Collaborative Learning Based on Tools of Web 2.0 and Its Effect on Developing Hypermedia Design and Production Skills among Faculty of Education Students According to Their Learning Styles.

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Abstract

*T*he current research aims at measuring the effect of collaborative learning based on tools of Web2.0 on developing hypermedia design and production skills among thirty female at level seven at the Faculty of Education, University of Hail according to their learning styles. Research tools included achievement test and observation checklist for the skills of designing and producing hypermedia, as well as Torrance test of learning and thinking styles and were applied pre and post on the study sample. The study used T-test and ETA square in SPSS to analyze the results and their interpretation, and the study found the following results:

1.There is a statistically significant difference at (0.05) level between the mean score of the research sample in achievement test of the concepts involved in the skills of designing and producing hypermedia (pre, post) in favor of the post assessment.

2.There is a statistically significant difference at (0.05) level between the mean score of the research sample in observation checklist of performing the skills of designing and producing hypermedia (pre, post) in favor of the post application.

3.Collaborative learning environment achieves the effect of (≤0.14) in the cognitive aspects and aspects of the performing skills of designing and producing of hypermedia.

4.There is a statistically significant difference at (0.05) level between the mean score of the research sample in the pre and post application of the scale of learning and thinking styles when using collaborative learning, and in favor of the post one.

Key words: Collaborative learning - Second Generation Tools "web2.0" - Hypermedia - learning styles.

Introduction:

The speed of the changes in innovations of educational technology entails the educators to reconsider some educational practices that may, in some viewpoints, seem to have become fixed and cannot be dispensed with or replaced. It was natural to develop the in-action teaching strategies to correspond with the rapid sequential developments in the field of education. Collaborative learning based on web 2.0web 2.0 helps reconsider the entrenched perception in the minds of some educators of constancy and stability on one style of teaching and makes it possible to replace it with a variety of educational practices in line with the innovations of technology.

The emerge of web 2.0 technologies in education initiated reformation of e-learning programs and their contents in a more interactive way with learners and teachers at once. One of the new applications of web2.0 is social networks that had its share of influence in the aspects of teaching and learning processes (Hadi, 2011). Thus, the traditional learning environment is no longer the only source for providing information and educational experiences necessary for learners, and that lead many educators to design online collaborative learning environments, to get the attention of learners , encourage them to exchange views and experiences, and provide them with appropriate opportunities for interaction and social collaboration, In order to build the new cognitive structure to provide continuous learning based on the use of modern technology, beyond the limits of time and space (Hamdani, 2006.47).

Saudi universities have competed for introducing modern technologies in university teaching and integrating technology into university curricula. The University of Hail was among these universities that focused on introducing e-learning in university teaching, and activating techniques and media in teaching. All these innovations have contributed in improving the educational process in university education and helped give the students a lot of skills and practical experience away from the traditional way.

Collaborative learning is one of the most important strategies that have proven instructional excellence and importance as it provides participants with the opportunity to learn and share sources of diverse information, as well as the possibility of exchanging experiences among themselves, where the main goal of collaborative learning is not only the acquisition and participation of knowledge, but also exceeds it to enhance the individual with the ability of building knowledge in innovative ways (Paavola et. al. 2004, 567).

According to the basics of education and psychology, the role played by the partnership and interaction with others in the cognitive development and learning stems from the Principles of social constructivism theory which emphasized that social interaction is necessary to engage in self-regulation, and it also accommodates cognitive development and learning (Alnamy, 2012, 3).

It is clear from the foregoing that the relationship between web 2.0and the constructivism results from the fact that web2.0 tools by their very nature are designed to constantly create the kind of changes in the learning community, helping to create a growing knowledge of the learner, and since the constructive knowledge is the results of social interaction and the language use, thus knowledge is collaborative not individual. Harriman (2007) also indicates that the collaborative learning via the internet is one of the most successful means as characterized by: increasing the motivation to learn, learner-centered, and support collaborative work between learners.

Many studies have been conducted to ascertain the effectiveness of collaborative learning in developing achievement and various skills either kinesthetic or mental, including the studies of: (Aa'ati, 2015; Ismail 0.2013; Mahdi, Algazar, Alostaz.2012; Alsayed 2013; Alnamy 2012). It is clear that collaborative learning encourages design proficiency on research, inquiry, and enthusiasm, which is reflected on the students' scientific activity and enhances their ability to self-learning.

Alcott's study (2007) indicates that Hypermedia is the technique of building informational elements interconnected in a non-linear style, and helps to enrich the student information, and increase his/her efficacy by activating and stimulating him/her, whereas through it, the student transforms the nominal data into information and information into knowledge and skills. Arman (2007) emphasizes that, hypermedia is one of the most important products of information technology era that has its influence in the provision of sophisticated mechanisms to boost the efficiency of education and training, it also provides those in charge of education and training with huge potentials to present topics, concepts, details and skill required components that are difficult to be displayed and clarified via the traditional methods of education and training.

Algazar (2002) emphasizes on the necessity of student teacher mastery of designing interactive hypermedia skills. It can contribute to reduce time and effort and help accelerate students' acquirement of information. Hussein (2013.282) also recommends the need to train teachers during their university preparation to recruit hypermedia and multimedia software for use in educational situations. Moreover, the international conference held in Taiwan (2001), entitled the education in the new millennium, highlighted the need to deal with and make use of modern technology in the educational process both individually and in groups, and stressed the importance of using hypermedia to facilitate the success of the educational process due to its properties that create environment suitable for curriculum development (International Conference on Computer in Education / International Conference on Computer-Assisted Instruction 2000).

From the above, it is clear that there is a growing interest toward expanding the use of distance learning approach using the Internet to promote the educational process. Using collaborative learning is one of the areas that contribute to the success of the students' practice and the introduction of technological innovations after examining their effectiveness in

the field of education in general, and the development of the skills of designing hypermedia software in particular. Due to the necessity of developing the skills of designing and producing hypermedia among female-students in the Faculty of Education, as evidenced by the recommendations of previous studies, and its importance for them after joining the labor market and using it in the educational process in a meaningful way in line with the nature of innovations of the era, starting from the fact that modern methods in teaching have become one of the most important pillars upon which the educational system depends as an assistant instructional tool, comes the idea of this research, which aims to provide them with the design and production of hypermedia skills through the use of collaborative learning based on web 2.0 and according to their learning style.

Context of the Problem:

Getting the problem of current research results from several sources, including the following:

1. Related studies and literature that focused on the use of collaborative learning in the educational process, and its impact on the achievement and the development of various skills, including the studies of (Abdul Ati, 2015; Alghoul, 2012; Alnamy, 2012; Harrima, 2007), which recommended the use of collaborative learning in the educational process.

2. The recommendations of conferences such as the Fourth International Conference of e-learning and distance education (2015), the Second International Conference of e-learning and distance education (2011), the conference of e-learning technology and the challenges of educational development in the Arab World (2009) the Tenth Annual Scientific Conference of e-learning technology and overall quality requirements (2005). These conferences recommended the need to design and develop interactive e-learning communities and effectively using social networking to achieve the desired educational goals, and the importance of shifting from E-leaning towards

electronic collaborative learning, as the style of collaborative learning and social participation is one of the main instructional goals besides the behavioral and cognitive objectives in the contemporary education systems.

3. Student teacher acquirement of the skills of designing and producing interactive hypermedia software is one of the important and necessary skills in the educational process, and is considered as a basic prerequisite that female students must master before graduation and work enrollment. Effective teacher is the one that reinvest technological innovations in his lessons meaningfully and effectively. Many studies have focused on revealing the impact of teaching using hypermedia on developing achievement, thinking and various skills, including the studies of (Khalaf, 2009), (Hassan, 2007), (Alsayed, 2007), (Ahmed, 2006), (Abdelrahman, 2009), (Osman, 2008), (Ebrahim; Abdulaziz, 2008), (Alsayed, 2008) whose results showed the impact of these media on the students in achievement and acquisition of various skills and attitudes development.

4. A pilot Study is conducted in order to determine the availability of design and production of hypermedia skills among seventh-graders at faculty of education according to their learning style, as well as the need to use collaborative learning for developing these skills. The questionnaire was applied on a sample of 22 female students from the seventh level of the Faculty Education to investigate their possession of designing and producing hypermedia skills, and their desire to work collaboratively. As shown by this study, there are deficiencies in performing the practical practices of how to design and build those skills, as well as the lack of collaborative work. The researcher interprets that to the reason that students register for the courses according to their own desire and without obligation to the specified courses for each study level, and this creates barriers

between students in the lecture, as we find each course with a new group of students per semester, and this leads to a lack of cooperation and partnership between the students.

5. This study differs from previous studies as it is one of the few studies that have addressed the effect of collaborative learning on developing of hypermedia design skills. There are many studies on the impact of collaborative learning in achieving other instructional outputs, but few have handled the effect of collaborative learning on acquiring the skills of hypermedia design and production in particular. This study can contribute to develop a framework to make use of collaborative learning and using it in the process of teaching-aids instruction.

Based on what has already seen, rises clearly the need to use collaborative learning as a modern and appropriate approach of learning for that sample which helps to create a kind of intimacy and cooperation, construction and passion to learn by participating for the development of design and production of hypermedia skills among seventh-graders in the faculty of education according to their learning style.

Statement of the Problem:

The problem of the present study can be identified in the presence of inadequate performance among students in level seven at the Faculty of Education concerning the skills of designing and producing hypermedia, so the research seeks to answer the following main question:

"What is the effect of collaborative learning based on Web 2.0 on the development of designing and producing hypermedia among the female students in Level seven at the faculty of Education, according to their learning style?"

The following questions are derived from that main question:

1. What are the concepts related to the skills of designing and producing hypermedia?

2. What are the skills of designing and producing hypermedia?

3. What is the effect of using collaborative learning based on web 2.0 on developing the involved concepts in the skills of designing and producing hypermedia?

4. What is the effect using of collaborative learning based on web 2.0 on the development of the skills of hypermedia design and production?

5. To what extent does collaborative learning affect the cognitive aspects and the performing skills of designing and producing hypermedia?

6. Is there a difference between learning and thinking styles among the seventh-level registrars for the production and use of teaching aids course?

7. What is the effectiveness of using of collaborative learning in developing the learning and thinking styles among female students in the seventh level?

Purpose of the Study:

The present study intends to solve the problem by achieving the following goals:

1. Determining necessary standards to design collaborative learning environment required for students' acquiring the design and production of hypermedia skills.

2. Designing a collaborative learning environment to provide female-students of Level seven at faculty of education with the skills of designing and producing hypermedia.

3. Overcoming the low cognitive level of students' knowledge of designing and producing hypermedia, through measuring the impact of collaborative learning in developing:

   1. The cognitive skills to design and produce high-level media among female-students of the Seventh level at Faculty of Education.

2. The performing skills to design and produce high-level media among female-students of the Seventh level at Faculty of Education.

4. Identifying the learning and thinking styles of students of the faculty of education Level seven (sample of the study).

5. Recognizing the effectiveness of using collaborative learning on developing learning and thinking styles.

Significance of the Study:

The significance of the present study lines in the facts that;

1. It is a reflection of modern educational trends, which stresses the importance of interactive media and using it in education.

2. It is one of the developmental researches in the field of education technology, as it is based on the adoption of one of the instructional designing models and applying in practice.

3. It employs some of the collaborative learning, based on the second generation of the Web, tools in education in general and the university education in particular to achieve constant communication between the teacher and the learner regardless of place or time.

4. It attracts educators and curricula designers' attentions to the learning and thinking styles in the educational process in general and in designing and producing hypermedia particular, during planning for the curricula and instructional activities, experiences and programs. And taking into account activating the functions of both spherical halves of the brain together instead of using monotonous traditional methods in developing a particular style over the other style account that sometimes exposes some students to frequent failure.

5. It is one of the techniques concerned with the interaction between the manipulation and readiness that matches the learning styles and the individual differences among learners.

6. It designs a collaborative learning environment to strengthen teamwork among students in hypermedia designing and production, and exchanging views about that.

Hypothesis of the Study:

1. There is a statistically significant difference at (0.05) level between the mean score of the research sample in achievement test of the concepts involved in the skills of designing and producing hypermedia (pre, post) in favor of the post assessment.
2. There is a statistically significant difference at (0.05) level between the mean score of the research sample in observation checklist of performing the skills of designing and producing hypermedia (pre, post) in favor of the post application.
3. Collaborative learning environment achieves the effect of (≤0.14) in the cognitive aspects and aspects of the performing skills of designing and producing of hypermedia.
4. There is a statistically significant difference at (0.05) level between the mean score of the research sample in the pre and post application of the scale of learning and thinking styles when using collaborative learning, and in favor of the post one.

Methodology of the Study:

The researcher, in the present study, depended on:

1. Developmental Research Methodology, through applying an instructional model for designing collaborative learning environment represented in ECEL model.
2. Descriptive approach: this research includes the theories and studies based on Arab and foreign resources available in this area and study tools, within the theoretical framework, tools of the study, analysis, interpretation of the results and recommendations for further research.

3. Quasi-experimental approach: in order to measure the impact of collaborative learning in hypermedia development and production among the students of the Faculty of Education Level seven according to their learning style.

Variables of the Study:

The research variables are:

1. The independent variable: Collaborative learning environment.
2. The dependent variables: are represented in the degrees of acquisition in:
     1. Knowledge Achievement.
     2. Performance observation checklist.
     3. Torrance Scale of learning and thinking styles.

3. The control variable: degrees of the pre-assessment of each of the (Achievement test, skill-performance card, Torrance Scale of learning and thinking styles).

Delimitations of the Study:

The proposed study is limited to the following:

1. Some Collaborative learning based on tools of Web 2.0, which are: Wiki - RSS tool - weblogs.
2. Knowledge and skills related to designing hypermedia involved in the production and use of teaching aids Course.
3. Level seven female-students at the Faculty of Education, University of Hail registered for the course of producing and using the teaching aids, first semester 2015/2016.
4. Using ECLE model as a model of instructional designing of collaborative learning environment.

Terminology of the Study:

Collaborative Learning:

AL Husseini, et al. (2012.257) defines it as an approach and strategy for teaching in which learners work together in small or

large groups, and collaborate in completing the task or achieving common instructional objectives. Knowledge, skills and attitudes are acquired through collaborative group work, thus it concentrates on the cooperative and collaborative efforts among learners to generate knowledge rather than receiving it through social interactions where instruction is learner-centered. The learner is seen as a contributor in the learning process.

Also it is defined as "A learning style that is based on social interaction among learners in small groups that seek to achieve shared learning objectives and tasks through organized and well-planned group activities, using communication tools via the Web and its services. It focuses on generating not receiving knowledge, through the learner activity, positivity and teacher's instruction and guidance (Edman, 2010, 101).

Procedurally, it is defined as "one of the learning styles based on social interaction among female students of level seven in the faculty of education registered for producing and using aids. As they work in small groups, each of which is made up of six students collaborating through group activities in the fulfillment of the tasks required to achieve the desired instructional objectives by using some of Web 2.0 tools. "

Second Generation of the Web "Web 2.0":

Web 2.0 is defined as "A new method of the Internet that depends on the size of supporting communication between users, and maximizing the user's role in enriching the digital content on the Internet. This is reflected in the construction of some applications that meet the attributes and characteristics of the Web notably blogs and free authoring and social networks" (Yusuf; Shuaib, 2015, 197).

Yowell & James (2009, 10)) define it as "the application that uses the Internet as an environment and allows the active participation and cooperation and interaction among users, and is characterized by the establishment and sharing of intellectual resources and sociality among users."

Procedurally, it is defined as "Tools that enable female-students, at Level seven in Faculty of Education registered for the course of producing and using teaching aids, to communicate with their colleagues concerning the teaching practices, to improve their performing skills, and to design and produce hypermedia. These tools are the Wiki, vector News Rss tool, weblogs."

Hypermedia:

Hussein (2013, 265) defines hypermedia as "a set of tools that combine texts, sounds, stable and animated images, slides and video clips. They are associated with each other in hyperlinks covering the objectives and studying unit, in which the student moves freely and non-linear among topics and interacts with them".

Khamis (2007.37) defines it as "an entire complete instructional system, includes an integrated and interactive group of multimedia that includes texts, sounds, stable images and graphics, and organized animation, interconnected in saturated non-linear way, enabling the learner to roam freely, across not linear paths, using specific search strategies, to quickly access the information or the scenes needed. "

Procedurally, it is defined as "An instructional integrated software that includes a group of multiple instructional media consisting of written and spoken texts, graphics, stable images, animation, video, cartoons and vocal effects integrating and interacting together that are selected depending on the instructional situation and work in one format to achieve the desired objectives."

Learning Styles:

Fleming & Bonwell (2002) define learning styles as "a way through which the learners receives knowledge, information and experiences and his way of arranging and organizing them, and then the way in which he records, symbolizes and integrates, and keeps them into his information reservoir, and then retrieved a way to express them.

Katami (2008.32) defines learning styles as "the way in which the individual learns and absorbs the displayed learning experiences, and the preferred method used by the individual in organization, information and problem processing."

The researcher procedurally defines learning styles as "the tendency to respond by using one of the two spherical halves of the brain more than the other, and that is degree obtained by the student in learning and thinking styles scale, which was developed by Torrance and others (Torrance et. al, 1984).

Firstly: Review of Literature and Related Studies:

The researcher handles in the theoretical framework of the study in three main axis: the first one: Collaborative learning based on Web2.0, the second: Hypermedia and its role in the educational process, and the third is: learning styles and their relationship with collaborative learning. These three axis are displayed as follows:

The first axis: Collaborative learning based on the second generation of the Web:

The collaborative learning is one of e-learning strategies that is based on the learner and is based on social interaction as a base for building knowledge through the employment of communication tools and technology across the Web, which is considered as an effective environment that helps in the construction and development of the social conception of learning, and emphasizes collaborative learning (Al-Ghoul, 2012 302). Downesm (2006, 1-5) explained that the social and collaborative character is the hallmark of collaborative learning software as it is the second e-learning generation of the Web.

There are numerous definitions for Collaborative E-Learning; Stahl, Koschmann & Suthers (2006,5) define it as a "one of the sciences concerned with studying how can learners learn along with the help of computers, or with the help of technology to ensure the improvement of the learning process and employ teamwork so that learners can discuss their ideas and put forward their views, the thing that allows the exchange

of ideas and information Cross-fertilization process, it pays attention to multiple and different views on the subject of learning matter". Khamis (2003.268-269) defines it as an" approach or a strategy for instruction, in which learners work together in small or large groups, and share in fulfilling the task or achieve common instructional objectives, through which acquisition of knowledge and skills or trends is done through collaborative teamwork, therefore it focuses on collaborative efforts between learners to generate knowledge rather than receiving it through social interaction. As instruction is learner-centered, that's why the learner is seen as an active participant in the learning process."

From the foregoing, it is clear that collaborative learning is not a synonymous to cooperative learning even though they are similar in that they are of the modern instructional methods that aim at individual's learning in small groups. Collaborative learning based on web 2.0 is mainly based on social interaction among learners.

Cooperative Learning is a learning structure in which learners cooperate among each other to perform the targeted tasks, without competing or hampering each other, all of them work on his project, such as conducting an experiment, or writing in a research, but they are cooperating to achieve similar goals (Al-Otaibi, Al-Tayeb; 2010; 846). whereas collaborative learning is deemed to be a strategy or an approach to learn based on working in groups to achieve one goal, where everyone has a specific role (determined by himself) the work of each individual completes the work of the rest of the group, and therefore do not exchange their roles in the performance of collaborative tasks. The members of the group meet for consulting and discussing ideas and information acquired for the production of new knowledge or scientific value or gaining new skills, and therefore it is learner centered , and emphasizes the learner to learner interaction (Al-Ghoul, 2012.303).

Collaborative learning is characterized by the following Profiles (Khamis, 1430, 311):

1. It applies a lot of instructional theories such as cooperative learning, the intended learning, sources-based learning, and project-based learning.
2. Interaction and interdependence among the learners, and everyone, in the group, that has a main role with whom instrumental work is not complete.
3. Individual responsibility, each individual is responsible for mastery of the learning provided by the group.
4. Group reward (Reinforcement), there are fundamental reasons according to which group work should remain, the reward is delivered only after the termination of the overall work.
5. Collective training through social communication sites.

Khamis (2003.296) sees that the importance of collaborative learning approach results from several advantages as it helps in: students' use of information resources in their search, directing their efforts towards getting, combining and organizing information from different resources, adding value to these resources through students' deliberation, and building representations for their own knowledge to achieve specific learning objectives, learners also share information communicating together, coordinating activities, and cooperating in the construction of knowledge products, as well as providing learners with knowledge enhancement to help them build their activities and learning.

Many studies have emphasized the effectiveness of collaborative learning based on web 2.0 on developing achievement and some various skills, such as Ismail's (2013) which aimed at designing a proposed collaborative learning environment based on the employment of social networks as an instructional-social space, for developing electronic networking communication skills and the attitudes towards chemistry learning via the Web. The study found statistically significant differences between the mean scores of the two applications pre and post in favor of the post one in the attitudes towards

chemistry learning scale, and in the scale of social communication skills. The study recommended the need to expand the use of collaborative learning environments.

Al Sayed's study (2013), aimed at building a proposed structure for an online collaborative learning environment to develop problem-solving skills and attitudes towards the learning environment among educational technology students. The results were statistically significant in favor of the second experimental group in each of the achievement test, observation checklist, and post attitude scale. The study recommended that using collaborative e-learning environments in teaching courses is worthwhile due to its numerous advantages.

Wali's study (2010) targeted to identify the effectiveness of a training program based on collaborative networking learning on developing teachers' competencies in the recruitment of e-learning technology in teaching. The study found that the program was effective in improving the cognitive, professional and emotional aspects of the efficiencies of employing e-learning technology in teaching, whereby the researcher attributed to the use of collaborative learning.

There are many collaborative learning tools. The present study uses three tools of the most frequently used applications, and will be displayed as follows:

The Wiki:

Al-Far (2012.78) indicates that, the Wiki is considered one of the most landmarks of Web2.0 revolution. It is a combination of a Web site and a word-processor document that can only be read like any other site, but its real strength lies in its ability to enable a group of individuals and website visitors to work collaboratively on the content of the site using a web browser without the need to register.

Krebs, Ludwig and Müller (2010) applied Wiki technology to strengthen the partnership between students to learn mathematics. As it allows the establishment of collaborative content, as well as participating in writing, and creating new

links to that content by the learners, in addition to the possibility of applying Wiki to achieve mass participation to manage content in formal learning. The study results showed the effectiveness of learning math using Wiki technology due to the promotion of thinking and collaboration among students through it. This is consistent with the present research in which the Wiki tool is used because of its ability to manage the content of designing and producing hypermedia through collaborative work among them.

The most prominent feature of Wikis is to allow users to collaborative work on building content with complete freedom to add and omit without the need of possessing the content or encountering any restrictions on access. So the working model in the Wiki allows on one hand group of users to roam in a society in which members share their effort and knowledge, and On the other hand, the Wikis design provides great potentials for knowledge management within the context of a particular activity or project.

Rich Site Summary (RSS):

Habishi et al. (2012.714) define RSS tool as an abbreviation for Rich Site Summary that means site intensive-summary, or Really Simple Syndication i.e. feedback or input and the latter term is the most commonly used. It is a service for the disseminating updates for the network sites which saves time so as to help the site visitors browse the recent news. It is one of the Web2.0 applications, as it enables you to get the latest news at the same time, they are released on the subscribed site.

Lan and Sie (2010) aimed at assessing RSS in improving Mobile Learning in terms of the accuracy of the message's timing and the clarity of its content compared to the SMS text messages services and e-mail service. The study has identified four factors to assess the content of the message, namely: time, the message's content, accuracy, and the appropriateness of the content of the message. The study results showed that, the RSS Tool is most suitable to deliver mobile learning because it is suitable for

providing learners' activities and achieving the goal of mobile learning anytime and anywhere.

It is clear from the foregoing that, the RSS tool allows the user to follow up a huge number of sites without the need to visit all of the sites. The present research adopted the RSS tool because of its ability to inform students of new topics that are added through collaborative learning and providing them with their peers' comments.

The Weblogs:

After propagation and vast reputation, Weblogs have been described as the second revolution in the Internet world after e-mail and the Wiki. The reason, for their reputation and rapid propagation, is perhaps due to their efficacy and direct access by beneficiaries. Al-Meligi et al. (2010) view them as an internet application, working through the system of content management, which is a Web page that displays dated and chronological descending order entries (inputs), accompanied by a mechanism to archive old entries. Each entry has a permanent address that does not change from the moment of its publication which enables the reader to recall a particular entry later when it becomes unavailable on the first page of the forum.

Several studies, such as Bakr (2011); Al-Madhovi (2011); Salem and Ali (2011); Amasha (2011) indicate the advantages of using weblogs in education, namely:

1. They are used to comment on the students' learning on their personal blogs.
2. Students ideas are connect with their peers through comments.
3. They are helpful in asking questions about difficult concepts.
4. A tool for personal diaries but electronically.
5. They promote creative and sensory and group thinking.
6. They lead to blending personal interaction with social interaction.

7. They provide students who encounter participation shyness with motivation.
8. They facilitate the teacher-to-students direction and guidance.

So weblogs are considered dynamic communication tools in the instructional process, as they can be used effectively with the student to communicate with the teacher even outside the classroom Al-Madhovi (2011); Salem and Ali (2011) have revealed the effectiveness of using weblogs on achievement and attitudes among students, and their importance in the development of thinking and retention of learning effect among them. Halic et. Al. (2010) also indicated that the studies on the impact of weblogs are still very limited, so his study aimed at revealing the effectiveness of using weblogs in large classes on students' academic achievement as 67 undergraduate students reported that weblogs promote their learning and motivate them to think about the subject not only in the classroom but also outside it. The results of that study emphasize the effectiveness of weblogs on increasing interaction and cooperation among students.

Several studies, such as Robertson (2008) and Tekinarsland (2008), have concluded that teachers found it easy to use weblogs, and that they have an important role in supporting cooperative learning, and are flexible as teachers could use them in the exact and appropriate time and that they can review the previous topics easily.

Fadda and Yahya (2010) emphasized that, weblogs enable students to document their literary works and that preserves these works and reflects their development so that they can practice their writing skills on the Internet, especially in case of teacher's suspension and criticism towards their writings through these weblogs.

According to Al-Ghoul (2012.71) collaborative learning depends on many theories, including:

1. Vygotsky's Social Development Theory: it is a theory of social interaction that plays a fundamental role in cognitive development. The individual has to learn any subject through social interaction, as he affects and is affected by the surrounding environment (learning environment) during learning and this is achieved in collaborative learning groups.

2. The Cognitive Flexibility Theory: This theory emphasizes that the methods that rely on memorization do not allow acquisition of higher-levels of knowledge, and that the learner needs to deal with the information to know something or solve a specific problem (he has a motive) thus it will be easier and has a longer retention.

3. Conversation Theory: this theory emphasizes that the conversation between the participants in the group benefits them in kind and degree differently from one to another, and that conversation goes through three levels beginning with a general discussion, and then topic discussion, and then talk about the learning that has occurred.

From the above, it is clear that the success of collaborative learning depends on social interaction, and conversation among the participants as well as their prior knowledge and its role in the acquisition of new knowledge and also the fundamental motive behind the acquisition of this knowledge.

The Second Axis: Hypermedia and its Role in Teaching and Learning Processes:

High-media plays an important role in the improving and developing instruction and achieving the objectives efficiently and effectively. Through reviewing literature and previous studies relating to that axis, it became very clear to the researcher its importance in the instructional process, as it provides various and different information resources that can be scanned and roamed easily and freely by the learner. Student teachers' acquisition of the skills of designing and producing

hypermedia software during their preparation in the Faculty of Education is very important and necessary skills for carrier.

Hypermedia is considered as one of the interactive media, which developed rapidly and became popular in educational areas as it enables the learner to move and roam in the tutorial to access the content across multiple paths variously including written texts, fixed and animated drawings, sounds and videos, within the required information. It also provides the learner with the freedom and independence to choose the information (Khamis, 2006.19).

Hypermedia definitions have varied from the viewpoint of many researchers, including Salem's definition (2001 258 259) "an Instructional strategy that is used in transferring and presenting information in a non-linear way, and take advantage of the learner's sensory entries "audio and visual", and in providing interaction between him and a range of the instructional media that store information in a written form, fixed and mobile footage, stable and animated images, movies and harmonious colors, and voice and music recordings. It also enables the learner to control the access to information quickly and easily to achieve the instructional objectives efficiently. "

Kayenda (2003, 25) defines it as correlated, non-linear and non-sequential forms of accessing to information. It includes text information, graphs, sounds, animations, and video.

Through previous definitions it is clear that Hypermedia is an integration and interaction between the multimedia system and the hypertext linked with each other in a non-linear style.

Elements and Components of Hypermedia

The Database:

It is the tool by which all the information and all its different forms, presentation methods, and interactions styles, are stored and saved, on condition that this information is stored separately (data).the database provides capacity for storage, preservation, retrieval and modification through adding,

omitting, or changing all the units and elements of separate minute information (data) that is entered into the database in any form or style (video, photos and texts, stable or animated graphics and sound clip) (Hindawi et al., 2009, 302).

Information Minute Stations (Nodes):

It is the unit of building hypermedia where the nodes act as data network compilers. Each node is considered an integrated small self-contained unit interrelates with each other forming a larger and more comprehensive entity in the amount of information, elements and the media contained (Marei, 2009).

Connections and Hyperlinks:

It is tool that connects between the minute informatics stations i.e. it's a mean of communication and connectivity between different nodes in the software وthrough which moving and roaming occur freely and easily between these nodes. It is one of the top two units in addition to the informatics nodes in hypermedia system that is characterized in its work of being similar to the human brain that contains and stores information in abstract units that are linked with each other (Paul de bra, 2000,115).

Methods and Means of Navigation:

It is all possible eventualities of learner's progress in the software, and all the means and tools used in that progress, such as lists, icons and other including hyperlinks themselves which must be taken into the designer's consideration when carrying out the design and during the implementation of the program, through which the learner may move around and roam the entire software or determine a specific track that suits his needs and experiences according to his own philosophy in roaming and sailing inside the software (Amin, 2000, 204).

Features and Characteristics of Hypermedia:

Hypermedia has many features and characteristics that abound in many of the studies and literature that made it of the searching worthy technological innovations among the most

prominent features (Almzmomci, 2015; Fares, 2007; Al-Sayed, 2007):

1. **Flexibility in the provision of information:** hypermedia systems allow freedom of movement with great flexibility for the learner within the program. The learner can track the topic following the style that fits his abilities and interests, as he moves freely from an idea to another without any restrictions. So hypermedia is considered as flexible environment that requires decision-making from the learner, i.e. it involves higher-order thinking skills to develop cognitive aspects of the learner.

2. **Taking into account individual differences among learners:** hypermedia systems contribute, due to its ability, to provide opportunities for the learner to control the learning topic and examining and absorbing information according to his abilities and aptitudes.

3. **Interconnection between information:** hypermedia works to connect between all the elements of information and contributes to discover new ideas or information through creating links between information.

4. **The possibility of individual learning:** hypermedia individualizes instructional situations to commensurate with the learner's prior experiences. As it takes into account, when designing this type of software, that they rely on self-stepping of the learner.

5. **The diversity of interaction forms:** hypermedia programs are rich of plenty of multiple alternatives for interaction. The interaction can occur through numerical and diverse audio, visual means in the program. It may be through interaction with navigation and roaming patterns within the program.

6. **Multiple Navigation styles:** hypermedia provides multiple styles to navigate inside the program, according to the requirements and characteristics of each learner. It is also a free learning tool that does not put restrictions on learner progress throughout the program, or its

presentation time or the amount of information and resources within the program.

7. **Providing a tremendous amount of knowledge in various ways:** hypermedia systems allow huge aggregations of the information stored in different formats and templates. The linking between this huge mass is made through diverse correlations and ties. So it offers the learner multiple styles and various forms of knowledge.

8. **The development of teamwork skills:** hypermedia systems help to encourage teamwork. Learning through online hypermedia provides the opportunity for consultation, competition and exchanging views with others.

From the above, the researcher concludes the extent of hypermedia effectiveness and its positive role in learning due to its high instructional and technical capabilities that enable it to achieve effectively the desired instructional goals including: the efficiency of the learners and their activity during the learning process - attracting the learners' attention and constantly raising their motivation - Considering the individual differences among learners through the diversity of the presented stimuli - encouraging individual learning which leads to learn to mastery - the possibility of learning in large and small groups - strengthen learner responses through providing him with instant feedback during learning).

Hypermedia Programs Production Requirements:

Hypermedia systems preparation needs for using modern technology that helps to organize data and produce more effective instructional programs. They are also characterized by using instructional programs such as words Coordinator, simplified photographs, and communication via satellites and other devices and instructional tools. From all of that, we can find that hypermedia is composed of (Gharib, 2012, 35):

1. **Data Systems or Information Management:** is managing the information that makes up the instructional

program, includes the basic knowledge that is segmented into the smallest units and also determines the learner's performance and his interaction with the program through special files according to his response by using authoring systems programs for producing instructional software.

2. **Authoring Systems Programs:** information is handled and transferred in hypermedia via authoring programs that have the tools and capabilities needed for producing the tutorial in order to deliver the information to the learner, and there are two categories of authoring systems, those are:

    1. Authoring systems: they are the templates that can hold directions and texts by using the computer as a tool for producing programs, which helps the learner navigate the text through hypermedia, the program usage depends on the computer type in use.

    2. Authoring languages: they are languages that require a system and continuous construction to issue commands i.e. it requires a series of successive commands, such as Amiga Vision and Visual basic.

3. **Instructional tools and devices:** the preparation of hypermedia systems requires many instructional tools and devices as follows:

    1. Tools: It is used by the learner to input his response and track and control information within the program, and it includes keyboard- Mouse- Light Pen- touch screen.

    2. Instructional devices: include computer, central processing unit, storage facilities, monitors, and associated audio and video devices.

Levels of Using Hypermedia:

Through reviewing the literature and previous studies related to hypermedia, the researcher found that there are three levels to use hypermedia in the education, these three levels are presented below (Ismail, 2008: 167)

1. **The First Level: Hypermedia Reading:** the learners at this level have no control on the program, and this is suitable for the learners who cannot decide what they want or what they need to do, and this level is very similar to the reading books.

2. **The Second Level: Participation in hypermedia:** Learners are active at this level and participate in the learning process. Hypermedia at this level is closest to the library, including the book as there are many available information resources that can be used freely by the learner to choose any subjects or information. Learners can use these resources to write their own subjects or to evaluate other individuals' work.

3. **The Third Level: Exploratory Hypermedia:** Learners at this level possess the ability of exploring and composition of their education. They have access to any kind of information. This method is characterized of limiting the restrictions that arise as a result of determining the time and place, and also more useful and successful with learners who have prior knowledge about a particular concept about which they are seeking more, because this method provides a higher level of control over learning.

Many studies have agreed on the effectiveness of hypermedia on developing cognitive achievement among learners in a better way than the common methods of classroom teaching, regardless of the type of hypermedia software, its organization, its content organization, or its navigation styles, including (Khalaf, 2009; Hassan, 2007; Al-Sayed, 2007; Ahmed, 2006). A lot of studies, including (Khalaf, 2009; Abulrahman, 2009; Ebrahim and Abdul Aziz, 2008; Othman, 2008; Al-Sayed, 2008) have also confirmed on the effectiveness of Hypermedia on developing the learners' practical skills, despite the differences of research samples, types of skills, Methods of experimental manipulation among these programs. This emphasizes the importance of using these types of software for

developing the learners' skills in various fields because of their effectiveness.

Thus, it is clear that, when instruction is accompanied by educational programs that grab the learners' attention through providing and presenting diverse stimuli of scientific content, it may contribute to raise the learners' levels of achievement and equip them with the skills, and this is what was confirmed by the results of previous studies.

Phases of Designing Hypermedia Software:

The designing and production process of Hypermedia instructional program, via using an appropriate program such as: Power Point, Front Page, Author-ware, Flash - Director - Switch - Dream Weaver-Photoshop, passes through several stages, each stage has a series of steps that are integrated with each other to build the tutorial. The designing and production phases include three phases: Planning - Designing - Production and Distribution. According to the model presented by Nabil Azmi (2000), these steps of designing and production of instructional software:

Firstly: The Planning Phase: This phase includes several steps as follows: (estimating needs - determining the overall / general objectives - identifying procedural goals - selecting the content and its organization - determining the pre-requirements - formative assessment).

Secondly: The designing Phase: This phase includes the following set of steps : (designing the scenario in its first draft - designing windows / screens - determining response and feedback methods - formative assessment).

Thirdly: The Production and Distribution Phase: At this stage, computer is used to convert scenario design into a real program, and this is done by following these steps: (determining production requirements - preparing the required multimedia - producing the program in its initial design - formative assessment of the program - the program in its final case - publishing and distribution).

The Third Axis: Learning Styles and their Relationships with Collaborative Leaning:

Learning and thinking style is a set of behavioral, cognitive and psychological characteristics, which represent relatively stable indicators of how the learner recognizes the instructional environment and his interaction and response to it (Rawashdeh et al., 2010.361). Torrance and others define a learning style as "The individual's ability to use one half of the right and left brain and in the cognitive mental process "(Kassem, 2011.115 to 146).

Learning styles models are continuously and successfully used to help both teachers and learners design an effective instruction process. It helps learners reach a better understanding of the thier own learning processes. It also helps both teachers and learners recognize that not every individual is supposed to be like them, but rather the differences among individuals are a natural, should often be advertised and even glorified (Asha and Abssi 2013.1274).

The educational literature indicates that there are several taxonomies for learning and thinking styles. These taxonomies are similar in many general areas of classifying those styles, but may differ in the dimensions or levels of those areas. Torrance taxonomy of learning and thinking or mind control styles is one of the most famous classifications, in which Torrance and his colleagues discriminated between three styles of learning according to the half of the brain used in manipulating the received information, namely: the learning style associated with the left half of the brain, the learner of that style, is characterized of being logical, planner, easily remember names and meanings, verbal and analytical; as for the learning style associated with the right half of the brain, the learner, of that style, is characterized of being able to determine the spatial relationships, intuitive, easily remember faces, responsive to visual and kinetic instructions, and is capable of doing more than one task at the same time; the integrated learning style in which the learner can use the two hemispheres of the brain together in the implementation of mental tasks without preference for any of the

previously mentioned styles on the other (Asha and Abssi, 2013.1275).

Sternberg attributes the learners' success and failure to the extent of harmony and consensus between the teaching methods used and their styles of thinking and learning, more than attributing one's success or failure to the students' abilities themselves (Al-Atoum et al., 2007.34).

Vygotsky believes that higher mental functions are gradually formed through a series of social interactions, this view is based on resources that claim that conditions and mechanisms of cognitive development exist outside the individual and this growth is achieved through the participation of the individual in various social and cultural activities, and that interaction with others and with environmental culture contributes in cognitive development of the individual if he takes his position in the so-called individual potential development area ZPD which is the distance that separates the possible level from the actual level of growth (Al-Namy, 2012, 34).

Learning and thinking styles effect on the way students learn, through which they do various mental functions, as well as the way teachers teach their students (Nofal, 2007.3).

From that, we can take advantage of the learners' interaction with each other electronically in addition to the convergence of therir characteristics and general thoughts on learning by collaborating in knowledge construction rather than relying on the teacher to get the information, thus teachers can adapt their teaching methods with their learners' learning styles, consequently learners are expected to become more capable of learning and dealing with curriculum activities, which can lead to positive predictions and better outputs of the instructional process.

Several studies have tried to determine the preferred style among learners including Rawashdeh's, Nawafleh, and Al-Amry (2010) study, which aimed to survey the learning styles among ninth-grader and their impact on achievement in chemistry. The

results of this study noted that 82% of the study sample has a dominant-preferred single learning style. The results also showed that achievement in chemistry varies depending on the learning style, in favor of the style D compared to other two styles.

Qasim (2011) conducted a study that aimed at measuring the associated with the right and left hemispheres of the brain among the preparatory stage students and their relationship with divergent thinking. The results of this study have shown differences in the styles of thinking in favor of students with left-hemisphere style compared to those of the right one. The results have also indicated the positive relationship between right thinking and divergent thinking, while that relationship was negative between the left thinking and divergent thinking.

The current research comes to complete the theoretical literature and previous studies in measuring the common learning styles among female students and their relationship with collaborative learning. The current research uses Torrance scale of learning styles within three styles (the left style - the right style - the Integrated style).

Second: The Methodological Procedures of the Study:

Sample of the Study:

The research sample consisted of students, of the seventh-level from the Faculty of Education at the University of Hail, registered for the course of the production and use of teaching aids (WSL 250), including (30) students.

Experimental Design of the Study:

Based on the independent variable that is represented in the collaborative learning based on web 2.0 tools and the dependent variable represented in designing and producing interactive hypermedia according to the learning style, the researcher has chosen the experimental research method known as the factor design (1 × 3) to answer the research questions.

Tools of the Study:

1. Achievement test of the concepts involved in designing and producing hypermedia course (prepared by the researcher).
2. Students' performance of designing and producing hypermedia assessment checklist (Prepared by the researcher).
3. Torrance's learning and thinking styles Scale.

Procedures of the Study:

The researcher used the (ECLE) model to design collaborative learning environment (Habishi, et al., 2012). The structure of this model has adopted several environments suitable for e-learning, including: model of (Alsherkaoui, 2008), model of (Ali, 2006), Morrison's model (Morrison, Ross and Kemp, 2004), model of (Khamis, 2003), model of (Al-gazar, 2002), and Carey's Model (Carey and Dick, 2001). The ECLE model has been extracted from these models and it includes six phases described as follows:

The First Phase: Study of the Current Reality

This stage aims at studying all the circumstances and factors surrounding collaborative learning environment before constructing it, it includes the following steps:

1. **Identifying the problem:** Through studying the current situation, there is a need to design a collaborative learning environment based on web 2.0 applications and to measure the impact of its effectiveness on the development of the skills of designing and producing hypermedia among students in the Faculty of education registered for the course of producing and using teaching aids according to their learning style.
2. **Analyzing the characteristics of learners:** The characteristics of the seventh level students, at the Faculty of Education in Hail and they are 30 students, have been identified, and there is harmony among them in terms of mental and skills maturity and that was perfectly

remarkable through the convergence in their scores during the previous levels.

3. **Determining the educational needs of the students:** to determine the most important educational needs of students, the researcher has reviewed some of the literature, previous studies, conferences, books interested in the field of hypermedia in general, and the recruitment of collaborative learning based on web 2.0 tools, and has prepared a list of procedural objectives proposed for the skills of designing and producing hypermedia through the tools of collaborative learning environment. In light of that, there was a need among the students of the seventh level registered for the course of producing and using teaching aids to link between the theoretical and practical side of designing and producing hypermedia using collaborative learning environment through the Web.

4. Determining the reality of the available educational resources: The characteristics of the learning environment have been analyzed by observing and naming the material and human resources at the faculty, that are the availability of computers connected to the Internet for students' easy access to collaborative learning environment (location); where the faculty contains 7 coefficient computer labs, each lab includes 30 computer and a data projector (smart projector), and a white board. The laboratories are equipped in terms of electricity sources and appropriate seats, curtains, fans, and the availability of software such as (operating systems programs, and programs for Web browsers).
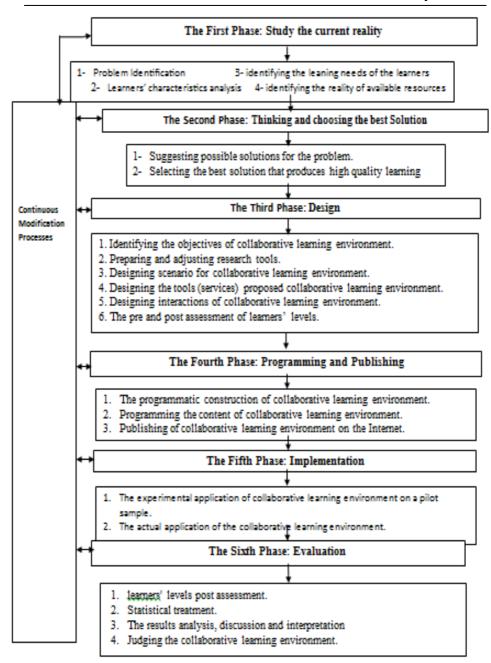
The First Phase: Study the current reality

1- Problem Identification   3- identifying the leaning needs of the learners
2- Learners' characteristics analysis   4- identifying the reality of available resources

The Second Phase: Thinking and choosing the best Solution

1- Suggesting possible solutions for the problem.
2- Selecting the best solution that produces high quality learning

Continuous
Modification
Processes

The Third Phase: Design

1. Identifying the objectives of collaborative learning environment.
2. Preparing and adjusting research tools.
3. Designing scenario for collaborative learning environment.
4. Designing the tools (services) proposed collaborative learning environment.
5. Designing interactions of collaborative learning environment.
6. The pre and post assessment of learners' levels.

The Fourth Phase: Programming and Publishing

1. The programmatic construction of collaborative learning environment.
2. Programming the content of collaborative learning environment.
3. Publishing of collaborative learning environment on the Internet.

The Fifth Phase: Implementation

1. The experimental application of collaborative learning environment on a pilot
sample.
2. The actual application of the collaborative learning environment.

The Sixth Phase: Evaluation

1. learners' levels post assessment.
2. Statistical treatment.
3. The results analysis, discussion and interpretation
4. Judging the collaborative learning environment.

Figure (2): Collaborative Learning Environment Designing Model
(ECLE)

The Second Phase: Thinking and Choosing the Best Solution

At this stage, we think in the desired performance requirements depending on the current reality, and propose a range of solutions to solve the problem of lack of performance skills among students at level seven enrolled in the course of producing and using teaching aids, and then choosing the best out of them:

1. **Suggesting a set of proposed solutions to solve the problem:** in this step, a range of solutions proposed to solve the problem is offered as follows:

The First Solution: preparing a list of the stages of designing and producing hypermedia and then distributing it among students at the beginning of the lecture.

The Second Solution: Designing software for students through which the stages of designing and producing hypermedia are viewed.

The Third Solution: Designing and publishing a collaborative site that contains some second-generation tools such as: Collaborative Web Editors (Wiki), RSS, and Blogger. Students are allowed to collaborate in developing the skills of designing and producing hypermedia.

2. **Choosing the best proposed solution that provides a high-quality educational product:** in this step, the analysis of the proposed solutions and selection of the best of these solutions and the most suitable one, take place as follows:
   1. The first solution: it is blamed for only writing down the skills of designing and producing hypermedia in a booklet without being in practice and application.
   2. The second solution: it is limited to presenting a software about the designing and producing hypermedia skills without giving them an opportunity to express their views and social interaction, which limits creativity and innovation.

3. The Third Solution: It is considered the most up-to-date with modern scientific innovations in the field of educational technology; it also allows participation and social positive communication to collaboratively build new knowledge.

From the foregoing, it is clear that the third solution is the most suitable solution that enables us to obtain meaningful learning outcomes that match the nature of the sample and the technological innovations of this era.

The Third Phase: Design

This phase includes the following steps:

Identifying the goals of collaborative learning environment:

A list of general goals of collaborative learning environment required for the design and production of hypermedia was prepared. Those goals are represented in providing a range of facts, information, and skills related to designing and producing hypermedia. The most important objectives can be explained as follows:

1. The general Overall Goal: Providing the seventh level students registered for the course of producing and using instructional media with the designing and producing hypermedia skills.
2. Specific Goals:
   The Cognitive Goals:
   1. The student recognizes hypermedia.
   2. To multiply elements of hypermedia.
   3. To count hypermedia properties in education.
   4. The student should identify the stages of hypermedia design and production.
   5. The student should classify the steps necessary for analyzing the design and production of hypermedia.

The Skillful Goals:

The student should design a hypermedia software that includes:

1. To design the program screens.

2. To designed control buttons within the program.
3. To design screens of the instructional objectives of the program.
4. To design calendar screens.
5. To list all the media in the program.
6. To design the main menu screen of the program.
7. To design the instructions and helping screens.
8. To design reinforcement screens.

Preparing and adjusting the searching tools:
     The current research adopts the following tools:

The first tool: Achievement test to measure the facts and information contained in hypermedia design and production:

1. The steps of the test design: -
2. The test aims to measure the concepts involved in the design and production of hypermedia of the research sample, the test included students' concepts of the following topics (the concept of hypermedia-characteristics of hypermedia-hypermedia components-design and production of hypermedia.
3. Two subjective questions are used: multiple choice, true and false, and the test items are in light of behavioral objectives, clearly, and the test items in its initial form were (25) , (15) item true and false , (10) multiple choice type with changing the order of test items in the pre and post testing .
4. The content validity of the test has been verified .The test has been verified by a panel of six experts in curriculum and instruction and educational technology to give their opinion concerning (suitability of the test objectives-covering questions of goals – the modification either by addition or deletion), then the test modification have been conducted according to the experts of the jury members to be set in its final form before application.
5. The test was applied to exploratory sample strength (22) student in order to calculate the test reliability, easy and

difficult of the instructions, calculate the average time to answer test, identify the clarity of the test items, instructions, the average time to answer the test has been estimated by calculating the average time spent on the first and last answer by students. Then, the time required for the test is 40 minutes..

6. To estimate the coefficient of easy and difficulty of the test items the researcher regarded the test items answered less than (20%) by students are very difficult and therefore should be deleted, whether the test items that were answered over (80%) by students are very easy to delete, ranged from easy to difficult transactions between (0.25%) (0.75%).(

7. For verifying the test reliability ,it was reapplied after three weeks of the first application the same exploratory sample, and correlation coefficient has been calculated through correlation equation of spearman, equal (0.82), then it is clear that the test was reliable , thus the test became finalized and ready to be applied to the sample research (Appendix 1)

The second tool: Observational Checklist to evaluate the design and production of hypermedia

The observational checklist assigned the following steps :

1. The objective of the observational checklist of design and production of hypermedia, it included (6)main skills: (preparation and planning for the hypermedia – the skill of dealing with text-editing skill to deal with photo-editing software – the skill of dealing with video-editing software – the skill of dealing with Flash design program- and the skill of tutorial production).

2. the researcher analyzes the main skills to a sub-skills, these skills In the form of procedural statements. Each one describes what students should do .Each one has followed the following standards (described the actual performance that will be estimated and the clarity of the items).

3. The instructions of the observational checklist have been framed correctly concerning its clarity and the methods of grading and calculated for each student .

4. The researcher used quantitative analysis to assess the performance of students and were distributed according to the two levels (do the skill = 1, don't perform the skill = 0) in order to determine the level of mastering the student objectively .

5. The researcher investigated the validity of the observational checklist by verifying it according to the opinions of 4 panel of experts in educational technology to determine its validity to be applied. The modifications have been performed according to their opinions to include six main skills and 48 sub skills. (Appendix 2)

6. The researcher used cooper equation to determine the reliability of the observational checklist by applying it to (10) students with three other researchers. Then the researcher calculated the percentage of agreement between observers using equivalent Cooper (Cooper) to calculate the percentage of agreement, correlation coefficients ranged between (0.74:0.91) which is significant statistically and indicated the high reliability of the observational checklist and its application to the study sample.

The third tool: A scale to measure the learning styles and thinking

1. **This scale was designed by Torrance** et al, 1977) to determine the dependence of the individual on the left or right hemispheric of the brain or both of them together and to categorize individuals in the light of the concept of spherical half brain, after analysis of the functions of the brain hemispheres based on the results of several studies from (1974-1978) and the results of those studies have resulted in the preparation of three images of the scale (a-b-c) (Murad, 1994).

2. The researcher adopted image (a) of the scale and carried out some modifications to suit the research sample consisted of scale (38) each item consists of three alternatives, the first concerning the alternative left, and the second concerning the right half, and the third was for the two halves functions together, and has translated to Arabic by Anwar Riad and Ahmad Ebada in 1986 .Moreover ElhamElbelal has translated it to be applied on the Saudi Arabia environment in 1423 (Alhazmi, 2006)

3. The scale of learning and thinking styles has been used in many of Arabic and foreign studies. Its reliability has been verified in various ways ,those values showed stability coefficients of reliability ranging from acceptable to good, and from these studies (Torrance et al., 1979), study of (Al Bilal, 2003), and the study of (Alhazemy, 2006) and the stability coefficients of reliability in these studies of the learning and thinking styles scale ranging from (0.40-0.95) to the left style and (0.50-0.97),to the right style and (0.84-0.87) for the two together style, which are acceptable transactions. .

4. The scale based in its design upon the results of many previous studies and research in the area of identifying Glob sections of the brain hemispheres functions, so it includes the face or logical validity (Appendix 3)

5. scale is corrected by giving each student degree according to the item that she choose of the three styles, and classified according to the control of a specific pattern by using the standard classification depends on the student if she got a degree equal to or greater than the sum of both average respondents in style-standard deviation of one) (Al Bilal, 2002).

Designing collaborative Learning Environment Structure:

The main steps for the design (ECLE) can be explained as follows:

Step 1: Design the home page:

The home page for collaborative learning environment has been designed and contained the following:

1. Buttons to control generally in collaborative learning environment (home-site map-members list-search-logging).
2. Contents of collaborative learning environment: key elements for dealing with that environment (home-collaborative web editors-Rss News-Blogging-Usage Guide)

Step 2: Registration and access to the site in preparation for handling the registry button uses:

The registration button is used so that students can register into collaborative learning environment, where the registration form is appeared to fill out the form to enter and which contains the email address and password.

Step 3: The manual for collaborative learning environment:

The manual contains a screen that includes a detailed explanation to enable students to use the tools of collaborative learning environment, with the possibility of downloading it to the student computers so they can deal with them.

Step 4: The search into the collaborative learning environment:

Through pressing the button search after typing the topic or words to search, so the screen appears displaying search results containing the names of topics and a summary of each topic.

Step 5: Collaborative learning environment design tools:

Three tools have been designed in collaborative learning environment: weblogs, Rss news tool, tool of collaborative web editors Wiki:

Blogging tool (Blogger):

Purpose: showing skills to design and produce the hypermedia.

Its content: the researcher upload a set of Power Point presentations contain images and videos for multimedia design and production skills.-

Rss news tool:

Purpose: link this tool to the previous tools (Wiki, Blogger) to inform students of news, comments and notations that are visible in the new collaborative learning environment.

Content: this tool includes summaries and the new information through the collaborative learning environment such as the title, the description of the news and the date of adding any news.

Tool: Rss tool is added to the collaborative learning environment and prepare newsreader on computer, then click on the link for Rss tool then copies the page title within the News Reader program.

Tool of Collaborative Web Editors (Wiki):

Objective: to supply students 7th level college education background theory on how to design hypermedia, where the students lacked this information due to the absence of a manual guide during the design and production.

Content of the tool: The researcher found some references for hypermedia design and production, and then draw a set of facts and information.

Designing interactions within collaborative learning environment:

Collaborative learning environment included three types of interactions: interaction of the students with the content of the collaborative learning environment, students interact with each other, and the interaction of the students with Professor of the course.

The pre-Measurement of learners' Levels:

The measurement focused on two areas: performance of students study sample in dealing with collaborative learning environment and their performance in of designing and producing media skills.

The fourth phase: programming and publishing:

In this phase the collaborative learning environment is designed practically through using texts and videos that match the content, then add suggested content within collaborative learning environment so that students begin building new knowledge through the exchange of views and comments on the design and production of hypermedia, Then choose a Server to upload the collaborative learning environment and specified (URL) address was assigned to the location.

The fifth phase: application

Where the collaborative learning environment was applied and designed practically according to the following steps:

1. **The experimental application for collaborative learning environment:** in order to know the difficulties that could face actual application of collaborative learning environment, and the receptivity of the female students, and the pilot study sample consisted of (12) student from 7th level students of the Faculty of education. The pilot study asserted the clarity of the material displayed within collaborative learning environment, and how students accepted them.

2. **The actual application of collaborative learning environment:** the final application of collaborative learning environment was applied to (30) female students of the seventh level in the first semester of the academic year (2015/2016), by dividing the sample into six groups and leave them free to choose a name for each group to deal with this name, then give the groups the site name and password, the involvement of the researcher in their groups, and then followed in accomplishing the tasks

required of them and finally post-application of the research tool (the achievement test -the observational checklist – a scale of the learning styles) .

The sixth stage: Evaluation:

In this stage the collaborative learning environment was evaluated through judgment of panel of jury members and the post measurement to the learners' levels and analyzing results, this phase includes the following steps:

1. **The post measurement of the learners' levels:** in which the research tool has been applied (achievement test– observational checklist -a scale of learning styles) to ensure the development of designing and production of hypermedia skill after an exchange of views and comments together through collaborative learning environment to build new knowledge, and the effect of their learning styles.

2. **The statistical treatment:** the researcher used the statistical package program of the social sciences, SPSS and used the following statistical methods:

   1. Quantitative statistical-methods: to determine the frequency and percentage distributions , mean and standard deviation

   2. Calculate the value of t (T-test): for measuring the improvement of the pre and post assessment of search tools to prove the effectiveness of collaborative learning environment.

   3. One sample (T-test) to compare average percentage grade.

   4. Independence test (Dependency chi): to study the relationship between skills development and learning style.

   5. Eta Square (n2) test: which demonstrates the impact of collaborative learning environment in the cognitive aspects and functional aspects of designing and production media. skill

3. Analysis and discussion of the results and their interpretation:

The following section is specified to the research results and its discussion.

Judging the Collaborative Learning Environment:

In light of results analysis and interpretation, the validity of collaborative learning environment is done. The results showed the impact of Collaborative learning environment on the development of the skills of hypermedia designing, as well as changing their learning style.

Thirdly: Analysis, Discussion and Interpretation of the Results:

Following is a search results, and interpretation and discussion:

The answer of the first question: "what are the facts and information included in the design and production of hypermedia skill?

The answer of that question has been identified by presenting the concepts of hypermedia design and production in this research, where the concepts of design and production skills hypermedia formed on the following topics (the concept of hypermedia-characteristics of hypermedia-hypermedia components-design and production of hypermedia.

The answer of the second question: "What are the skills of designing and producing hypermedia?

This question has been answered by displaying skills of design and production of hypermedia in this research, where formed list of skills (6) main skills, and (48) sub-skill.

The answer of the third question: 'what is the effect of using collaborative learning based on web 2.0 on the development of facts and information of designing and production hypermedia skills? '

And it represents the first hypothesis "there is a statistical significant difference ' (0.05) between the mean score of the study sample in the pre and post assessment of the achievement test to assess the facts included in designing and production of hypermedia in favor of the post assessment".

For verifying this hypnosis' the researcher used paired sample -T-test and the following table (1) presented the results of the test:

Table (1) presented the results of paired sample -T-test

Measurement	N.	Mean	S.D.	D.F	t-value	Sig.
Pre	30	4.80	0.714		73.40	
Post	30	23.33	1.241	29		0.01

It shows that the mean scores is (4.80) for the pre assessment and (23.33) for the post assessment and the standard deviation is (0.714) for the pre-assessment and (1.241) for the post assessment. As shown in the table (1)"there is a statistically significant difference between the mean scores in the study sample in the pre-post assessment of achievement test in favor of the post assessment ", where the (t=73.40, p<0.01) which is significant at the (0.01) level of significance .Thus, the first hypothesis was supported.

The researcher attributed this result to the nature of collaborative learning and which provided an opportunity for each student to exercise performing tasks for each skill, along with sharing and exchange of experiences between colleagues within groups pushing to create an atmosphere of intimacy and constructive cooperation that has led to a lack of fear of participation while learning

These results are consistent with the results of a study (Junco and el al., 2010) which showed the effectiveness of using social networking to increase student participation and attainment compared to students who have studied in the traditional manner, and the study of (Balkeese, 2013) which asserts the higher educational attainment for students deployed more messages in electronic discussion forums for courses, as these results are consistent with the results of (Alsayed, 2013),

and the results showed a statistically significant level (0.01) between the experimental group that used the electronic environment and the second experimental group that used the collaborative electronic learning in favor of the second experimental group, that demonstrates the effectiveness of collaborative learning in increasing the achievement of facts.

Answering the fourth question: 'what is the effect of using collaborative learning based on web 2.0 on the development of design and production of hypermedia skills?

that was identified by the second hypothesis that "there is a statistical significant difference (0.05) between the mean scores of the study sample in the pre and post application of the observational checklist for designing the hypermedia in favor of the post assessment " '.

For verifying this hypnosis' the researcher used paired sample -T-test and the following table (2) presented the results of the observational checklist:

Table (2) presented the results of paired sample -T-test

Skill	Measurement	Mean	S.D.	Mean-diff	D.F	t-value	Sig.
Preparing the soft	Pre	1.40	0.93	5.33	29	29.38	0.01
	Post	6.73	0.45				
Dealing with text editor	Pre	1.33	٠.٧١	3.43	29	23.01	0.01
	Post	4.76	٠.٥٠				
Dealing with image editor	Pre	0.73	٠.٦٤	7.07	29	46.76	0.01
	Post	7.80	٠.٤١				
Dealing with video editor	Pre	0.63	٠.٤٩	7.07	29	60.50	0.01
	Post	7.70	٠.٤٦				
Dealing with flash design program	Pre	0.56	٠.٥٠	9.24	29	74.49	0.01
	Post	9.80	٠.٤٠				
Production of the tutorial program	Pre	0.56	٠.٦٢	9.24	29	74.49	0.01
	Post	9.80	٠.٤١				
The total skills	Pre	4.70	١.٧٤	41.90	29	1.121	0.01
	Post	46.60	١.٢٧				

It is clear of the previous table that the mean score of the total pre -assessment was (4.70) for the post assessment was

(46.60) with 29 degree of freedom and t-value was (1.121) which is significant at (0.01) which is lower than (0.05) and therefore the hypothesis was supported and that means there was a significant difference between the mean scores of the female students in the observational checklist in favor of the post assessment

Previous results can be attributed to the nature of collaborative learning and which provided an opportunity for each student to perform tasks themselves, along with sharing and testing tasks, finishing with a reward, as well as activities and interactions under collaborative learning environment worked on developing the students skills of designing and producing hypermedia..

These results are consistent with the results of   (Uribe, 2003), (Labib, 2007), (Shihata, 2008), (Wally, 2010), (Panitz, 2010), the results confirm the effectiveness of collaborative learning to master the various skills in General, and to improve interaction and communication between learners.

The answer of the fifth question: It states ' what is the size of effect of collaborative learning in cognitive and functional aspects of designing and production hypermedia skills? It is represented by the third hypothesis "the collaborative learning environment achieves the effect size ($\leq$ 0.14) in cognitive functional aspects of designing and production hypermedia skills" '.

For verifying the hypothesis the researcher used q square and the third table represented the results:

Table (3) the eta value and effect size

The research tool	D.F	T-VALUE	d.value	Size effect
The achievement test	29	0.78	8.6	Great
The observational checklist	29	0.87	28.5	Great

It is clear from the table that the ETA box value to test grades (0.78) while the value of ' d ' which expresses the effect size (8.6), a higher value of (0.14) indicating that the effect size of

test grades, and ETA box amounted to observational checklist (0.87), while the value of ' d ' which reflects the magnitude of the impact (28.5), a higher value of (0.14) indicating that the effect size of the observational checklist , the researcher attributed that to the diversity of learning stimuli in The collaborative learning environment., as well as cooperation and sharing of tasks, thereby increasing the size of the impact of collaborative learning environment, and this reflected positively on how much there is a difference in the mean scores of the test pre and post the experiment in favor of the post experiment .

The answer of the sixth question: ' Is there a difference between learning styles and thinking among students sample research?

To answer this question the researcher applied the Torrance scale of learning styles to the students sample, then calculate the means and standard deviation for the performance of students 7th level, to determine the Dominator style in the pre- application and the comparison between the means of the three styles:

Table (4) Mean Scores and the Standard Deviation to determine the prominent style of thinking and learning

The learning and thinking style	Mean	Standard deviation	The prominent style	sample	
				The sample number	percentage
The left side	17.27	1.22	18.49	١٤	46.7%
The right side	8.78	2.75	11.62	7	23.3%
The integrated side	9.26	1.23	10.49	9	30%
Total				30	100%

It is clear from the preceding table that the 7th students prefer the left side more than the two others as their performance in the left one was (17.27) and the number of students with the left style was (14) student (46.7%) of the total sample search, followed by integrated style as the mean of their performance was (9.26) and the number of students with integrated mode (9) student rate (30%) Of the total sample, and then followed by right   one, mean average of performance was

(7.87) and the number of students with the right style (7) student (23.3%) of the total sample search

It is clear from the previous result that focus was on the left style, the researcher attributes this to the traditional teaching methods that rely on memorization by teacher, conservation and retrieval of information by the learner, which is one of the functions and capabilities of the left half of the current search result is consistent with the findings of the study results (Hassan; Karim, 2001), (Chua et.al., 2001), (Al-hazmi, 2006), (Al-Harbi, 1421) as it demonstrated the control of the left side and returned it to the way of teaching that addresses left side of the brain of learners, on the other hand the focus in the tests systems on the direct questions and the response to the instructions and the verbal administration of the information.

The answer of the seventh question: "What is the effect of using the collaborative learning in developing learning style and thinking of 7th level students of, and represents the fourth hypothesis, ' there is statistically significant difference (0.05) between the mean scores of the study sample in the pre and post assessment of learning and thinking styles during the collaborative learning environment in favor of the post assessment ".

For verifying the hypothesis the researcher used (paired sample – T-test) and table (5) represented the results of thinking and learning styles test.

Table (5) Results of Learning and Thinking Styles Test

Style	application	sample	d.f	m.	S.D	T-Value	Significant
The left side	pre	30	29	17.27	1.22	16.336	Pre
	post	30	29	9.13	2.67		
The right side	pre	30	29	8.87	2.75	3.852	Post
	post	30	29	14.10	4.22		
The integrated one	Pre	30	29	9.26	1.22	5.864	Post
	post	30	29	15.20	4.23		

It is clear from the table that there are statistically significant differences at a level (0.05) between the mean scores students a sample search for experimental group on the pre and

post applications to test of learning and thinking styles in the left side in favor of the pre application as the mean score of the pre application was (17.27), standard deviation (1.22), and the mean scores of the post application (9.13) and standard deviation (2.67), the amount of shortfall in post application to left style was (8.14) by more than 25% and this value is reduced as a result of teaching students using collaborative learning and the development of learning style half spherical right brain that led to reduced use of the left style and increase the use of the right style, functions as the T- value was (16.336) is greater than its value ,where significant level (0.000) and this value is smaller than (0.05) and smaller than (0.01) indicating that it is a statistically significant.

There are also significant differences at a level (0.05) between the mean scores of the study sample students a sample search for experimental group on the pre and post applications to test of the learning styles and thinking in the right style in favor of the post application where the mean scores of the pre application was   (8.87) and standard deviation (2.75), and the mean scores of the post application was(14.10) and standard deviation (4.22), the development for the post application of the right side was (5.23) by more than 25% and this value is increased as a result of teaching students using collaborative learning, the t- value ' equals (3.777) is greater than its stem value table where significant level (0.000) and this value is smaller than (0.05) and smaller (0.01) indicating that it is a statistically significant .

There are also significant differences at a level (0.05) between the mean scores of the experimental group of the study sample students on the pre-post applications to test the learning and thinking styles of integrated style in favor of the post application .As the mean scores of the pre application was (9.26) and standard deviation was (1.23), and the mean scores of the post application was (15.20) and standard deviation (4.23), and the amount of the increase in the post application of the integrated style was (5.94) by more than 25% and this value is

increased as a result of teaching students using collaborative learning, The t- value ' equals (4.963) which is greater than the value of ' c ' table where significant level (0.000) and this value is smaller than (0.05) and smaller than (0.01) indicating that it is a statistically significant.

The researcher attributed these results to effect of using the collaborative learning Web development design and hypermedia production which helped to modify the left style of learning and thinking of students and the enhancement of the right and integrated style, by reducing the use of female students' mental processes and functions of the left style, and increasing the use of right and integrated functions..

This research results are consistent with the findings of other studies such as the study of (Ahmad and Karim, 2001) Used optical spatial approach) and the study of (Solomon, 2001) (use a proposed program of activities for the development of learning styles and thinking), and study of (Saman, 2002) use concept maps), and study (Elhazemy, 2006) (used the proposed program based on learning technologies ' educational films and computer graphics , images ,designs and models) and the results of these studies confirmed the effectiveness of using specific teaching method in modify the prominent left style and the enhancement of the right and the integrated ones.

Recommendations and Suggestions for Further Studies

Recommendations: in the light of the study results, the researcher recommends:

1. Using collaborative learning in developing the performing skills related to the design of interactive media.
2. Using the software based on web 2.0 throughout the study of the course to develop the students' educational capabilities to keep in touch with the age of knowledge.
3. Providing training sessions on web 2.0 technologies (weblogs - News tool RSS- Wiki ....etc.) for both the students as well as faculty members.

4. Using hypermedia in developing the learners' multiple intelligences.

Suggestions for Further Studies: the researcher suggests the following:

1. Studying the impact of Collaborative learning and its relationship with the learners' cognitive and non-cognitive techniques on some other learning outcomes.
2. Studying the effectiveness of collaborative learning on the development of achievement and thinking skills in other courses.
3. Studying the effectiveness of the independent variable of this study on the development of the skills of website designing.
4. Studying the effect of varying the interaction techniques within the environment of collaborative learning based on web 2.0 on some learning outcomes among university students.
5. Similar studies to the present one on students of different educational stages.

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