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Visual Skill Helping The Basic Education students to Construct their Own Educational Multimedia Application

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Abstract

The content of multimedia representations is a kind of semantic multimedia artefacts, And this content was affected by, cognitive and cultural and skill background of the designer.- This study is conducted to understand the interplay of visual skill in constructing educational multimedia technologies in students of Qassim University college of science &arts-ArRass. A Study was conducted on 40 students, who are The Basic Education Department students, a cross sectional data were collected through a structured evaluation form After arbitration by experts in the field of education, using interview method. The data collected was analysed using SPSS revealed that students can design their own multimedia for classes and lack significant due to student with high visual skill, have the ability to construct educational multimedia better than students with low visual skill.

Keywords: visual skill; multimedia; evaluation form.

1. Introduction

Brain-based learning depends on the composition and function of the brain, and learning occur unless there are factors that inhibit brain operations and functions. And then: everyone can learn, but there are differences in learning outcomes from one person to another, due to the mental process of information processing and associated learning factors encourage or ignore the learners. When the teacher collects knowledge regarding the conditions supporting the broad definition of student achievement, they will be able to make informed decisions about what technologies will meet the special needs of particular schools or districts.

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They also will be able to ensure that teachers, parents, and student, and community members understand what role technology is playing in a school or district and how its impact is being evaluated. Finally, they will be able to justify the investments being made in technology. We must and need as educator to create our own multimedia applications if we really want to make use of the multimedia applications as an effective tool in education [1]. For most of us working at small educational institutions (Schools, colleges, educational centres) where resources are few, money is scarce, time is limited, and professional multimedia development team is virtually an impossible feat. "The development of educational multimedia inevitably requires the commitment of substantial amounts of time and money. Both are typically in short supply in educational institutions [2].

1.2. Stating the problem of the study

After revising many educational research in the field of educational technology researcher, found that much of this research has focused on the impact of multimedia in learning, but have not stud1ed The impact of cognitive and affective skills, background of student in collage of education to design their own educational multimedia, when they are employed in the field of education. The study tries to explore One of individual skill, namely visual skill in the Basic Education Department students the impact of Visual intelligence in to design effective educational multimedia, after students learned the theories & authoring tools helping in the collection of software that compose of multimedia components to construct effective educational multimedia.

1.3. The objectives of the study

This paper attempt to presents two main parts:

1) The spatial or visual skill. And its impact in students who must produce their own multimedia applications
2) Multimedia-mediated content and incorporates Gagne's nine instructional events as the design framework to be used in the help student to design effective multimedia.
3) The outcomes of this study will be used to answer the research hypothesis, "Students with Visual skills, able to design educational interactive multimedia modes".

1.4. The hypothesis of the study

1) [H1]: Basic Education Department students will design effective educational multimedia If are provided by the basic guidelines for the design & appropriate computer software .
2) [H2]: Basic Education Department students with high visual skill revealed high statically significant when design educational interactive multimedia modes compare with the student with low visual skill students .

2. Theoretical framework

2.1. Spatial intelligence

Spatial intelligence is the ability to comprehend three-dimensional images and shapes. This is a primary function of the right side of the brain and is used when solving puzzles, figuring out maps and taking part in any type of construction or engineering project While spatial intelligence usually involves vision it also incorporates abstract and analytical abilities that go beyond merely seeing images. Recognizing the image,Visual process Associated by Visual information processing theory based on how the learner conclusion on through visualizations that was indicated by Robert solso 2000 "the brain hemispheres do communicate halves are directly linked to Visual perception which has a specific theme and unique visual information processing based on inverse correspondence ," After visual signal passés through the pupil and is absorbed by the rod and cones , it is collected and passed along the large optic nerve on it is way to the brain however , it is routing to the brain is complicated, the optic nerves come togatherat center called the optic chaism, here a complicated distribution

take place, how the how of the fibre from each eye cross over at the optic chasm are passed into the visual cortex on the side of the brain opposite their source . and half of the fibres terminate in the visual cortex on the same side . this crossover effect is consistent with other brain body function and is called "contalterallity [3]. Cognitive psychology theory explains how to process information on cognitive structure, then the occurrence and level of learning according to the schematic visualization described the work memory where receivesVisual stimuli (73-74%) Auditory sense (11-12%) smell sense (3-4%) And the taste sense (3- 4%) and the tectile sense (3-4%) [4], And jump like in his sensory memory through three consecutive operations: sensation, perception, and attention all they have limited time range cannot exceed five seconds, followed by responses indicate how safe the perception of stimuli, and subsequent transfer of the perceived stimuli of short term memory not stretching beyond five minutes then move triggers after the repetition and concentration to long term memory to settle in many years. Determination of the efficacy of the nervous system and the State of mind of the learner, we also note that there are many factors that may affect the integrity of feeling and attention and perception known as noise factors and lack of clarity resulting misunderstanding Percept in career stage of sensory memory which is described in figure 1 [5].

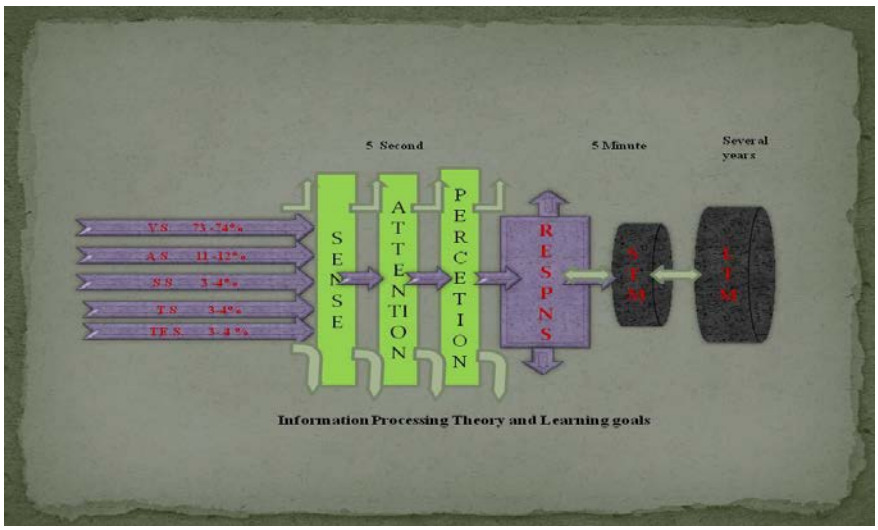

Figure 1: Information Processing theory & Learning Goals

2.1.2. Characteristics of visual perception

- Knowing its relationship to other surrounding objects and displaying the organizational structure of a thought are all involved in spatial intelligence.
- Spatial intelligence is also referred to as “visual thinking”. A good example of visual thinking is when someone is hiking and has a compass and map. Though there is no physical path laid out the hiker will use the tools to visualize a mental path using the maps and compass to derive the best route through woods.
- Spatial intelligence skills are essential for mastering a game such as chess or for commanding troops on a battlefield. When you play chess you have to use strategy and skill in not only planning your moves, but anticipating what moves your opponent will make. This is where spatial intelligence comes in because this type of brain exercise lets you visualize the board several moves in advance even though the pieces haven't been moved [6].

2.2 .Concept of multimedia

Multimedia is the integration of media such as text, sound, graphics, animation, video, imaging into a computer system” [7]. Another definition, multimedia as a class of computer-driven interactive communication systems which create, store, transmit, and receive textual, graphic and auditory networks of information [8]. Both of these definitions agree that multimedia is the integration of more than one medium in a computer system to present information. A multimedia learning is said to be effective when succeeding to integrate the four main elements, they are: existence of knowledge achievement, content type, instructional method and delivery media [9] Beside that, the effectiveness of multimedia learning will increase if in designing and producing it pay to the followings: learning style of the learner [10] ; the available of learner controlled facility (stop and play button) or multimedia interactivity that utilize to accommodate the cognitive load of learner during learning processes content type (static/dynamic) to be presented and content visualizing type (static/animation) [11].

Multimedia can appeal to many types of learning preferences – some students profit more from learning by reading, some by hearing and some by watching,In recent years, multimedia has introduced the pedagogical strength in facilitating student learning and supplementing learning with liveliness as it adds richness and meaning to the information presentation with the use of more than one medium [12]. Multimedia involves the synchronization of media in producing the media-rich outputs and is arranged in some chunks which are linked by the hypermedia. Students can navigate to the source of information in a shorter time, build the connections between relevant topics, and construct their knowledge by associating to the meaningful information [12]. It is important for students to self-timer and select information based on individual differences, even when individual differences can be accommodated by having learning alternatives, students then attend at a deeper level, and appreciate the approaches that focus on student learning with a greater sense of participation found tha when multiple media contents are used to present information simultaneously.

Individual learner differences and multimedia learning

As with any instructional tool, multimedia may work better for some students than others. There is a growing body of research showing that students learn in different ways and that information should be presented in different ways to engage students with differing learning styles [13].

Howard Gardner and his colleagues at Harvard suggest that individuals can exhibit a wide range of intelligences, and that intelligence is best thought of as multiple areas of expertise or as multiple intelligences [14,15]. Gardner suggests that there are eight distinct intelligences: linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal and naturalist. This information can be used for direct instruction to students'

Information should be presented in different ways to engage learners with different learning styles and strengths. Students may have preferences for or learn more effectively through different modes. For example, one student may prefer or learn best from the print, while another may prefer a more visual presentation of information. Multimedia learning may be particularly effective for visual and auditory learners..information the brain can process [16]. Effective multimedia understands that text may be particularly challenging to process, with involvement from both the visual and auditory channels required.also Effective multimedia presentations recognize that long-term memory organizes information into meaningful chunks called schema. Presenting information in a way that makes use of existing organizing structures (schema) or that helps students organize the information can greatly assist the learner in incorporating information in Long Term memory. Organizing Good multimedia instruction is driven by an understanding of how the brain processes information. The most effective multimedia applications take advantage of this knowledge [9].

2.3. Multimedia as an intellectual tool

Education means enabling learners with intellectual tools to their culture. In many cultures, multimedia can be seen as an important tool for intellectual. According to Vygotsky in 1978, tools can support learning at different levels. Communicating ideas and information representation; Handling information, Modelin&Measurement and control.

These four aspects should support a certain level of conceptual understanding as well as genuine creative productions. Using multimedia as a powerful cultural tool the learner has the opportunity to look into a certain subject and gain new insights.

1) Communicating ideas and information representation For communicating Information, it is necessary to develop, organize, structure, and store ideas in visual and oral forms by desktop publishing.

2) Handling information. Multimedia provides many possibilities for handling information.Information handling software can search, sort and represent information in graphs and charts, and it can deal with a broad range of media including pictures and sounds. Modelling. Multimedia-based modelling provides support in learning to handle abstract concepts, especially subject matters such as physics, mathematics and biology the systems engages the learner in a level of analysis and depth of learning that is not elicited by other instructional or learning strategies will learners create their own hypertexts, especially if they develop hypergraphs, hypermaps,

may provide learners with the most powerful learning aid yet provided. Research has shown that learning effects are greater for persons involved in developing materials than for those merely using the system.So, hypertext may well function best as a study aid that provides multi-dimensional note taking. The hypertext will not teach the learner. The learner will learn by creating hypertext Applications, which provide the user with the possibility to create or construct objects by using graphic programs or linking nodes together, are not only objects but also cognitive concepts or models, which are dependent on the learner current knowledge base. An example is the program KNOT-Mac (Knowledge Network Organizing Tool for Macintosh). Cognitive tools as mind tools or problem exploration tools. According to him, the true potential of hypertext structures may lie in its capacity as a study aid or a cognitive learning tool. 'A cognitive learning toolis any activity (that may or may not be supported by computers) that fosters or facilitatesa deeper or more meaningful level of information processing in learners... the act of creating [17].

2.4. Component of the multimedia

With the term "multimedia learning materials" we mean digital educational artefacts that represent and organize information through the combination of several semiotic resources (e.g.text, sound, image, etc.). These artefacts can be tutorials, drills and practices, simulations, educational games, etc. The modern teacher must be equipped with visual literacy skills and knowledge for being capable of interpreting the several multimodal meanings conveyed by these digital materials. What is more, multimedia designers must be also equipped with visual literacy skills for promoting multimodal meanings that make their learning materials more coherent and effective. Multimodal Discourse Analysis (MDA) can be a helpful tool towards this direction. For MDA, people use particular meanings to communicate with each other in specific social contexts [18], the digital content of multimedia artefacts can be distinguished to two main semantic units: items and clusters. Items are phonic, musical, visual and linguistic components such as push buttons, submit buttons, radio buttons, checkboxes, sliders, table cells, menu items, headings, titles, phrases, sentences, icons, symbols, sounds, etc. Items can be interpreted as communicative acts that offer, ask or demand information or goods and services [18]. In the development of educational software, an authoring system is a program that allows a non-programmer to easily create software with programming features. The program features are built in but hidden behind buttons and other tools, so the author does not need to know how to program. Generally authoring systems provide lots of graphics, interaction, and other tools educational software needs [19]. Any software, or collection of software components, that authors can use to create or modify multimedia content for use by other people, is a multimedia authoring tools. Reference [20] defines authoring tools as "These software tools are designed to manage individual multimedia elements and provide user interaction" classified in three categories based on the metaphor used for sequencing or organizing multimedia elements and events. 1. Card or page based tools 2. Icon base, event driven tools 3. Time base and presentation tools Depending on the educational multimedia application which is to be developed, what information is to be conveyed, who the audience will be, and how much interaction there will be between the application and the user, an appropriate tool can be chosen. Educational multimedia applications can be subdivided into four typical educational multimedia application areas:

- Text-Based applications

• Interactive applications

• Web applications

• Mobile (Smart) phones applications [21].

Information Items can stand alone or they can be combined with each other to create clusters. The notion of cluster is used here to define local groupings of components with particular communicative functions on the multimedia layout ([22] Clusters extend from smaller-scale groupings to larger-scale groupings, thus we could speak of micro-clusters and macro-clusters with respect to the level of the whole / part relations we want to describe among groupings.

The communicative functions of clusters often allow us to classify them in particular genres. Genres are, generally speaking, the types of texts or images that serve particular communicative goals [18].

Table 1: Some genres and their communicative goals [18]

Genre types	Communicative goal
Analytical representations	To represent several entities in whole / part relations
Classificational L. representations	To represent several entities or phenomena through class / sub-class or co-class relations
Narrative representations.	To represent several actions, processes and changes.
Procedures	To tell someone how to do something.
Reports	To classify, describe or decompose several types of entities and phenomena
Explanations	To explain why something happens
Stories	narrate, record or explain events and circumstances of the human life.

2.5. Logical meanings between multimedia components

The meaningful information linking among components (items, clusters / sub-clusters) can be achieved through the logic-semantic relations of elaboration, extension, enhancement and projection as has been shown in fig.(3)

Elaboration:an unconscious process of expanding and embellishing adetail, especially while recalling and descri bing a representation in adream so that latent content of the dream is brought into a logical and comprehensible order.In elaboration one component describe the meaning of another component, in detail, exemplifying it, clarifying it or restarting it. Subcategories of elaboration are: identification, explanation, exemplification and specification (Figure 3).

Extension: In extension, one component extends the meaning of another by adding new information, giving an exception to it or offering an alternative. Subcategories of extension are: addition, variation and alternation.

Enhancement In enhancement one component expands the meaning of another by enriching it with new information through circumstantial features of place, time, means, cause and condition.

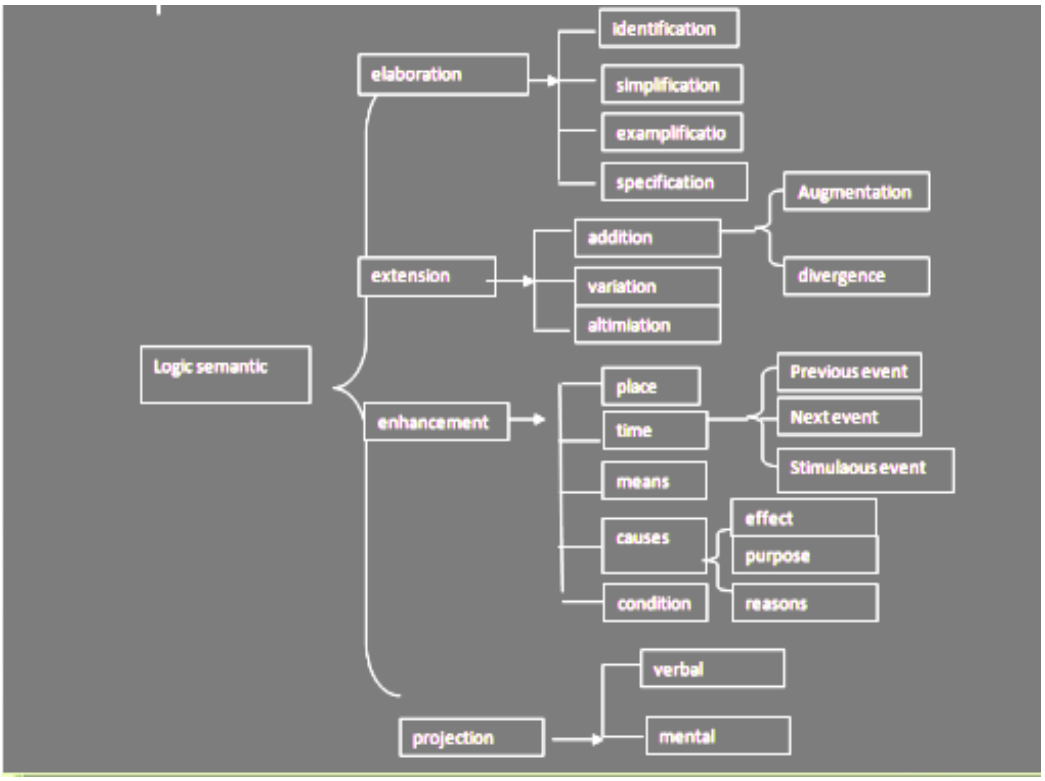

Figure 2: A system of the logic-semantic relations between multimedia components

Projection In projection the meaning of a component appears through another component either as idea or location. When the second component of a relation represents thoughts, projection is mental. When it represents speech, projection is verbal [18].

2.6. Gagne's Gagne's instructional events

Gagne's instructional events can work in guiding the selection of appropriate media in the development of learning program, for better supporting the internal learning process of the learners [23]. The framework is also flexible as the instructor can alter the order of events based on the particular learning objective to support the needed learning processes.

2.7. Collection content of multimedia representations

The first and most obvious issue for creative work in multimedia is how to integrate such work into the present structure of the national curriculum. According to Bloom's Taxonomy, as children move through the hierarchy of learning, their studies should progressively move towards developing higher level thinking skills [14]. Students can create innovative and interactive multimedia application using several multimedia technologies available for multimedia creation. These technologies include Adobe Photoshop, Adobe Premiere and Snagit to create and edit graphics, videos, respectively, sound forge and Macromedia Flash to create or edit audio,

animation and file, respectively. Course lab version 4 is chosen to be the primary authoring tool to integrate and synchronise all the media. Elements that have been created or modified and stored digitally in the computer into one final application for the purpose of conveying a specific message to the audience. Elements of interactivity and perpetual navigation are incorporated to involve the user in the application and to create a multi-sensory experience. The program is then packaged into a distributable format for the end-user.

Table 2: Nine Instructional Events

	Gagne's Instructional Event	**Internal Mental Process**
1	Gain Attention	- Activate the stimuli receptors
2	Informing Learners of Objectives	- Create level of learning expectation
3	Stimulating Recall of Prior Learning	- Retrieve and activate working memory
4	Perceive, recognize	Perceive, recognize content and pattern
5	Present the Content -	- Rehearse and encode the knowledge to memory
6	. Eliciting Performance	Retrieve, respond and enhance encoding by responding to questions
7	Provide Feedback	Reinforce and assess the learning performance
8	Assessing Performance -	Reinforce the content as the evaluation
9	. Enhancing Retention & Transfer	- Retrieve and generalize the learned skill to the situation or case

2.8. Terminology of the study

1. Multimedia (MM)

Multimedia has a lot of different connotations and definitions vary depending on the context. In the context of education, interactive multimedia are defined by three criteria:

(1) Interactive multimedia is any package of materials that includes some combination of texts, graphics, still images, animation, video and audio;

(2) The materials are packaged, integrated and linked together in some way that offer users the ability to browse, navigate and analyse the materials through various searching and indexing features as well as the capacity to annotate or personalize the materials.

(3) Interactive multimedia are always "reader- centered ". An interactive multimedia, the reader controls the experience of reading the material by selecting among multiple choices,choosing unique paths and sequences through the materials. One of the key features of interactive multimedia is the ability to navigate through material in whatever ways are most meaningful for individual users [10].

2. Visual skill (V S)

The ability to accurately perceive the visual world and to re- create, manipulate and modify aspects of one's perception, even in the absence of the relevant visual stimuli visual –spatial intelligence deals with shapes, pattern design and the entire spectrum of colours and the placement and relationship of object including distance and direction [5].

3. Research Methodology

The research was conducted in, Qassim University – Collage of science & arts on the samples of 40 female College Students- primary education A non-probability method of sampling was used to select samples included in the study. A cross sectional data were collected through a structured pretest using raven matrix and analysed by percentile analysis, correlation and data analysis using Statistical Package for Social Sciences (SPSS) version 18.

After teaching multimedia design instruction which include: educational theories in the light of the guidelines of the programme are designed and appropriate instructional design model that harms the design process according to its stages The regulatory framework of the program and components of the screens for multimedia programs. Researchers give the student Ravens test which consists of matrix 6X6 to distinguish students with visual skill and non or low visual skill.

3.1. Population of the study

A Study was conducted in female students collage of science &art-ArRass section of primary education because the female student will become teachers in the future and maybe need to construct their own educational multimedia in order of inappropriate ready made multimedia to their classes, due to the objectives of learning, content or students' culture of the area where she will teach .

3.2. Scale prepration

The primary section in collage of science &arts, represent a convenience sample of the study recruited with a consecutive sampling method. Students were selected. By using A **percentile,** is a measure that tells us what percent of the total frequency scored at or below that measure. A *percentile rank* is the percentage of scores that fall at or below a given score [22].

Formula:

To find the percentile rank of a score, x, out of a set of n scores, where x is included:

$$\frac{(B + 0.5E)}{n} \cdot 100 = percentile\ rank$$

Where B = number of scores below x

E = number of scores equal to x

n = number of scores

Table 3: Population of the study, according to percentile rank

Interval	Test scores	Frequency	cumulative frequency	Percentile rank
1	36-31	2	40	100%
2	30-26	9	38	95%
3	25-21	8	35	87%
4	20-16	5	21 50the (value occurs here	50
5	15- 11	3	16	40%
6	19-6	8	13	32%
7	5- 0	5	5	12,5%

The study was conducted in collage of science &arts - basic education section and sample of study receives 40 students are divided according to the result of the raven's test by using the percentile rank into two groups , group 1 represented the students who have high spatial intelligence[19] and group 2 represented the students who have low spatial intelligence (21)**.**

3.3. Instrument and procedure

Evaluation form

this test consists of A real position to perform the work required of the learner's actual functions performing this job, and this sort of tests honestly higher than other tests, and could give the scale constant and true to the collection of multiple types of behavior and performance if made more specific criteria formalised zomn test conditions: to represent the original community the experiment adopts sample provision the examiner or the teacher , And use the balance of appreciation or evaluation form or checklists [23].

The evaluation form contains seven subscales covering a broad spectrum of performance tasks: 1) general standards , 2) gain attention 3) standards for illustration& photographs 4) Stimulate Recall of Prior Learning 5) Present the Content, 6) **Navigation**, 7) General standards for video (figure 2). The evaluation form consists of 40 items.

4. The validity of the instrument

Based on the literature review of the trends in using multimedia in education, the researchers developed the list of standards. Benefit from specialists in the field of educational technology, curriculum and instruction, e-learning, and Graphic Design and previous experience of the researchers in the field of e-learning and multimedia. The validity of the evaluation form items consisted of a review by experts, To express their views

on the clarity of the wording of each standard and scientific validity, and the adequacy of standards and items, and relevance of items standard belonging to it, and add, delete or modify the standard and items as they see fit. The instruments were evaluated during the development of the research study. The feedback and comments received from the panel of experts were employed to establish the necessary clarifications, changes, and modifications.

Note card student performance for educational multimedia design skills and production

	Keys to evaluate students' design	Skill performance		
		Good 3	Fair 2	Poor 1
	Generals standards			
1	Simplicity in designing each element of the multimedia.			
2	Considering unity between visual and audio elements.			
3	Clarity in presenting multimedia.			
4	Consistency in multimedia screen designs.			
5	Integrating all elements of multimedia.			
6	Interactivity between multimedia elements			
7	Balancing the use of multimedia within the same screen			
8	. Efficiency in suing one multimedia screen			
9	Diversity in using multimedia			
	Gains Attention			
10	Give student short animation clip with a story the introductory scene			
11	Animated images were used in the lessons to direct the student's attention			
12	**Illustrations and photographs** Using unshared lines on maps			
13	Geometric drawings and abstract symbols.			
14	. Using shaded lined drawing to differentiate part or the drawing			
15	Using a particular colours g to indicate elements as			

Figure 3: show the evaluation form student performance for educational multimedia design skills and production

4.1. Factor Analysis

The data obtained from the respondents on 6 subfactors under study were analysed using factor analysis methods. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy indicates the normality of the collected data. Kaiser recommends accepting values greater than 0.5, values in between 0.5 to 0.7 are mediocre, 0.7 to 0.8 are good, 0.8 to 0.9 are great & above 0.9 is superb.

All the factors included in the study scored more than 0.5 of KMO values, hence all the factors included in the study. The statements included in the study under the sixth factors of the study obtained values 0.741 as can be seen from the table 4.

5. Results and discussions

To achieve the study objectives, both the quantitative and qualitative methods were used.

A closed-open ended three scales Likert type of evaluation form was designed by the researcher and administered to a randomly selected sample of 50%out of total population of 102 primary education students, college, of science &art students.

The researcher has used SPSS software for data analysis, and to calculated the one sample T- test , mean and standard deviation,one way Anova in addition to Identify the hypothesis of the study.

Table 4: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.741
Bartlett's Test of Sphericity	Approx. Chi-Square	338.998
	Df	11
	Sig.	0.000

5.1. Hypothesis Testing

Hypothesis, one [H1] of the study stated that: student will design effective educational multimedia if are provided by the basic guidelines for the design, multimedia & appropriate computer software In order to find the answer collected data were analysis by using one sample T test.

Table 5: One-Sample Statistics

Sub factor under study	N	Mean	Std. Deviation	Std. Error Mean
General standards	40	2.1650	.33039	.05224
Gain attention	40	2.3393	.21565	.03410
Navigation	40	2.3788	.30989	.04900
Present the content	40	2.3238	.26326	.04163
Illustration &ohotography standards	40	2.1968	.20245	.03201
Navigation	40	1.8808	.24154	.03819
Standard for videos	40	2.0710	.26762982	.02676298

Table 6: One-Sample Test

Sub Factosr under study	Test Value = 2					
					95% Confidence Interval of the Difference	
	t	Df	Sig. (2-tailed)	Mean Difference	Lower	Upper
General standards	3.158	39	.003	.16496	.0593	.2706
Gain attention	9.950	39	.000	.33929	.2703	.4083
Navigation	7.731	39	.000	.37881	.2797	.4779
Present the content	7.780	39	.000	.32385	.2397	.4080
Illustration &;photography standards	6.148	39	.000	.19680	.1320	.2615
Navigation Standard for videos	-3.120-2.655	39 99	.003 .009	-.11917-.07104396	-.1964-.0179404	-.0419-.1241475

(Table No. 6& 7) revealed significant results (DF = 39; t = 93.16-2.655; α = 0.001).

Since at 5% level of significance

The α value obtained is 0.002* Which is < 0.05

Hypothesis, two [H2] of the study stated that:

Basic Education Department students with high visual skill revealed high statically significant when design educational interactive multimedia modes compare with the student with low visual skill students One way ANOVA table . 9

From the table 9 the data analysis revealed that there is no significant relationship statically in all sub factors t at level (α=o.o5) except both factors navigation &present content deals a a significant relationship with the level . (α=o.o5).

The researcher attributed the results to the multimedia programs help students to collect more arguments with good specification requires them to learn how to run software and operation and this also lead to the knowledge of computer software can reduce individual differences .

5. Findings of the Study

The research data was collected from 40 respondent female students of primary section- collage science & arts – Quasim University and the results revealed the following:

Table 9: ANOVA

		Sum of Squares	Df	Mean Square	F	Sig.
General standard	Between Groups	.036	1	.036	.607	.441
	Within Groups	2.240	38	.059		
	Total	2.275	39			
Gain attention	Between Groups	.028	1	.028	.269	.607
	Within Groups	4.011	39	.103		
	Total	4.039	40			
	Between Groups	1.146	1	1.146	13.996	.001
	Within Groups	3.111	38	.082		
Navigation	Total	4.257	39			
Present the content	Between Groups	.729	1	.729	25.531	.000
	Within Groups	1.085	38	.029		
	Total	1.814	39			
Illustration	Between Groups	.001	1	.001	.008	.929
&ohotography standards	Within Groups	3.744	38	.099		
	Total	3.745	39			
Standard for videos	Between Groups	.015	1	.015	.209	.650
	Within Groups	2.688	38	.071		
	Total	2.703	39			
	Within Groups	1.596	38	.042		
	Total	1.598	39			
Total -sub factors	Between Groups	.014	1	.014	.323	.573
	Within Groups	1.731	39	.044		

1) The primary education student has a positive attitude toward using multimedia technology as an approach for designer professional development .
2) Other significant findings are that students have the ability and motivation to construct and design their own educational multimedia.
3) Irrespective of students construct their own multimedia application, the factors under study, i.e. visual skill (V S) has shown no a significant impact on high visual skill students towards low visual skill students.
4) . Study presence a statistical significant difference due to the effect of the multimedia programs help

students to collect more arguments with good specification requires them to learn how to run software and operation and this also leads to the knowledge of computer software can reduce individual differences

6. Recommendation

In light of the outcome of the results of this study, the researcher would like to suggest a number of recommendations as follows :

- Conduct similar studies to explore the impact of cognitive skill and designer background in multimedia design
- Conduct further Research in using 3D dimensional animated

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Appendix:

1/ evaluation form: student performance for educational multimedia design skills and production

	Keys to evaluate students' design	**Skill performance**		
		Good	**Fair**	**Poor**
		3	**2**	**1**
	Generals standards			
1	Simplicity in designing each element of the multimedia.			
2	Considering unity between visual and audio elements.			
3	Clarity in presenting multimedia.			
4	Consistency in multimedia screen designs.			
5	Integrating all elements of multimedia.			
6	Interactivity between multimedia elements			
7	Balancing the use of multimedia within the same screen			
8	. Efficiency in suing one multimedia screen			
9	Diversity in using multimedia			
	Gains Attention			
10	Give student short animation clip with a story the introductory scene			
11	Animated images were used in the lessons to direct the student's attention			
	Illustrations and photographs			
12	Using unshared lines on maps			
13	Geometric drawings and abstract symbols.			
14	. Using shaded lined drawing to differentiate part or the drawing			
15	Using a particular colours g to indicate elements as in nature in drawing			
16	Using the second &third dimension of possibilities			
17	Take into account consistency and balance between pictures and text and graphics			
18	Using a map key			
	Present the Content			
	Refresh Your Mind' section was presented before entering			

19	to the learning section	
20	Some words in the lessons were added to hyperlinks, to allow pop-ups for more explanation	
21	Interactive activities were embedded to rehearse new learned knowledge	
22	One component restates the meaning of another	
23	Textual and pictorial components exemplify each other..	
24	One component expands the meaning of another by enriching it with new information	
25	Extra details were available with the given hyperlinks.	
26	The Video clip was used to present the explanation with more visual details.	
27	Audio was used to provide alternative, students could learn by listening to the speech	
28	Tutorial sections were prepared at the end of each part for self-paced practice.	
29	Simple activities were added in the lesson for students to test their understanding. Event	
	Standards for navigation	
30	The Student has used the terms: “previous event”, “next event” and “simultaneous event”	
31	Use icons to navigate between screens	
32	All navigate buttons in horizontal tape below the screen	
33	Use hyperlinks to main content to index	
34	One component expands the meaning of another by adding new information	
	Standards for vide	
35	The video shot’s time is short ‘between 25-30 seconds	
36	Videos has relation to educational content.	
37	Avoid using more than one video 0n screen	
38	Avoiding the use of unnecessary images and drawings.	
39	Video clips must focus on moving, not stable, situations	
40	Using animation in feedback	

2/ samples of students work