnham, Trew, & Sneade, 1999; Chraif, Aniței Mihai & Sandu, 2009). The difficult challenge is to identify the evidence related to the digital drug that distinguishes it from other types of tones. Many young people consider listening to music as involving a private experience. How will parents or teachers know whether a teenager, who has their headphones on, is I-dosing or just listening to popular songs? So, we need to create instruments, measures, and applications to track and monitor the effects of I-dosing during and after listening to music material in the behaviour of teens in the term of self-confidence, interactions with peers and achievement in academic tasks. Digital drugs, as dark or fuzzy music, like ideas or beliefs, could affect bad or good changes in the attitudes and lifestyles of young people. In these circumstances, there a customer's right to know the side-effects caused by large doses of these products. Teens should know what safe use refers to when listening to these kinds

sound is one transmitted through a single ear (McConnell, et.al, 2014). Historically, music or sound therapy is an effective adjunctive intervention suitable for treating a range of physical and mental conditions (Grocke, Wigram, 2007). Research based evidences refers to listing to the music can have an hallucinogenic effect, modify emotional and biological states, and the ability to concentrate or maintain one's attention (Aniței, Chraif, 2011).Some formal educational institutions are taking action in relation to the detrimental effects of digital drugs. For example, Oklahoma's Mustang Public School sent out a letter to parents warning them of the side-effects of digital drugs. Educators have even gone so far as to ban iPods in school in hope of preventing students from becoming cyber drugs

Many studies show that there are difficulties in learning tasks as a consequence of student isolation when they are listening to sound files based on the results of Stroope test on the performance of learners in their different



Hades”, and “http://www.i-doser.com” The sound engineering of digital drugs is based on the determined difference between sound frequencies during transmission to the listener's ear through the headphone.

- Headphones are a key tool in I-dosing in that they isolate the listener's environment, while allowing the listener to adjust the frequency value for each ear.
- The goal of digital drugs encourages the listener's brain to synchronize their brain waves with the binaural beats of the music by selecting tones within a frequency level. This is called Frequency Following Response (FFR)

## 2. Distributed Support concept frame.

Supporting learners is a core concept in the learning process. The arguments around concepts of supporting and scaffolding as a form of

of music, especially with respect to the extent of its use as an experience that might cause damage to brain waves and emotional states. Insufficient research has been done on the impact of I-dosing on both the behaviour of teens and their learning outcomes. Till now, no applied study has used its results to build awareness programs to protect our teens against the side-effects of digital drugs.

Current research defines digital drugs or I-dosing as a pattern of internet addiction that can be evidenced in long-term listening behaviours that involve listening to specific tone-files through headphones; caused technology that also causes physical and mental damage.

the main features of i-dosing are as follows:

- Digital drugs come in many forms, such as mp3, mp4 files.
- Most digital drugs have an instructional manual to enhance impact during use.
- The design, production and distribution of digital drugs are done by sites such as “Gates of

Kolodner (1998) describes an ongoing system of student support through multiple tools, activities, technologies, and environments that increase student learning and performance. Some previous studies describe the term distributed scaffolding as an instructional design that sequences and integrates a variety of social and material support, not only through the teacher's help but also through peer interaction as well as the assistance afforded by higher-level cultural tools, such as online computers (Puntambekar & Hübscher, 2005). Some researchers pointed out five main components of distributed scaffolding instructional design (Stone, 1998; Puntambekar & Kolodner, 2005) as follows: (1) the goal of supporting ,(2) diagnosing self-regulated learning level of learners and requirements to the learning tasks achieved, (3) dynamic adapting of supporting according to the learning situation and student self-regulated learning abilities ,(4) providing tools for interaction and communication among learners, and (5) fading and

assisting and guiding students in learning situations refer to the convergence between the two concepts. Scaffolding as a metaphor for supporting learners has been extended in its meaning since the genesis of its use in the 1960s, when it was introduced to classroom research in the 80s (Musk, 2009). Some researchers have seen scaffolding concept as a type of support performance. So, when we target to provide students information or learning resources during the learning process, that is not scaffolding (TABAK,2004). However, according to Rosenberg (2013) common to all performance support definitions is the focus on tools and resources, the emphasis on application, and the timing "at the moment of need". Current research seeing scaffolding as a type of support performance, as well as the timing of adding or removing it in learning stream, is based on the level of student self-regulated learning (SRL). The concept of distributed scaffolding, as an advanced design of scaffolding developed by Puntambekar and

supporting centered learner, (3) multi - supporting resources, (4) supporting based learning tasks.

The current research regards distributed supporting as a term that refer to instructional designs including different patterns of adapted learning resources that help the learner to achieve his needs in the right time and the right place. The main factors of success of distributed supporting are as follows as:

- Defining assistance resources: through design tools that guided and help students in each level of a learning process.
- Student modeling: tracking and diagnosis of student ability to estimate the actual state of learner performance.
- Adapting support: determining the way of collecting the types, amounts, and timing of support according to student modeling results.
- Availability of diversity support: through multi-forms of supports

transfer of responsibility. Many studies and reports pointed a lot of supporting designs regarding specific elements of the learning process (for exp. Banaszynski, 2000; Bamberger & Cahill, 2013; Northern Illinois University, Faculty Development and Instructional Design Center, 2014; Fisher and Frey, 2015). Practices and evidence related to supporting learner in virtual learning environments refer to different types of distributed supporting. For examples, a distributed supporting based on timing pointed three types of support before; during and after achieving learning task. Tools of distributed support were divided into synchronous and asynchronous. In addition, distributed supporting based on content reflected main two forms. The first one is distributed technical supporting related to how to deal with learning system. The second is instructional supporting to deal with learning material. We can classify a supporting based on a source of distributed help and guide into four main sets: (1) supporting centered teacher, (2)

development of cultural, environmental awareness, communication skills and positive attitudes among young people towards employing these phones in their academic and educational activities (Botha,2009; Chi et al ,2009; Uzunboylu et al ,2010). Some researchers pointed two distinct types of mobile performance support; one is designed to support tasks at the point of student need (defined by time, place, and context), a second is designed to support the learning process itself, usually in an academic situation (Berking and Haag,2015). Although many of the studies investigating the supporting affordances of e-learning technologies are grounded to various degrees in sociocultural theory, there is a general lack of m-Learning empirical studies analyses of mobility distributed supporting (MDS) instructional designs in different learning modes which targeted increasing the level of awareness among young people about the virtual world crisis and specifically the side effect of digital drugs. Some studies showed the positive impact of procedural

(information- peer- teachers- parents).

- Encouraging self-support: through encouraging support centered students by enhancing the way that makes students explore and develop the appropriate support based on learning situation and his current needs.
- Mobile technologies shift distributed supporting from passive to an active mode which we can adapt according to learner's demand and the context of learning activity.

### 3. Raise Awareness level -based mobility distributed supporting

Awareness in general means, knowledgeable being conscious; cognizant, informed alert. Awareness is the state or ability to perceive, to feel, or to be conscious of events, objects, or sensory patterns (Gafoor,2012). Many researches showed the impact of mobile learning in many patterns of awareness among students, for example

availability to blend between the formal and informal support offered. Several studies have reported that applications of mobile learning have been significantly increased since 2008 (Hwang and Tsai, 2011; Tsai and Hwang, 2013). Towards Maturity (2014) found in their 2013 survey that “accessing support at the point of need” was the top driver for m-Learning (80% of respondents listed it as such, above such factors as “improving employee engagement” [79%] and improving communication between individuals” [77%]). The difference between mobile learning and other technologies is that it can support situated learning (Kukulsa-Hulme & Traxler, 2005). The main goal of m-learning is to enable mobile devices to offer individualized guidance and support during the learning process and replace the one-size-fits-all receptive style of learning (Shih et al., 2011). The unique features of mobile learning technologies create a ‘relationship between the context of learning and context of being’ which means that the learning process

support in smartphone environments on enhancing the performance of learners (Huang, et al., 2012). A few studies investigated the differences among peer support, teacher support, and personal support in e-learning environments. For example, a study of Bertucci, et al (2012) showed no differences among these three sources of supporting in students' achievement. Kissinger (2013) study pointed to the impact of mobile devices as electronic textbook (e-book) readers in supporting self-efficacy, individualized and metacognitive learning. Hargis et al. (2013) conducted observations, interviews, and surveys with faculty members who received training on iPads and found that iPads supported student-centered teaching.

From all above The main concept of mobility distributed supporting (MDS) is instructional design based on advanced mobile technologies for encouraging the learners to play role active agents before, during and after the learning situation, engaged both in mobility support they need, the learning context and

blending supporting directed by teacher and learners according to learning situations.

## VI. HYPOTHESES

Based on the above background the main null hypothesis of the current research is .

"There are no statistically significant differences ( $p > 0.05$ ) among the four mean scores of pupils on all groups in post-applied psychometric measure of awareness towards digital drugs side effects".

The sub null hypotheses as following:

1-There are no statistically significant differences ( $p > 0.05$ ) between the mean scores of the control group used traditional method of supporting and experimental group one used mobility distributed supporting centred teacher in post - applied psychometric measure of awareness towards digital drugs side effects.

2-There are no statistically significant differences at ( $p > 0.05$ ) between the mean scores of the control group and

may occur in independent, formal or socialized contexts (Frohberg et al., 2009, p.313).

This research is designed to help fill the gap of design mobility supporting patterns to raise awareness among teens towards digital drugs side effects.

Thus, MDS got divided to into three main instructional designs according to the directed learning situation by teacher or learner as follows:

- MDS based teacher: This is a form of supporting centered teacher, who manages learning situation by determining the ways of help and guides pupils based on proposal mobile app according to a specific organizer of learning tasks.

- MDS based students' needs: This is a form of supporting centered learner demand who determines the way of help and tips of guided from peers or teacher based on the context of the learning situation.

- MDS based multi-resource support: This is a form of supporting based on

one which used mobility distributed supporting based teacher and experimental group three which mobility distributed supporting based multi-resource support in post-applied psychometric measure of awareness towards digital drugs side effects.

6-There are no statistically significant differences at ( $p>0.05$ ) between the mean scores of experimental group two which used mobility distributed supporting based pupils needs and experimental group three which used mobility distributed supporting based multi-resource support in post-applied psychometric measure of awareness towards digital drugs side effects.

#### INSTRUMENTS.

The processes of preparing a final version of a psychometric measure of awareness towards digital drugs side effects are as follows:

- Determining the dimension of the suggested measure based on

experimental group two used mobility distributed supporting centred pupils needs in post-applied psychometric measure of awareness towards digital drugs side effects.

3-There are no statistically significant differences at ( $p>0.05$ ) between the mean scores of the control group and experimental group three used mobility distributed supporting based multi-resource support in post-applied psychometric measure of awareness towards digital drugs side effects.

4-There are no statistically significant differences at ( $p>0.05$ ) between the mean scores of experimental group one used mobility distributed supporting based teacher and experimental group two which used mobility distributed supporting based pupils needs in post-applied psychometric measure of awareness towards digital drugs side effects.

5-There are no statistically significant differences at ( $p>0.05$ ) between the mean scores of experimental group

( $r=0.78$ ). This means these items were appropriate as field investigation tools. The validity of measure items based on applied Cooper equation (Cooper, 1975), used in the current research to calculate a percentage of agreement among pilot samples consisting of eighteen experts in psychology and audio technology (review supplement file of experts). Validity coefficient was ( $p=0.723$ ) which means items were acceptable.

The final version of the measure consisted of 40 items distributed under these dimensions: awareness towards digital drugs forms and how to impact in mind status (18), patterns of distributed digital drugs (12), side effects aspects of digital drugs (10).

#### DEVELOPMENT AWARENESS PROGRAM MATERIALS.

The current research used, for building instructional design of awareness program, ADDIE model (Molenda,2003). It is a prescriptive sequential

- reviewed related literature which pointed the forms of digital drugs and the side effects (for exp. Cornford, Tony and Lichtner, Valentina (2014) ؛Nakamura, et al., 1999). Reviews websites which included evidence, indicated the way of promotion and distrusted this kind of drugs (for exp. <http://www.i-doser.com>)
- Determining the way of estimating response to the measure items by using a five-point Likert scale (1= never, 2=rarely, 3=sometimes,4=usually, 5=always).
  - The psychometric properties assessed through item reliability, internal consistency, and discriminant validity. For internal consistency as the indicator of measure items, reliability was determined by using Kuder-Richardson formula (KR-20) and were used on a pilot, a sample of nine students showing an estimated value



with 8 participants to determine the weak point and the way to improve the screens design and navigation tools and the main icon of the app.

- Evaluation stage: determining the final three versions of the app according to the comments and remarks of (6) experts of educational technology ( review experts supplement file), the main screen of the final versions of the mobile app as shown in fig.2 which included app map for navigation to know the main goal of the application, objectives and the content related to the forms of digital drugs side effects and pictures explain the way of effects in the brain. The researcher distributed supports by the final versions based the types of supporting in each group of pupils by using social media tools in the app according to form of support as mentioned in the literature review.

instructional design model, which describes the essential components of any instructional development process as follows:

- Analyzing stage: identifying pupils' awareness level towards digital drugs side effects by interviews designed as open questions related to safety internet and focused in any experiences related to music-based entertainment that help to get high levels of relaxation.
- Designing stage: determining the main target of the program, the objectives, the content modules of instructional materials (texts, images, links, videos....) and the patterns of supporting according to the source types.
- Development stage: producing the test versions of the app by using a personal account in <https://snappy.appypie.com> as a platform for creating digital drugs mobile app.
- Implementation stage: applying the test version of digital drugs



Fig.2 The main screen of final versions of digital drugs apps

the teacher in the classroom according to the time limit of computer science subject. Also, the experiment groups used training demonstrations about the way of using mobile technologies application to explore the learning resource materials and demands support via social media tools available in the proposal app (for exp. WhatsApp, Facebook). The author produced learning materials included tips and guidelines for describe the way to protect teens from side effects when dealing with

#### EXPERIMENTAL PROCEDURES

The procedures were conducted according to three designs of mobility distributed supporting (MDS) pointed in the theoretical background. The experiment took 6 months in two academic years, 3months for each year. At the beginning, the author prepared an orientation week for all participants to explain the framework of the traditional approach; that is, the learning material was used as a supporting tool via printed paper and pencil during interaction with

pre-test by using one-way ANOVA as shown in Table 1. The ANOVA results showed no significant of the variance between groups ( $F=0.14, p >.05$ ). That indicating no significant differences between the pupils' awareness towards side effect of digital drugs before treatment. Participants were given the same measure of awareness towards digital drugs as a post-test after the treatment.

these kinds of music. Additionally, pupils used e-working papers showing the steps and rules of activities in the mobility environments and the roles of participants within it based on the form of supporting. Current research used screen sharing mobile applications with three experimental groups to track and monitor the participants' activities in each group. Seeking the variance among all groups before a treatment based on applying the measure of awareness as a

Table 1. ANOVA of the awareness towards digital drugs among the four groups before a treatment.

The variance dims.	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12.07	3	4.02	0.14	.935
Within Groups	3403.25	119	28.60		
Total	3415.32	122			

way ANOVA. The second application of the measure after a treatment by using a traditional approach of supporting. Also, three forms of suggested mobility distributed supporting were designed. The data collected from the first and the second applied of the measure tool was entered by the SPSS program version 24. The difference between the mean scores

#### 1) Data collection and analyses

The first application of a psychometric measure of awareness towards digital drugs side effects began before any kind of supporting for all participants to determine the initial level of the awareness towards digital drugs side effects. Also, analysis of variance among four groups was conducted by using one-

material related to explain the concept framework of digital drugs and side effects. As shown in Table 2. it is found that the awareness toward the digital drugs of the pupils in experimental group one showed significant improvement compared with pupils in the control group ( $t = -10.72, p < .01$ ). This result indicates that mobility distributed supporting based teacher impact in the pupils' awareness toward digital drugs effects compared with traditional way of support. This means the treatment-based mobility distributed supporting by a teacher raise pupils' awareness compared with traditional way of support. This indicates that the first null hypothesis is rejected

of participants in pre-test and post-test were determined by using t-tests to find the significant impacts.

## VII. RESULTS

check the validity of hypothesis after a treatment.

The validity of the first null hypothesis, there are no statistically significant differences at ( $p=0.05$ ) between the mean scores of the control group and experimental group one, used mobility distributed supporting based teacher in post-applied psychometric measure of awareness towards digital drugs side effects. Independent samples t-test was employed to compare between two groups after supporting form in each group while studying a treatment

Table 2. Independent samples t-test of pupils' awareness towards the digital drugs for the control group and experimental group one.

Groups	Test	N	Mean	SD	df	t	Sig.
Control group	Post -test	30	142.5	9.23	59	-10.72**	0.00
Exp.group1	Post -test	31	171.1	11.47			

\*\* $p < .05$

showed significant improvement compared with pupils in the control group ( $t = -19.05, p < .01$ ) after post -

As shown in Table 3, it is found that the awareness towards the digital drugs of the pupils in experimental group two

awareness compared with traditional way of support. This means the second null hypothesis is rejected.

applied measure of awareness. This pointed mobility distributed supporting based pupils' demands impacts pupils'

Table 3. Independent samples t-test of pupils' awareness towards the digital drugs for the control group and experimental group two.

Groups	Test	N	Mean	SD	df	t	Sig.
Control group	Post -test	30	142.5	9.23	59	-19.05**	0.00
Exp.group2	Post -test	31	182.13	6.9			

\*\*p < .05

applied measure of awareness. That means mobility multi-distributed supporting impacts pupils' awareness compared with traditional way of support. This indicates the third hypothesis is rejected

As shown in Table 4, it is found that awareness toward the digital drugs of the pupils in the experimental group three showed significant improvement compared with pupils in the control group (t = -21.45, p < .05) after post -

Table 4. Independent samples t-test of pupils' awareness toward the digital drugs for the control group and experimental group three.

Groups	Test	N	Mean	SD	df	t	Sig.
Control group	Post -test	30	142.5	9.23	59	-21.45*	0.00
Exp.group3	Post -test	31	185.77	6.3			

\*\*p < .05

-4.85, p < .05) after post -applied of the measure of awareness. This pointed mobility distributed supporting based pupils demands impacts pupils' awareness compared with t mobility

As shown in Table 5, it is found that the awareness toward the digital drugs of the pupils in experimental group two showed significant improvement compared with pupils in the experimental group one (t =

rejected. distributed supporting based teacher.

This means the fourth hypothesis is

Table 5. Independent samples t-test of pupils' awareness toward the digital drugs for the experimental group one and experimental group two.

Groups	Test	N	Mean	SD	df	t	Sig.
Exp.group1	Post -test	31	171.1	11.47	60	-4.85**	0.00
Exp.group2	Post -test	31	182.13	6.9			

\*\* $p < .05$

points mobility multi- distributed supporting impacts pupils' awareness compared with  $t$  value of mobility distributed supporting based teacher. This means the fifth hypothesis is rejected.

As shown in Table 6, it is found that the awareness toward the digital drugs of the pupils in experimental group three showed significant improvement compared with pupils in experimental group one ( $t = -6.23, p < .05$ ) after post - applied measure of awareness. This

Table 6. Independent samples t-test of pupils' awareness toward the digital drugs for the experiment group one and experimental group three.

Groups	Test	N	Mean	SD	df	t	Sig.
Exp.group1	Post -test	31	171.1	11.47	60	-6.23**	0.00
Exp.group3	Post -test	31	185.77	6.3			

\*\* $p < .05$

no difference between that mobility multi- distributed supporting impact on the pupils' awareness compared with mobility distributed supporting based pupils demands. This means the sixth hypothesis is rejected

As shown in Table 7, it is found that the awareness towards the digital drugs of the pupils in experimental group three showed insignificant improvement compared with pupils in experimental group two ( $t = -2.17, p < .05$ ) after post - applied measure of awareness. There is

Table 7. Independent samples t-test of pupils' awareness toward the digital drugs for the experimental group two and experimental group three.

Groups	Test	N	Mean	SD	df	t	Sig.
Exp.group2	Post -test	31	182.77	6.9	60	-2.17**	0.03
Exp.group3	Post -test	31	185.77	6.3			

\*\* $p < .05$

and replace the one-size-fits-all receptive style (Shih et al., 2011; Huang, H., et al., 2012).

- Mobility distributed supporting based pupils' demands impact on the pupils' awareness compared with mobility distributed supporting based teacher, reflected the pupils preferring an independent way for asking support more than supporting centered teacher.

- Mobility multi- distributed supporting impact in the pupils' awareness compared with mobility distributed supporting based teacher is due to the active mode of socialized contexts That means mobility multi- distributed supporting empowers peer sharing, searching and exploring the evidence which related to the side effects of digital drugs with teacher guided. (Botha,2009; Chi et al ,2009; Uzunboylu et al ,2010).

## VIII. DISCUSSION

In this study, some experiments were conducted to compare pupils' awareness towards digital drugs when using the traditional approach of supporting and different types of mobility distributed supporting (MDS). It was found that the three types MDS based on teacher, pupils and multi-distributed supporting revealed significant improvement of pupils' awareness towards the digital drugs compared with traditional supporting due to many factors as follows:

- The improvement of pupils' awareness towards digital drugs in three experimental groups which used three types of mobility distributed supporting (MDS) compared with traditional supporting. That confirmed the impact of mobile devices to offer individualized guidance and support

these patterns of support compared with the traditional forms of supporting in the awareness of pupils toward digital drugs side effects. The results are shown as follows: (a) there were significant impacts of MDS three patterns on improvement pupils' awareness compared with traditional supporting ,(b) there were significant impacts of mobility supporting centred pupils compared with centred teacher supporting in improving the awareness of pupils,(c) no significant impacts between mobility multi- distributed supporting and mobility distributed supporting based on pupils' demands in improving the awareness of pupils towards digital drugs side effects. This study pointed out the role of supporting based on mobile technologies to face the passive effects of virtual world new applications. Mobility distributed supporting patterns represented a new trend of adapted supporting based on the context and students' demands as a conceptual framework of development supporting instructional design models.

- Mobility supporting centered pupils which occurred in independent, socialized contexts at any time or anywhere, encouraged pupils to improve awareness at the point of their needs (Botha,2009; Chi et al, 2009; Uzunboylu et al, 2010; Berking and Haag,2015).
- We had significant improvement of pupils' awareness towards digital drugs which based on mobility multi- distributed supporting compared with mobility distributed supporting based pupils demands. That is due to the unique features of mobile technologies in creating seamless supported by adapting the relationship between the context of learning and context of being. This means that the learning process may occur in independent, formal or socialized contexts (Frohberg et al., 2009, p.313)

## IX. CONCLUSION

This study applied three patterns of mobility distributed supporting (MDS) centred on a teacher, pupils demands and blending of them as multisource of supporting to explore the impacts of



## أثر اختلاف مصدر الدعم الموزع النقال في رفع مستوى الوعي بمخاطر المخدرات الرقمية لدى تلاميذ المرحلة الإعدادية

### مستخلص البحث :

استهدف هذا البحث التحقق من أثر الإختلاف بين ثلاث مصادر من الدعم الموزع النقال المتمركز حول (المعلم – المتعلم – الخليلط) في رفع مستوى الوعي بمخاطر المخدرات الرقمية لدى تلاميذ المرحلة الإعدادية. وقد استعان الباحث بالنموذج العام للتصميم في بناء وتطوير ثلاث تطبيقات تعليمية قائمه على تكنولوجيا الهواتف الذكية، تختلف فيما بينها حسب مصدر الدعم. وقد احتوت تلك التطبيقات على مواد ومصادر تعلم تمثلت في روابط ذات صلة بمخاطر المخدرات الرقمية، ومجموعة من الوسائط المتعددة بها كيانات رقمية (رسوم وصور وأشكال) توضح خصائص المخدرات الرقمية واثارها الجانبية وكيفية الوصول الى مصدر الدعم المتاح عبر التطبيق للحصول على نصائح للوقاية من مخاطر تلك النوعية من المخدرات. وقد قام الباحث بتطبيق مقياس مستوى الوعي بمخاطر المخدرات الرقمية بعديا على عينة مكونه من (١٢٣) تلميذا من طلاب الصف الثانى الاعدادى تم توزيعهم عشوائيا على ثلاث مجموعات تجريبية ومجموعة ضابطة حيث درست الاخيرة المحتوى التعليمى ذو الصلة بمخاطر المخدرات الرقمية بالطريقة التقليدية تمثلت فى شرح من المعلم اثناء المدى الزمنى المقرر لدراسة وحدة مخاطر الانترنت فى مقرر الحاسب الالى على الصف الثانى الاعدادى ، بينما المجموعات التجريبية درست نفس المحتوى التعليمى من خلال تطبيقات الهواتف الذكية مع اختلاف مصدر الدعم من حيث تمركزه حول (المعلم- المتعلم- خليلط). ارتكز البحث على منهجية بحوث الفعل فى بناء محتوى التعلم ، وتنفيذ توزيع الدعم، وملاحظة، وتتبع أنشطة التلاميذ عينة البحث. وقد أظهرت نتائج البحث وجود فرق ذو دلالة إحصائية عند مستوى (٠.٠٥) بين متوسطات درجات طلاب المجموعات الثلاث التجريبية كلا على حدا مقارنة بالمجموعة الضابطة فى التطبيق البعدى لمقياس مستوى الوعي بمخاطر المخدرات الرقمية لصالح المجموعات التجريبية، كما أظهرت دلالة الفرق بين متوسطات درجات المجموعة التجريبية الأولى والثانية تفوق الدعم النقال المتمركز حول المتعلم على الدعم النقال المتمركز حول المعلم فى رفع مستوى الوعي بمخاطر المخدرات الرقمية، كذلك أظهرت دلالة الفرق بين متوسطات المجموعة التجريبية الثانية والثالثة تفوق الدعم الموزع النقال المتمركز حول المتعلم على الدعم النقال الخليلط فى رفع مستوى الوعي بمخاطر المخدرات .

### الكلمات المفتاحية

مصادر الدعم التعليمى النقال ؛ رفع مستوى الوعي بمخاطر المخدرات الرقمية؛ تلاميذ المرحلة الإعدادية ، المراهقين.

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