Design E-Learning Content Model Application

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Abstract

Over the past five years, the field of phone application development has developed number of phone software companies and the growing sophistication of smart phones, developers have been building several types of applications on different platforms, creating obstacles and problems for developers when you want to build an application for all devices. When you plan to turn your idea into a phone application, then it is time to think about the way you build and then the platforms on which your application (Android, iOS, Windows Mobile, BlackBerry ...) will come. The most important time is to choose any programming language you will build your application on any platform without Forget to make sure your application is native, hybrid, or cross-platform. We will recognize native applications and hybrids and the difference between them

Learning is an activity that lasts as long as the humans will ever last. It is undoubtedly and rightly considered a vital issue that contributes to the development of any society ever found. Two factors are important to the learning process: one is the learning style; the other is the applied technology. Styles can vary but the educational goal is always the same. Some students prefer "the visual style" like diagrams and pictures whereas some others prefer "The Aural Style" like sounds and music. Technology is merely that collection of tools that help to deliver the educational content in an effective manner. An example of these tools is the internet and computers. Technology has had a major effect in increasing the spread of learning and in improving the educational level. Learners are now able to engage in the learning process whenever and wherever he/she wants. Learners can now also interact freely with the other learners and with tutors too.

This does not completely undermine or delete the traditional method of learning at all. Despite the restraints and needed commitments required by the classroom environment
it still has an integral part complementary to e-learning. E-learning appeared in the early 1990's and has had a deep impact on the evolution of the learning process. This is due to the above mentioned benefits of immobilization and time-limit free characteristic of e-learning as an inherent nature. The effect of exchange of ideas and knowledge between all the involved members of the process is extremely.
Keywords: E-learning, mobile applications, visual style, hybrid applications
Keywords: Design, E-Learning.

تطبيق نموذج تصميم محتوى التعلم الإلكتروني

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الملخص

على مدى السنوات الخمس الماضية ، تطور مجال تطوير تطبيقات الهاتف بشكل كبير بما يتجاوز توازن أسواق البرمجيات في العالم. مع تزايد عدد شركات برامج الهاتف والتطور المتزايد للهواتف الذكية ، قام المطورون ببناء عدة أنواع من التطبيقات على منصات مختلفة ، مما يخلق عقبات ومشاكل للمطورين عندما تريد إنشاء تطبيق لجميع الأجهزة. عندما تخطط لتحويل فكرتك إلى

تطبيق هاتف ، فقد حان الوقت للتفكير في الطريقة التي تبنيها ومن ثم الأنظمة الأساسية التي سيأتي عليها تطبيقك(Android ، iOS، Windows Mobile، BlackBerry ,....) الوقت الأكثر أهمية هو اختيار أي لغة برمجة ستبني بها تطبيقك على أي نظام أساسي دون أن تنسى للتأكد من أن تطبيقك أصلي أو هجين أو متعدد الأنظمة الأساسية. سنتعرف على التطبيقات الأصلية والهجينة والفرق بينهما التعلم هو نشاط يستمر ما دام البشر سيستمرون إلى الأبد. إنها بلا شك وبحق قضية حيوية تساهم في تطوير أي مجتمع موجود على الإطلاق. هناك عاملان مهمان لعملية التعلم: الأول هو أسلوب التعلم ؛ والآخر هو التكنولوجيا المطبقة. يمكن أن تختلف الأنماط ولكن الهدف التعليمي هو نفسه دائمًا. يفضل بعض الطلاب "النمط المرئي" مثل الرسوم البيانية والصور بينما يفضل البعض الآخر "النمط "Aural مثل الأصوات والموسيقى. التكنولوجيا هي مجرد مجموعة من الأدوات التي تساعد على تقديم المحتوى التعليمي بطريقة فعالة. مثال على هذه الأدوات هو الإنترنت وأجهزة الكمبيوتر. يمكن للمتعلمين الآن المشاركة في عملية التعلم متى وأينما أرادوا. يمكن للمتعلمين الآن أيضًا التفاعل بحرية مع المتعلمين الآخرين ومع المعلمين أيضًا.هذا لا يقوض أو يحذف تمامًا طريقة التعلم التقليدية على الإطلاق. على الرغم من القيود والالتزامات اللازمة التي تتطلبها بيئة الفصل الدراسي لا يزال لديه جزء مكمل للتعلم الإلكتروني. ظهر التعلم الإلكتروني في أوائل التسعينيات وكان له تأثير عميق على تطور عملية التعلم. يعمل على تأثير تبادل الأفكار والمعرفة بين جميع الأعضاء المشاركين.

الكلمة المفتاحية:التعلم الالكتروني، تطبيقات الهواتف، النمط المرئي، التطبيقات الهجينة

1.1 Introduction

E-learning facilitates the introduction of an e-content. The E-content is used by tutors to offer the learning material to students. It also facilitates the implementation of "re-use" of learning material. These activities led to the eruption of a new term: the learning object. The learning object is defined according to LOM IEEE as "any entity digital or non-digital which can be reused or reference during technology support learning" [1].

Learning content is passed through various phases before it is conducted to the learner for interaction. Each phase has its own goal that strengthens the e-content [2].

Approach for models of design education, the majority of models of design education depends on the model established ADDIE [3], this is due to the brevity of using the first letters which constitute the five stages that make up the model are:

1. (Analyze): an analysis of the needs, such as work tasks and goals of students and the community needs, place and time, materials, budget and capabilities of the regulations.
2. (Design): The problem is determining whether the exercises were related to work or education, and then setting goals, strategies, and different teaching methods necessary to achieve goals.
3. (Develop): The development of plans available to the sources, and preparing educational material.
4. (Implement): The delivery and implementation of the distribution of educational materials and tools.
5. (Evaluate): The formative evaluation of educational materials and inadequate regulation canals (decision), and also evaluate the usefulness of such a decision for society, and then final evaluate. Steps of the project:

1 Receiving the project: The development process begins with a comprehensive understanding of all the customer's requirements and needs, and then presents the suggestions and the collection of ideas to develop the customer's idea.

2 Planning stage: At the planning stage, a complete visualization of the application and structure of the data is developed, as well as identification of the mechanisms by which the application will be applied in order to ultimately provide the best possible use experience.

3 Design phase: After careful planning of all aspects of the application, the design phase is initiated and all data is converted into an attractive visual form.

4 Programming stage: Once the design is completed, it is transferred directly to the development department, with the aim of converting it into executable code and software as a software system on mobile phones.

5 Upload the application: After the application is terminated, it will be uploaded to different stores in the Google Play, App store, and Windows Store and complete the application's follow-up procedures.

1.2 STATEMENT OF PROBLEM

The strongest challenges which face e-learning are: how can students fully comprehend the educational e-content? How to attract the attention of students to e-content's educational material? How to demonstrate mastery of the learnt e-content? and most importantly, how to design e-content educational material in a way that allows for, and compensates the individual variability of students. When answering the previous questions, it will contribute to solving the problems of education, especially e-learning.

As a first step in achieving that, emerging the importance of electronic content to improve the level of education and the achievement of the objective and purpose of the educational process. Despite the availability of all elements of the educational process (students, tutor and educational content), There are weaknesses in the design of electronic educational content, also, weaknesses in the adaptation between these elements and the meaningful design of electronic educational content. The problem lies in the educational content design Inability in attract the attention of students to the educational material, that makes a lack of desire to learn, Achieve fully comprehend of educational content not be as expected, also not taking into account the individual variability of student, finally, student is recipient not participant.

1.3 OBJECTIVES OF THIS STUDY

Smartphones and tablets that began to appear nine years ago have swept the entire world. It's hard to find someone who does not use it on a daily basis.

The technology has gone beyond the idea of portable devices and has come to include wearables such as Google glasses or Apple smart watches.

_ create a model for designing learning material contributing to the migration from classroom learning to e-learning and solve the previous problems.

_ Improve the quality of graduates, by utilizing modern instructional materials and methods, including increased use of text, video, animation, audio, and graphics in learning, that will contribute in enhance the understanding of learners and engaging them, as well as, attract the attention of learners. Facilitate the process of designing meaningful e-content in all subjects.

_ Activation of partnerships and interactive between tutors and learners, that make the learning process to be Participatory between them and convert learner from recipient to participant.

_ The content helps learners in resolving critical thinking exercises.

1.4 MOTIVATIONS BEHIND THE STUDY

Make professional mobile applications that provide the user with ease of use and ease of operation while achieving the required benefit efficiently and efficiently. This can happen either by agreeing with a mobile application developer or by entrusting it to an application design company that provides you with all the possibilities you need in your application so that it looks professional and engaging. Not only that, but seeing the mobile app for your product or service as a very effective marketing tool for your company. Start marketing for your application on social media channels like Facebook, Twitter and Instagram and spare no effort. Because simply as we mentioned earlier, once your potential client downloads your application, you have a golden opportunity to stay in front of your potential customer as long as possible as your competitors in the same market. After I realized the importance of mobile applications

_ Educational e-content is a bridge between scientific theory (behavioral and cognitive sciences) and applied sciences (use of technology in the learning process). In this technical era where the gap is widening between various theories of education; comes the need to improve educational e-content design to transform the educational process from one that relies solely on "teaching" that is "teacher-dependent" into another one that is purely "learning" that is "student-dependent" and is fully interactive and more efficient both in learning and in assessing mastery of learnt material.

_ Conduction of knowledge in a more effective method. i.e. the transfer of knowledge, skills, attitude and quality as effectively as possible.

_ The use of e-Contents and other new technologies, can promote positive attitudes towards learning and higher achievements among learners.

_ E-learning is more compatible to this era of digital revolution and cyber space.

1.5 SIGNIFICANCE OF THIS STUDY

What makes writing or making applications and programs interesting is that with the Internet everything is possible. The world of the Internet is a free open world that can communicate with different people from everywhere. This is a world that does not differentiate between being big or small, rich or poor, or even from any country. All that matters is how to establish yourself in front of the world. Can you solve the problem of a certain segment of people or attract them with your thoughts and ambitions. There are many who have begun to solve or facilitate certain operations between a small environment, even as the idea has spread and changed at the global level, and turn this idea into an investment project that earns the owner of income and interest.

1.6 METHODOLOGIES USED IN THIS STUDY

What we will learn in this article is as follows:

Why should I learn Android programming?

What programs and languages are used during Android programming?

What are the main components of the Android application?

Learn how to create or apply to us using Android Studio?

The E-design process is a description and analysis operations are being conducted to study the requirements of dealing with learning, the necessary measures to regulate and development the

education, implementation and evaluation in line with the characteristics of cognitive learner. The designers of education depend on a "technology education", as a base for launching their theory for the development of education. Upon deciding, to produce e-Content, authors should consider several things:

_ Taking a representative sample of the university students of different ages and from both gender.

_ Distribution survey containing various questions about the methods and the means by which the representative sample of students desired to receive information through it to be received this information in understandable and clear form, and also about the difficulties faced during the receipt of information using the computer, whether online or otherwise, and whether the students desired to receive information especially in the education process as electronically or printed on paper, and how would prefer to receive information through the (video, voice, images, charts, printing on screen), and so on.

_ when designing e-content several things must be considered:

a- The stability of educational content, updated, and revised from time to time.
b- The extent to which the educational content for change and keep pace with reality
c- Define goals, educational, media presentations of scientific, practical, training, and educational activities by learners
d- Authors should then select the file format from various alternatives, one of the common format is SCORM [5].

1.7. E-LEARNING ENVIRONMENT:

The Android programmer has become one of the most required professions in the world and its salary is very high as the global statistics confirm that the average annual global income reached 90.000 dollars. Massive returns Imagine with me that you created an application and placed it in PlayStory and set its price at $ 1 and downloaded it 1% of 1.4 billion users 1$ * 1% * 1,4 billion = 14.000$. E-learning is a term describes the e-learning systems. Many definitions define eLearning as a system used internet to offer the learning material to student supported by activities, assessments, and guidance. According to Hall, B.; Snider, A [6] define e-learning as "the process of learning via computers over the Internet and intranets". Other definitions, such as according to Urdan, T. A.; Weggen C. C [7], tend to view e-learning as a system that deliver the learning content via Internet such as social media or email. The emergence of e-learning began in the middle of the eighties, where universities benefit from a www technology and provide the best educational content, where eLearning continued development and progress because of the large number of Internet users and technology. Both of students and teachers participated in the development process. But in the Arab world, it seems it was a little late, but has since started to grow some of the projects support e-learning and establishment of electronic virtual universities and we believe it will be great progress in the field of e-learning in the Arab world.

E-learning has many categories classified in to three types:

a- On-line and blended learning, where blended learning is a combination between traditional learning and online learning.
b- Synchronous (real- time) and Asynchronous (on-demand).
c- Self-pace (controlled by the learner himself), instructor-led (controlled and supervised by tutor), and a combination between them.

E-learning provides many services classified by Trifonova, A.; Ronchetti, M [8] to four categories:

1-E-learning resources, includes manage and control the e-learning process by E-Learning tools with ensuring the authentication issues.

2-Specific e-learning services, these specific services related with learning content management system that responsible about manage, control, and organize the eLearning content usually organized as a component and subcomponents.

3- Common services, which represented by e-learning actors (Admin, tutor, and Learner) as well as, additional services that the e-learning needs such as online calendar and schedules.

4- Content presentation, this is the most important services that are provided by eLearning to meet learners needs. Where e-learning should be available and easy access by any browser. There are many technologies used in e-learning that aid to deliver the e-learning content to learner in the proper form and proper environment, Therefore, we need to a regulatory environment to create and organize the objects of this course such as audio, video, text, and image, these are through the Web tools or the advanced tools have enough flexibility to enable the learner to create the course by himself, some tools can automatic convert the content from traditional to electronic format. E-learning also offers a delivery and communication environment for e-learning content as a type of collaborative process between e-learning actors. Synchronous technologies are like virtual classroom, chat, audio and video conference, shared white board, application shared, and on-line meeting tool. Asynchronous technologies are like e-mail, weblog (public website where users can post their thoughts ideas and comments), and Electronic Bulletin Boards (Discussion Forums).

2.1. LEARNING OBJECT

You will need an IDE or an IDE (Integrated Developmentement Enviroment), which is available to you by Google for free. Google offers you a free IDE and is an Android Studio that you can download without any conditions. The second version was recently released. Of course there are other programs but Android Studio is the best and easiest. Learning object is defined by IEEE [1].

2.2. STRUCTURE OF LEARNING OBJECT

We'll need to learn two programming languages, JAVA and XML, and you do not have to dig deeper into XML. Just a little information about it will save you a lot.

After these two steps you can start programming and design your own applications or you can modify the open source applications. a learning object have to contain the learning objective that provides the level of understanding that must be achieved after completing the learning object. As an Initiative may be the best in the classification of Learning objects, a division of the objectives to sub-objectives, as will be seen in later, where each sub-objective will be serve a group of ideas, each idea could be related and assigned to specific learning objects -one or more- that will contribute to the strengthening of the absorption of the objectives for student.

Each learning object can be related with metadata such as the author of learning content and other descriptions, this process is available now through applying that automatically by specific algorithms.

2.3. LEVELS OF LEARNING OBJECT

IEEE learning objects metadata (LOM) [1] used a term "Aggregation Level" to pronounce the stages of the learning objects such as next:

a- A minimum stage of collection, e.g., raw media data.
b- The assortment of the learning objects, e.g., a lesson.
c- The bigger assortment of learning objects, e.g., a course.
d- A biggest stage of granularity, e.g., the collection of progresses that leading to any certificate

2.4. DESIGNING E-CONTENT

As mentioned before, e-learning content is passed through the following:
Analyzing, designing, authorizing, assembling, transporting, and delivering, as well as ADDIE phases. Each of these phases plays an important duty in transmuting a learning object to meaningful and suitable formula used in e-learning progression.

According to Brown, A.; Voltz, B " designing of e-learning content needs understandings in education, multimedia content, resource publication, and electronic technologies" , that claiming to distribute the procedure of designing e-learning content into four order actions as follows [9] :

1. Define the learning objectives and e-learners:

Determine the students who will use the content, as their age, as their knowledge level, and find out the students objectives for each student objective level that will assist on design effective e-learning content.

2. Adopt a convenient learning design model

Designers must choose one or hybrid learning design model that is appropriate with content type. According to Institute for Interactive Technologies [10] instructional design model is a systematic process that instructional designer must follow in order to achieve the creation of efficient and effective instruction. One of the most applied models in instructional design is "Robert Gagné's".

3. Resorting some of design guidelines to the content to address the design process of e-learning content guidelines.

4. Define the context of learning object

By defining the type of learning environment; technical environment; e-learning strategies; and content accessibility, the context for e-learning content can be determined [4]. A learning context is limited although it is wider than the traditional learner context.

2.5. THE PROPOSED MODEL

To put the design in its proper perspective and to effectively design an e-learning content, an approach that is convenient to learner and tutor was applied. That approach was based on decomposition and objective-orientation for e-content. Artificial intelligence (AI) course will be adopted in the illustrator examples.

This approach includes the following practical steps:

1. Determine the objectives for the course as a whole:

In specific courses that are provided to learners there were a number of elements of content. Therefore, designers need this step to determine the main objectives

2. Determine the modules in each course,

Once the main objectives of the whole course are determined the next step is to assign specific objectives to individual modules. Each module is intended to achieve one or more course objective, for

example, there are several objectives in the "search technique" module in the AI course like: Identify these concepts:

Search, Graph, Tree, Path, and Node, Learn the advantages and disadvantages for search techniques, and so on. Modules for any specific course should be easily navigated by learners. An example is in the form of a "menu of hyper linking". The graphical content in the interface should be reduced to the least possible minimum. Failing to do so will delay downloading and occupies a considerable portion of memory3. Dividing each module into a number of lectures or lessons:

Each module should contain a specific number of lessons or lectures that fulfill the training objectives of the module. Each lesson or lecture is assigned to a specific objective. And has a specific structure, For example:

a- Defining the "Title".
b- Defining "Facts".
c- Defining "Concepts".
d- Presenting and demonstrating "facts" and "concepts".
e- Explanation of procedures.
f- Providing examples.
g- Summary (.in case of need)
h- Quizzes.(in case of need)

In AI course, for example, "search technique" module has a number of lessons like

"Breadth First Search", this lesson has objective, title, concepts and facts, procedures, examples, summary, and quiz. As mentioned earlier in the discussion of modules; lessons and lectures are presented in the form of a "menu of hyperlinks" or dropdown

4. Dividing each lecture objective to "sub-objective", In this step the concepts and facts of the lesson are emphasized. Each procedure discussed earlier is assigned a "sub-objective". Obviously this may not always be applicable or necessary as in the case of "Defining the Concept" where the division is both meaningless and unnecessary. This process can be done through a specific learning objects, the student can understand the desired goal of a lesson or a specific educational paragraph, for example, in the "state space problem" lesson, student needs to understand the require steps to solve this problem, one of the most popular example for state space problem is "two cups",

This was the intent when pointed out that one of the objectives of this study is to make students resolving critical thinking exercise.

5. Categorization "learning objects":

As an Initiative may be the best in the better understanding and delivery for educational objectives, categorization of Learning objects that will be the best way through divide the objectives to sub-objectives, where each sub-objective will be serve a group of ideas, each idea could be related and assigned to specific learning objects -one or more that will contribute to the strengthening of the absorption of the objectives for student. Sometimes the student needs to a different way to understand a certain idea that the educational content seeking to achieve, may be no best way we can deliver educational objectives, but we can obtain a good results through the process of classification the educational objectives, where the delivery of educational content will become easier, since the objective can be identified and then divided into several targets or sub objectives and thus assign a set of ideas that will serve to achieve this objectives or sub objectives, it is the best way to interact with these ideas by student who can better absorb the educational objective , we will not find better than the learning objects to deliver these ideas cause have the ability to easily, comprehensible, and accurately express of the ideas through the interaction between student and the educational content which is make the learning process more fun, fruitful, and useful , which are required.

6. Creation of "Learning objects" for each "Idea" :

Three learning objects will be considered throughout this `article. These are:

a- The "Text-based" Learning Object.

b- The "Multimedia" Learning Object.
c- The "Graphics" Learning Object.

The "Text-Based" Learning Object:

Learning object should be small and meaningful. The content in each learning object should preferably be assembled in the following manner:

d- Small clusters of information objects.
e- Summary of learning object contents.
f- Multiple choice questions.

This assembly makes it easier for learners to assess the extent of comprehension achieved by him/her of that learning object.

The "Multimedia" Learning Object:

This learning object contains two main sets of learning objects:

g- The Audio Learning Object:

Audio learning object supports the text-based learning object. Audio learning objects are presented by different speakers. For example: one speaker will announce the titles; the other will tell the texts; and another one will recite the summary...Etc. Some "non-human" sound may be used in some parts of the content. For example: the sound of a bell ringing or the sound of a police siren or explosion sounds…etc. The size of audio should be easily uploaded and downloaded and the quality should be carefully assessed as regards the frequency of audio.

h- The Animation Learning Object: This is mainly used to transcribe some text-based learning objects. It is a principal participant in achieving the objectives of the lecture or lesson. It is presented in the form of Cartoons and paintings that can be static or dynamic. The size and quality should be observed as regards resolution.

The Graphics Learning Object:

In this form the text-based learning object is presented as graphics. For example some of the models may not be easily explained in plain text whereas these same models can be easily explained if presented in the graphical manner.

Some important issues must be observed in designing all of the above-mentioned learning objects:

- Size: It should not be large and should not take long to download or upload.
- Quality: It should be carefully observed as regards resolution and frequency.
- Each learning object should ideally contain one single objective.
- Each learning object should be related to metadata that describes it.
- Each learning object should contain data that describes its nature and uses; for example date of issue and requirements for usage…etc. This will be of great significance in search processes.

7. Defining the e-learning design model:

This is defined as an organized process that should be followed by designers to achieve effectiveness and efficiency in creating instructions. Based on that definition a model should be adapted and applied in each lesson or lecture.

Six instructional events used to structure the e- learning design model adopted in this article run in the following sequence:

1) Defining the learning content that attracts the attention of learners such as interesting facts.
2) Defining the main objective of the lesson or lecture. This is preferably done in the form of audio or text-based.
3) Presentation of the learning content in a manner that is compatible to the main objective.
4) A "Feedback" mechanism should be offered to learners in the form of an evaluation or questionnaire. This will ensure that the concepts are properly delivered and the objective is achieved. This is the "user-experiences" concept in designing models.
5) A key point should be made that resembles the main aim around which the content revolves.

6) Once the lesson or lecture is completed the learners are given a choice between quizzes and engagement in certain interactive activities among learners and tutors. This will ensure that creativity can be achieved. These "interactive activities" should better be in the form of audios or text-based.

8. Apply e-learning design model for each learning object:

The previous instructional event already created after creating learning objects for each objective or sub-objective, but some of these events need learning object without any type of evaluation and summary and prefer to be text-based or audio LO. These events are: defining the learning content that attracts the attention of learners, defining the main objective of the lesson or lecture, and a choice between quizzes and engagement in certain interactive activities, The following procedure explains the steps clearly, tutor collect the facts, main concepts and all content that attract the attention of student and design these content as voice or text, after that assigned objectives for each lecture by using learning objects, then presentation the content as objectives or sub-objectives and learning objects that assigned to the lectures, when complete the presentation there was need to return feedback about the student comprehensive that presented by questionnaire's or assessment's results, after that there is a key point helps to resemble the main aim around which the content evolves, once the lesson or lecture is completed the learners are given a choice between quizzes and engagement in certain interactive activities among learners and tutors. This will ensure that creativity can be achieved. These "interactive activities" should better be in the form of audios or text-based.

9. Optimize the learning object

Learning objects should be organized in a specific sequence structure that ensures the relation between learning objects and achieving the objectives or sub-objectives after completing each level.

10. Coordinate the learning content according to usability factors:

According to ISO 9241- 11, "usability" may be defined as "the extent to which a product (such as software) can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use" [15]. The word "usability" is also used to improve the ease-of-use methods during the design process.

The need for usability has been defined in content design literature as a vital quality when considering user satisfaction in such systems. Therefore the usability of e-learning applications can drastically affect learning. Issues of usability take on an added dimension in an educational environment. It is not sufficient to ensure that the e-learning system is simply usable; it must also be effective in meeting the pedagogical objectives [16]. Considering the ISO 9241- 11 definition of usability, the main factors of "usability" are effectiveness (The accuracy and completeness with which users achieve specified goals), efficiency (The accuracy and completeness of goals achieved in relation to resources) and user satisfaction (Freedom from discomfort, and positive attitudes towards the use of the system) where effective is achieving a desired result. In the context of e-learning contents, learning objectives could consider the desired results. Therefore, the learning objectives should be considered in studies of the usability of eLearning content.

Every time a course or e-content needs to be updated, to avoid that, besides the usability, imperative factor should consider that is Interoperability. Interoperability refers to the aim of having content from multiple sources working equally well with different learning systems. Another important factor impact on the usability, which is interface design,

In addition to the previous factors, other factors should be concerned, these are quality and findability, which precede usability- if the learner cannot find the content or the content doesn't present in a desired form, he or she will never have a chance to use it. The learner is the most important part of the learning process. Therefore, the learner behavior should be considered. There are specific factors related to learner behavior, these include how they navigate to content? How they select content for viewing? And which content they actually view? These issues directly related to the correctness of linking, searching procedures, helping guidelines, and learnability. In other words, how much the learner enjoy working and user-friendly with the design?

2.6. USER CENTERED DESIGN

One of the important issues in the design process should be considered is "User-Centered Design" (UCD), UCD is the term which describes the design process, which affects the learner in how to design content and how the design takes a shape so that appropriate and comfortable in dealing. Ideas and principles may vary from one learner to another to give several shapes and designs. UCD may differ according the role of learner in a specific time during the design process, for example, during the gathering requirements process and usability testing there was a need to consult the learner about their needs, sometimes learners have a deep role impact on the design process as a whole through involve the learner in the design process as partners with designers. Donald Norman's research laboratory at the University of California San Diego (UCSD) in the 1980s, Norman recognizes the important role and the great impact of the learner or user, and focus on the usability of the design [18]. He provides four suggestions for the design how should be done, these suggestion places the learner at the center of design, these are:

a- Make it easy to determine what actions are possible at any moment.
b- Make things visible, including the conceptual model of the system, the alternative actions, and the results of actions.
c- Make it easy to evaluate the current state of the system.
d- Follow natural mappings between intentions and the required actions; between actions and the resulting effect; and between the information that is visible and the interpretation of the system state. [18]

These suggestions were made after Norman noted that the long efforts and cumbersome, unintelligible manuals that accompany products are not user-centered. So the suggested that should be have a guidelines such a small pamphlet contains some design principles are needed to guide the design. Now, how to involve the learner in the design process?

Questionnaires, structured interviews and focus groups are methods used to employ UCD through understand and identify user requirements.

2.7. Native applications and hybrid and the difference between them

- JAVA

Java programming language is the most preferred language for the development of Android applications. OOP, developed between the walls of Sun Microsystems currently owned by Oracle, can operate in two different ways, one through a browser window or a virtual machine without the need for a browser. This flexibility means a lot when we talk about reusing your code and updating your application, although Java does not help you much if you want to focus on developing iOS applications. Of course, your choice of common platforms will be available if you want to develop phone applications.

- HTML5

HTML5 is an ideal language if you want to build a web interface for your phone application, and make it easy to fit in the different screen sizes; the shaper with HTML5 is still standard, it is currently hugely supporting various browsers, making it even though its simplicity is a very useful language.

- Objective-C

Expressing the basic programming language for building iOS applications, Obj-C was selected by Apple to develop its products as a powerful and scalable language. Becoming a member of the C language community means that you have many functions that deal with graphical destinations, inputs, outputs, and functions. In addition, it is part of Apple's framework. Obj-C has been fully integrated

with both iOS and MacOS platforms, although it is now gradually being replaced by a new language called Swift.

- Swift

Swift is the latest language to invade Apple. It takes into account the use of Apple's latest API and we talk about Cocoa and Cocoa Touch. Although it is a language created to work together with Objective-C, Apple is the future language for the iOS programmers and will exempt developers from the vulnerabilities of Objective-C. Swift is now a future language for Apple.

- C ++

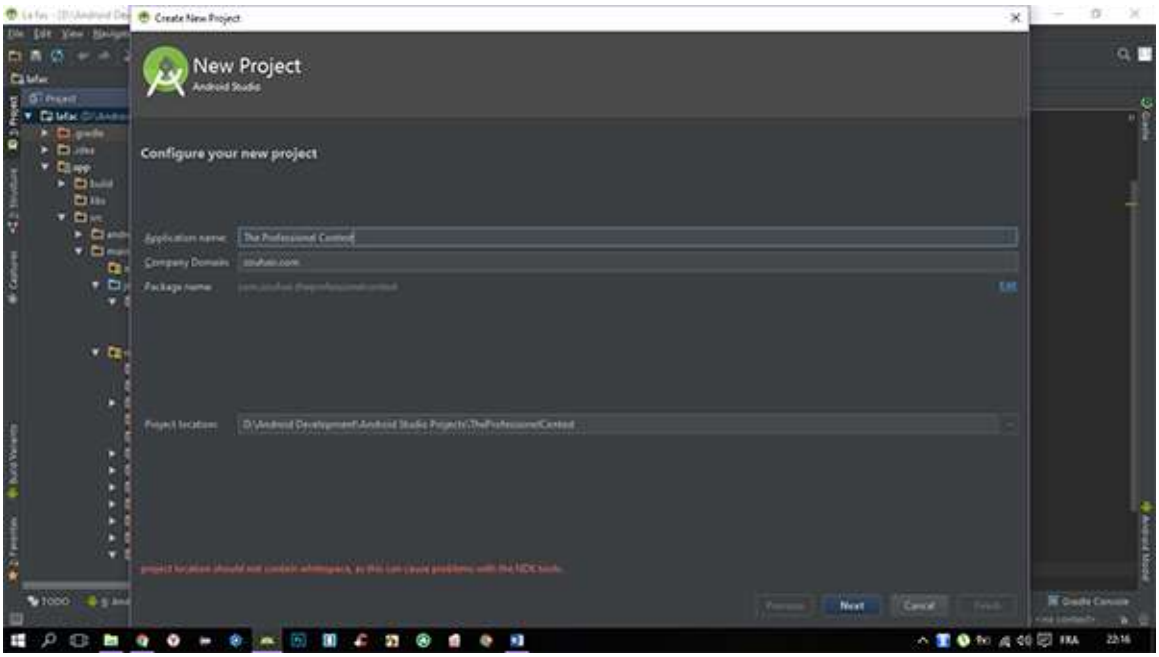
It is the most powerful and most suitable language when it is used to build a phone application for Android and Windows. It is also a basic language remover for many of the average programmers for phone application programming, C ++ allows you to develop very practical applications on any platform. We may agree that it will not be very elegant. But it remains a powerful language and has dominated the field before the revolution of smart phones.

- #C

Is the first language for developers of Windows iPhone, it is similar to the tricks of Microsoft by Obej-C to Apple, although Apple's iPhone has not been able to emerge in the world of application industry, but Microsoft programmers remain loyal to the language of the first language .

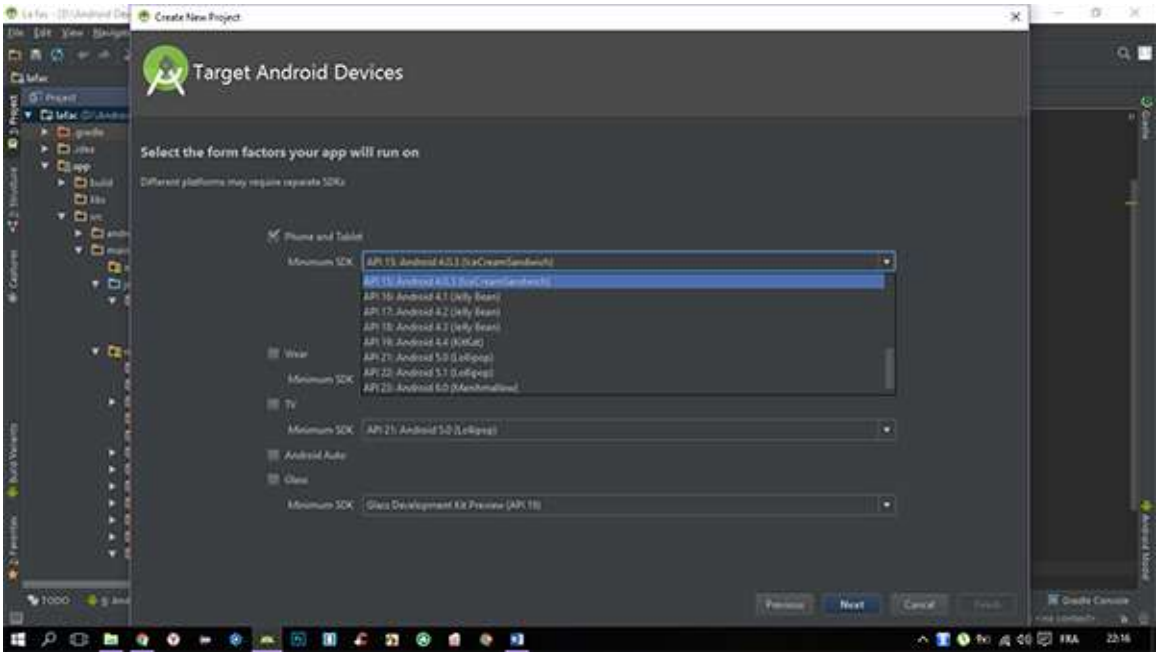
2.8. How do we create or apply to us using Android Studio?

The first thing you should have Android Studio installed on your computer can download it from Google for free. After installation you open the program will give you this interface



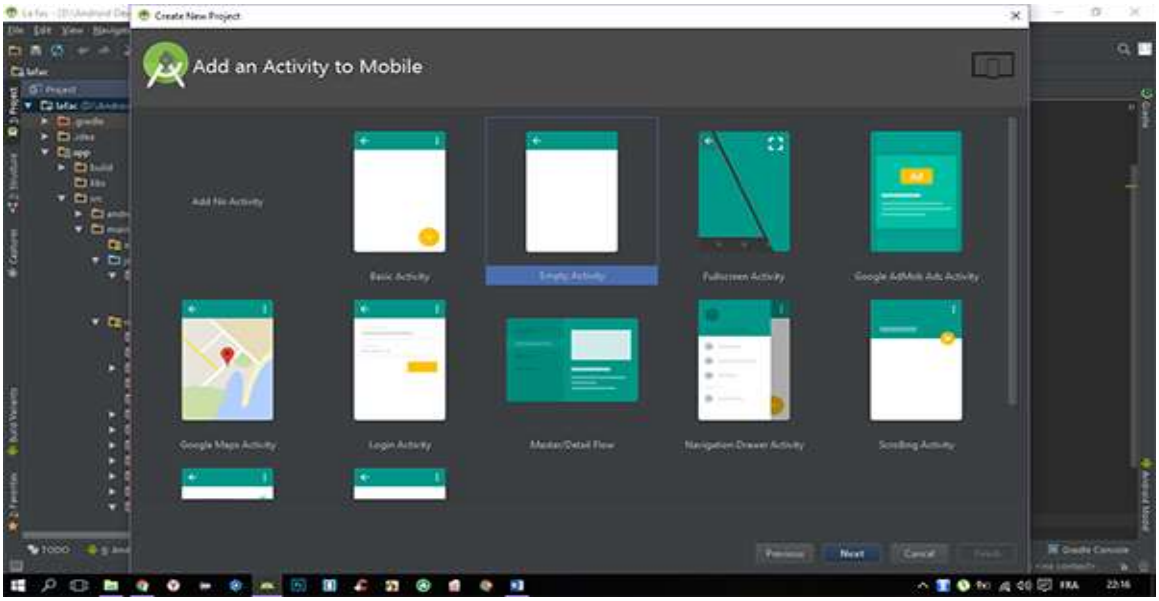
Pic1 (Android Studio interface)

In the Application Name enter the name you want your app to appear in PlayStation.
In the Company Domain enter a location that should not be a real site or exist on the Internet but try to make it unique.
Then Next



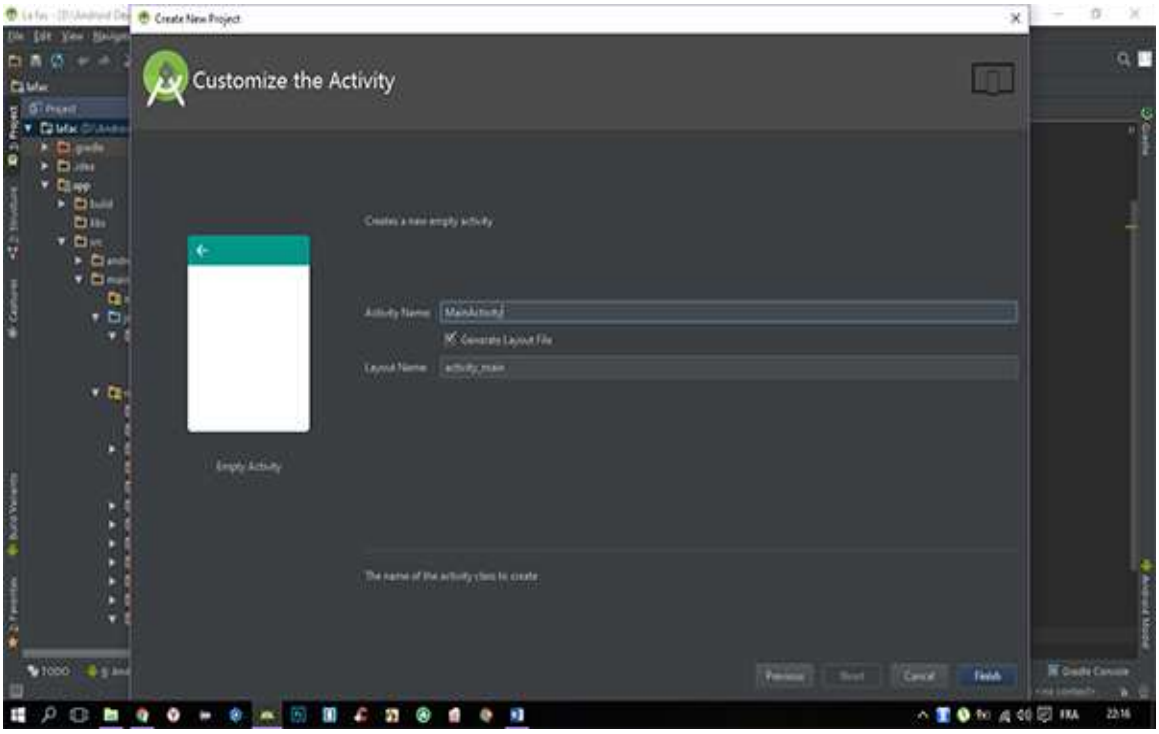
Pic2 (Enter Application Name)

Here you will find the devices that will occupy your application and you have several options but prefer to choose one type of devices. And you will also choose the lowest version will occupy your application but keep in front of your eyes that whenever you take an old version whenever the lack of features, for example there are things you can do in Android 4.0, but impossible in Android 3.0 or less and then click Next.



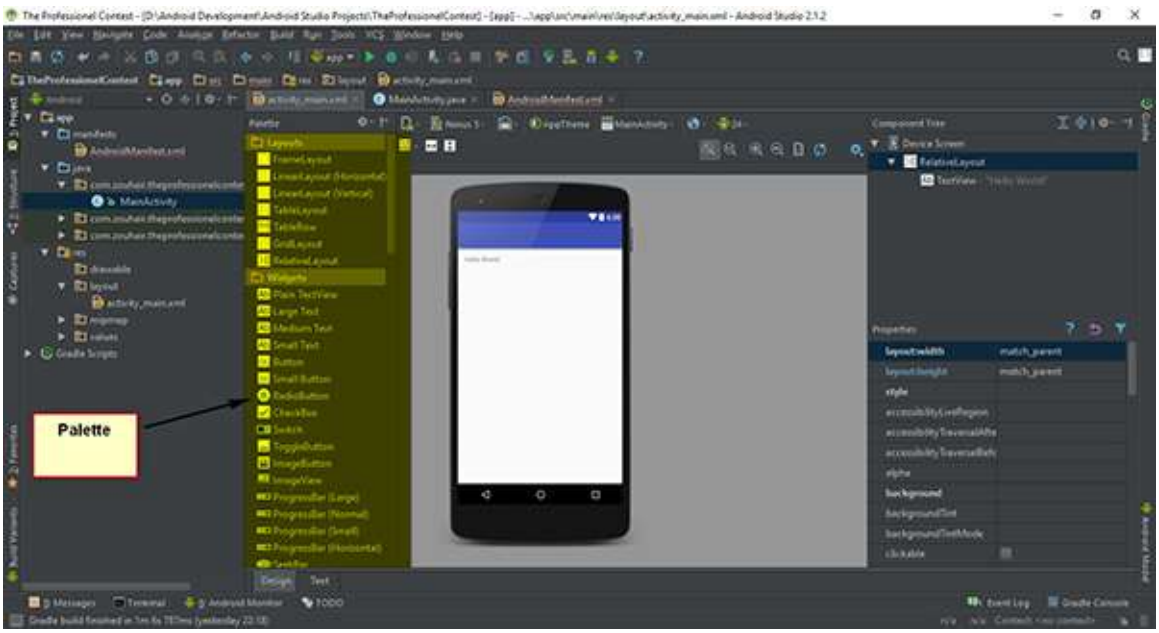
Pic3 (Find the devices)

Here you choose the type of work you want your application to do and choose Empty Activity to be free in your work and start from 0. Then click next.



Pic4 (Type of work)

We also said that each activity has a Java file and its own layout. In this step we have a Java file name and a layout for the main interface. At this stage, you choose which name you want under one condition. Activity Name must be the first capital letter.



Pic5 (Choosing name under one condition)

Then we will get to this destination what you see inside the phone is your application and it seems it is empty does not contain anything and you can add Matilda Palette, which appears in yellow. Then click on build up and choose build apk and your apk will be generated where you can publish it on PlayStore or any other store. We've just finished the basics or an overview of what to do to program Android

applications. We've also found some of the reasons that motivated me personally and I hope you will be motivated to start learning. Personally I recommend you take the day as the beginning of your journey towards professionalism in Android applications because it has become a treasure in the world of the Internet and ask God to help me and help you in this area.

3. CONCLUSION:

Although e- content design reaches to advance stages, it can improve and support the learning process if we effectively handle the e- content design and adaptation issues. In our article , we have introduced a top-down content design approach that guarantees an effective displaying and downloading of the learning content. The approach focuses on splitting the learning content into small learning objects each with objectives or sub objectives. Each learning object must be available in several forms which are: text, audio, video, animation, and image. We found these learning objects assist the learner in attract their attention to the educational material, that makes a lack of desire to learn, Achieve fully comprehend of educational content as expected, also taking into account the individual variability of learner, and learner is participant not recipient . In our work, we interest in design learning objects in a way that ensure achieving the previous objectives Taking into account all the characteristics of learning objects in terms of size and clarity .

Finally, the learning objects organized according to an instructional design model, they should be related to each other in a tree hierarchy structure and they must be adapted to achieve the learner satisfaction and learning objectives. Furthermore, while implementing the model, we found that the desire of students to follow the model some of the important factors that spread over the various dimensions of e-learning content. We have also explored those factors that significantly render the e-content fruitful; accessible and flexible. Those factors fall into four categories and based on these factor we generate four assumption, These assumptions have been adopted in the design of the model cause capture these elements of the reasons that contribute to solving the educational problems in the case were taken into consideration and taken into account : 1- Management-related assumption.

2- Technological assumption.

3- Pedagogical assumption.

4- User interface assumption.

The proposed model was tested through the design of artificial intelligence course based on this model and questionnaire was applied on a group of students that was both concerned and involved in the e-learning process. The group was students of Artificial intelligence course in the 2nd semester 2009 in the Hashemite universities in Jordan and recorded excellent results where success of the model.

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