

RESEARCH ARTICLE

A COMPARATIVE STUDY ON USER INTERFACE DESIGN OF MULTIMEDIA SOFTWARE

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ABSTRACT: This research presents the experiments and makes research on User interface design and learning of a Multimedia software. An experiment has been conducted to study about the user interface design and learning. The purpose of the work reported in this work was to find out the various aspects such as Color, Design, Visual placements for developing an effective user interface design and learning. We have compared Autodesk MAYA, 3D Studio Max, Adobe photo shop, Corel draw X4 and Digital Fusion and its user interface design and its graphics etc. This research examines the usability of multimedia software improvement with the help of feedbacks. The ultimate aim of this research is to bring out the comforting level as well as satisfaction level due to the effective visuals, attractive designs and eye catching colors for multimedia software.

KEYWORDS: Visual placements, User interface design, Attractive Designs, Colors, Multimedia Software.

INTRODUCTION: To determine the composition of a multimedia software there are many types of test available. They are design elements test, and feedback analysis and software performance test, etc. User Interface design elements and principles are useful to analysis the user interface design of the software.^[1] The feedback checklist tests are useful to find out the satisfaction level among the learners. The effective use of user interface has been tested using composition checklist as tool.^[2] The focus of the study is to bring out usability factors of an effective Multimedia software and good design.

Growth of multimedia Softwares: In 1966, Richard Albarino used the term to explain the Light works' with the word multi-media (Music-cum-visuals).^[3] The word multimedia is derived from the words multi and media. It means multimedia contents has a combination of different media tools. This differs with traditional media that use only newspaper such as text-only or Television or Audio. Multimedia includes a combination of video, audio, pictures, images, animation, video, or digital contents. Multimedia is generally viewed and accessed by communication devices, such as, Tablet, PC, and Laptops.^[4] Multimedia devices are digital electronic media devices used to publish multimedia projects.

The term "web media" is similar for web design and web publishing multi media. Hypermedia is a branch of multimedia application. Linear and Non Linear editing are the main classifications of multimedia editing. Example for Linear technique is TV or cinema presentation. Example for Non-linear technique is video game and CBT -computer based training. Hypermedia contains non-linear content techniques. Multimedia programs can be recorded. MS Power point, Flash, Macromedia director allows interactivity between various other multimedia software with the tools.

Autodesk Maya: Autodesk Maya 3D Animation software gives powerful integrated animation, modeling, simulation, rendering, match moving, and compositing tools on a flexible and simple CG

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pipeline. The rapid development of multimedia software technology has made it possible to deliver high quality 3D animation, graphics design, audio and video to the learner and the user.^[5] Autodesk Maya is a powerful 3D computer graphics software that runs on Microsoft Windows, Mac OS and Linux platforms, originally developed by Alias/wave front Systems Corporation(now Alias) and currently merged with Autodesk, Inc. USA. It is used to develop 3D animations, compositing works, 3D games, 3D films, animated film, TV serials and visual effect movies. The product is developed from the Sanskrit word **Maya (मया māyā)** which means illusion of life.

Maya was an excellent 3D animation product developed in 1998 under the software developers at Alias Research, Inc. USA^[6] Maya has been used to create 3D computer graphics for many films, including the Academy Award winners like Lord of the rings. It is also used to create film visual effects, television programs, video Games like Boardwalk Empire, once upon a time and Bones.^[7] Maya is also used in creating the visual effects for video consoles.

New Features: Maya 2013 has Improvements in rigging tools, Trax clips, enhancements in the Graph Editor, and the new Heat Map Skinning method has offers an enhanced animation experience.

Maya 2013 has simple workflows and the support of Alembic and Animation Transfer Object Model (ATOM) file formats and integrating into open pipelines.^[8] These are the special features of Maya 2013. High-quality Viewport 2.0, new features have been added to expand the level of support, so artists can efficiently evaluate.^[9]

View port of Maya:

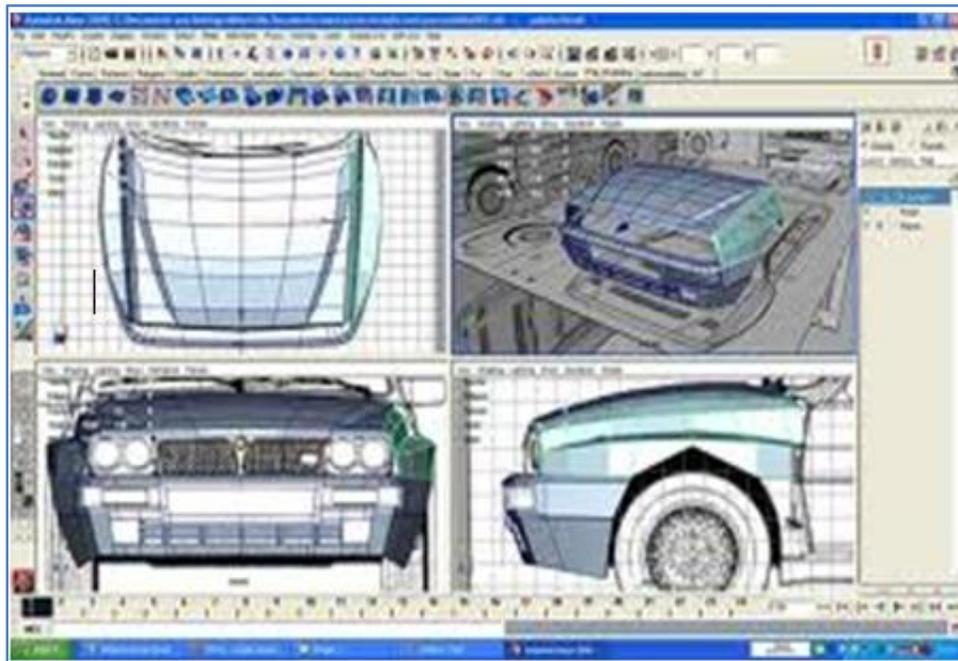


Figure 1: Maya View port (www.autodesk.com) ^[10]

Special features of 3D Studio Max: Skeleton, interior tools and character studio tools are the new features of latest 3D Studio Max software.^[11] It has special features such as library in motion-capture, color-coding of layers, frame by frame-animation, variable motion, CAT Motion, Skin tool, various

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modifiers, footstep walk creation tool etc.,^[12] It has many flexible features in user interface design as well as 3D animation. It also has animation editor motion mixture software tool. The transitions, Motion Scripting tool and latest stair case designing tools are the newest updating latest in 3D Studio max version. ^[13]

View port of 3D Studio Max:

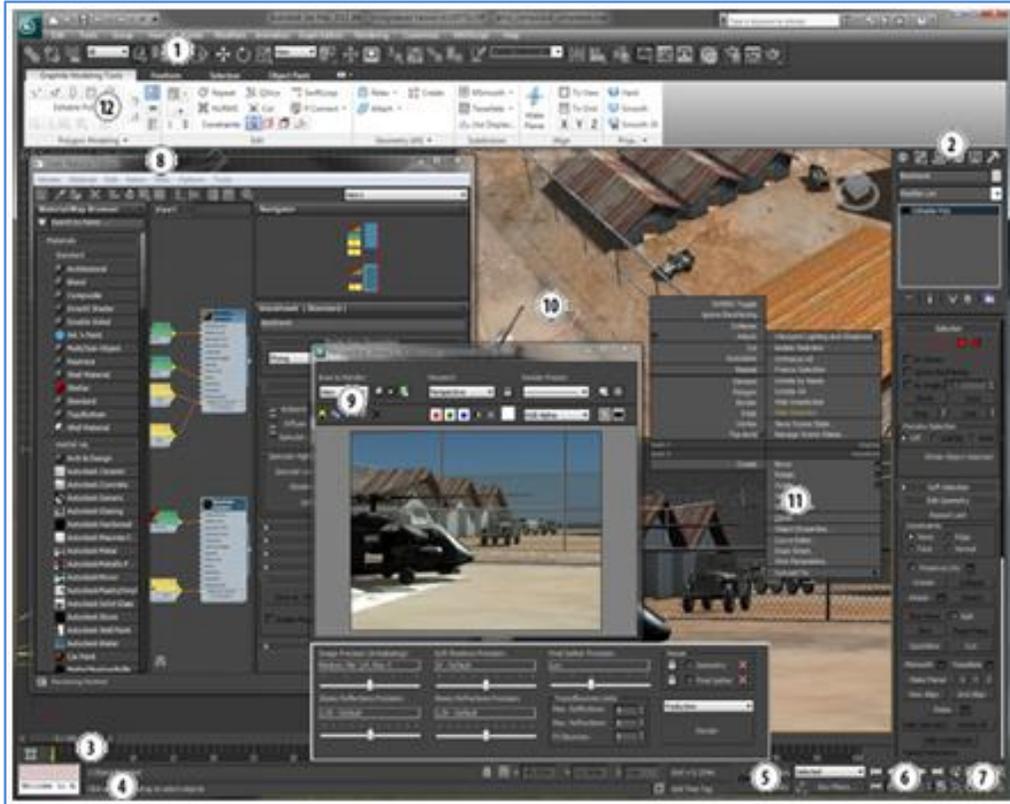


Figure 2: 3DS Max View port (www.autodesk.com)

3ds Max has four viewpoints of different perspectives. A wire frame, shaded view of the scene, can be changed easily than older versions.^[14] Tools such as shadows, exposure control, ambient changes, highly authentic and realistic, renderer are the new tools of latest 3D Studio Max.^[15]

Special features of Digital Fusion: Digital Fusion is compositing software developed for the special effects creators in animation industry by Eye on Software Inc. Australia in 1987. Version 6.4 of Fusion has features such as 32 and 64 depth resolution for different operating system such as Microsoft windows and Linux platforms.^[16]

It is very useful to create composite videos in animation works as well as in film works. Fusion 6.4 versions has many linkages with Avid editing software.^[17] It has many new features such as ARRI Raw, Geometry Particles, Phantom Camera etc. It supports many professional level HD cameras and various new formats for compositing works.^[18] 3D duplication is a new tool for Geometry Particles creation. It has many features such as duplicating 3D designs and shapes at the vertex points of a mesh.^[19]

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View port of Digital Fusion:



Figure 3: D Fusion View port (www.autodesk.com)^[20]

Research Methodology:

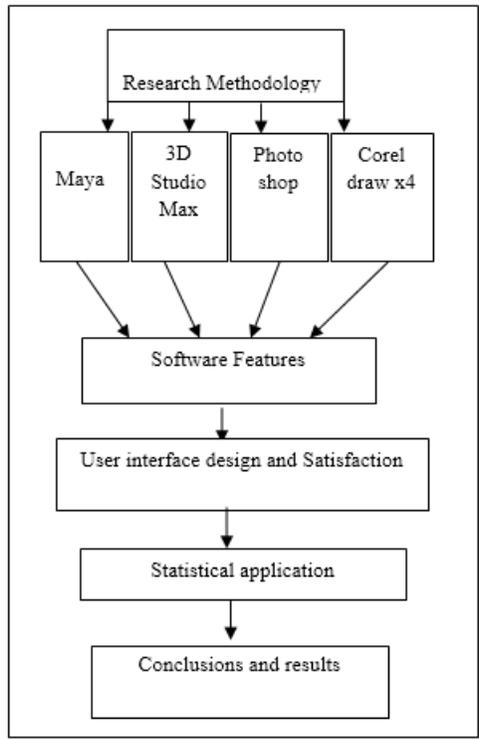


Figure 4: Research design

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Objective of the Proposed Project Work: In this research work, the main focus is on features of different multimedia software and their user interface design. This research is also examines the various elements and advantages of multimedia different software. There are many developments in design soft wares and multimedia soft wares version by version. There are no complete research works in user interface design and human computer interaction.^[21] The software features and application may different but there is a need to study the user interface design as well user satisfaction level among the users/learners.

Keeping all this the research work has been written with four clear Objectives:

A study on different multimedia software and their new features.

A study about the User interface design.

A study about the work flow of Maya 3D Studio max, Adobe photo shop, Corel draw, Digital Fusion etc.

Objective 1: A study on multimedia software design and their features.

Objective 2: A study about the User interface design.

Objective 3: A study about the features of Maya 3D Studio max, Adobe photo shop, Corel draw and Digital Fusion etc.

Objective 4: A study about the user satisfaction level.

QUESTIONNAIRE DESIGN:

Data collection and Sampling: Once the research design is finalized the task of collecting data will follow. A project work or research work requires primary as well as secondary data. Primary data is collected through questionnaire and statistical method of “LIKERT Scale”.

Questionnaire: A set of common questions laid out in a standard and logical form to record individual respondent’s feedbacks.

Secondary Data: Secondary data is collected through university data, journals, books etc.

Primary Data: It is gathered through the method of sampling.

Sampling: Sampling is classified into many types. But broadly it is classified into two main categories. They are probabilistic sampling and non-probabilistic sampling.

Every element of the population has a chance of being selected is the advantage of probabilistic sampling method. Probabilistic sampling method allows calculating the sampling error also.

It is classified into:

1. Stratified.
2. Simple random.
3. Systematic.
4. Cluster.

Non-probabilistic Sampling:

1. Convenience sampling
2. Quota sampling
3. Judgment sampling

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Sampling Method: Simple random sampling method is applied to 30 members of multimedia software learner groups for selection.

Visual aspects such as:

1. Color of the design.
2. Composition of visuals.
3. Symmetrical balance among the visuals.
4. Placements of menus.
5. Design of Logo.
6. Menu flexibility.
7. Visual appearance.
8. Visual experience.
9. Users' Satisfaction level etc.

Using unstructured questionnaire method of primary data collection is applied to collect data.

Age Groups 20 -25		Age Groups 26-30	
Visual elements	Liking	Visual elements	Liking
Maya	70 %		80 %
3D Studio max	50 %		40 %
Photo shop	80 %		90 %
Corel Draw	40 %		30 %
Digital Fusion	20 %		10 %

Maya 3DS max PS Corel DF

CONCLUSION: It has been concluded that there is a strong need for good design and visual elements for the effective user interface design to put the system highly usable. Also the multimedia learning users need innovative methods incorporated in the learning system, for enhanced learning activity. We conclude that user interface design is a very important element in multimedia software. Apart from application, the software designers need to study about the user interface design aspects (Design principles) as well as satisfaction of the users. The multimedia learning software design demands a deep understanding about learner's activity and focus on improve user's requirements based on cognitive approach.

REFERENCES:

1. Takashi, Development of User Interface Supporting Multi Web Browsers for Distributed e-learning System, SICE annual conference proceeding publications, Vol. 3, issue 2, 1035 – 1036, 2010.
2. Said Ghoniemy, A dedicated web based learning system, Universal Journal of Computer Science and Engineering Technology publications, Vol. 1, issue 2, 84-92, 2010.
3. Liang, Design of Model for Activity-Centred Web Learning and User experience, School of Information Technology and Engineering, IEEE publications, Tianjin University of Technology and Education, Vol. 2, issue 4, 300-304, 2003.

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4. Lisa Fan, A Cognitive Approach of Web –based Learning Support Systems, Department of Computer Science University of Regina publications, Vol. 4, issue 3, 245-258, 2003.
5. Panagiotis, A Semantic Approach of an Adaptive and Personalized Web-Based Learning Content-The case of Adaptive Web, Second International Workshop on Semantic Media Adaptation and Personalization, Vol. 4, issue 3, 567-569, 2007.
6. Sucheta, Learning Style Recognition using Artificial Neural Network for Adaptive User Interface in E-learning; Computer Science and Engineering Department, NIT, Warangal, AP, India, , Vol. 1, issue 4, 780-795, 2012.
7. Website links <http://en.wikipedia.com/once upon a time TV Serial>.
8. Esra, Cognitive Styles and Students interaction with an Instructional website, Tracing users through Eye Gaze, Sixth International conference on learning technologies, , Vol. 2, issue 4, 1020-1025, 2006.
9. Shipin, Adaptive Learning System based on Learning Style and Cognitive State, International symposium on knowledge acquisition and modelling, , Vol. 2, issue 4, 21-29, 2008.
10. Web site Link <http://download.autodesk.com/us/3dsmaxdesign interface overview/2011/3dsMax verview.htm>
11. Nikos, Research on teaching and Learning, Faculty of Communication and Media Studies, National & Kapodistrian University Hellas Computer Science Department, University of Cyprus, CY-1678 Nicosia, Cyprus, , Vol. 1, issue 2, 900-905, 2010.
12. Huan, Research on Strategies for Relieving the Cognitive Load in Web based Learning, International Conference on Educational and Information Technology, Vol. 4, issue 3, 435-439, 2010.
13. Norol, The Role of Cognitive Styles in Investigating E-Learning Usability, International conference on e-Education, e-Business, e-Management and e-Learning, , Vol. 2, issue 1, 1020-1028, 2010.
14. Andreea, Stress and Cognitive load in Multimodal Conversational Interactions, Human Media Interaction, University of Twente, The Netherlands, Vol.2, issue 4, 98-103, 2009.
15. Website link http://download.autodesk.com/us/3dsmax/interface_overview/2011/3dsMaxUI Overview.html.
16. Website link <http://orbitershare.blogspot.com/2009/10/inside-3d-max-studia.html>.
17. Website link http://www.academia.edu/1859859/Entrepreneurship_Development_through_Self_Help_Groups_A_Case_Study_of_Hatkanangale_Taluka.
18. Website link <http://www.amazon.it/Customer-Loyalty-Telecommunication-Industry-Pakistan/dp/3846596639>.
19. Website link <http://citeseerx.ist.psu.edu/showciting?cid=935221>.
20. Website link autodesk.com/us/digital fusion interface.
21. Website link <http://academic.research.microsoft.com/Author/3552874/constantinos-mourlas>.

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