
Analyse and Compare Online Instructional Design Research

Analyse and Compare Online
Instructional Design based on
Educational Websites.

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Evidence of Background research and literature review of best practice in instructional design, its synthesis and application to this task

Instructional design models are necessary guidelines to start planning courses layouts based on four main strategies, **Situations, Methods, Desired Outcomes** and **Instructional Conditions**.

Instructional design theory develops from two main categories related to each other **Situations** and **Methods**. **Methods** will be decided at the end of the **Situation** process. The **Situation** process will lead to **Desired Outcome** and **Instructional Conditions**.

Desired Outcome stages are guidelines to structure a design towards **effectiveness, efficiency and requests** of the course concerned while on the other hand the **Instructional Conditions** stages will cover the structural part with regards to the **learner, learning, learning environment** and **development construction**; once the **Situation** process is completed **Methods** are implemented accordingly.

There are various Instructional design methods, based on two main theories **Constructivist** and **Objectivist**.

Objectivist theory behaves in a traditional instructional design model, based on teacher and student philosophy. As quoted by (Jonnassen, 1991)."

"Learners may be told about the world and be expected to replicate its content and structure in their thinking (Jonnassen, 1991)."

Constructivist is widely used on web based courses due to its theory that represents collaborative learning exploiting various online technologies. As quoted by ("*Duffy & Jonassen, 1992*)

Learners with different skills and backgrounds should collaborate in tasks and discussions to arrive at a shared understanding of the truth in a specific field.

However in practice a mix of both **Objectivist and Constructivist** (instruction/learning) design is being used to reach all aspects of a good Instructional Design Model in different circumstances.

Choice and Justification of Evaluation Methodology

The process of evaluating a methodology starts by taking into consideration two basic theories Objectivist and Constructivist. I took the decision to go towards the Constructivist theory due to the fact that the critical evaluation is based on websites. Constructivist is a theory that embraces collaborative learning structure and most of the web based courses are structured on collaborative learning methodology. Having said that you cannot totally exclude the element of the Objectivist theory since there is always an aspect of teaching.

After reviewing various Instructional Design Models such as:

ADDIE, Spiral Model, ARCS, ASSURE, Dick and Carey and others, I came to a conclusion and decided to base my critical evaluation using the ADDIE Model, going through the following Models main components : **Analysis – Design – Development – Implementation - Evaluation**

Justification The **ADDIE** model contains components producing a guideline to develop accurate courses structures which can be implemented for both theories, Constructivist and Objectivist; this will give me the opportunity to produce a critical evaluation on different and ample aspects of the websites concerned, going through the five stages of the ADDIE model starting from analyzing the learners needs and concluding by analyzing the learners feedback for evaluation.

Critical Evaluation

Website 1 Online Learning Resources

<http://www.bbc.co.uk/learning/>

The aims and objectives of “BBC Online Learning” are to deliver Educational material covering all ages including adult learning and at the same time entertaining the users with interactive pages containing educational activities.

Analysis Phase

In the analysis phase “BBC Online Learning” focuses on the motivational aspect of the learning environment, stimulating learners to visit their website by displaying colorful images that link to various websites. “BBC Online Learning” website has a substantial amount of material which is being delivered through their website but nothing specific. The audience which “BBC Online Learning” is targeting is very vast reaching different educational levels within different ages and educational areas. This demonstrates that there isn’t a distinctive audience being targeted but a collection of educational information towards a mixture of learners, demonstrating a constructivist theory based on collaborative learning which is still in a developing phase.

Design Phase

The design phase is still in a prototyping stage considering the fact that “BBC Online Learning” is still a beta version, having said that most of the components are almost completed in this stage which are “User Interface”, “Apply Visual Design”, “Create Prototype”, “Document project’s instructional, visual and technical design strategy” and “Apply instructional strategies according to the intended behavioral outcomes by domain”. The last two components related to this phase “Document project’s instructional, visual and technical design strategy” and “Apply instructional strategies according to the intended behavioral outcomes by domain” are still not persuasive this is due to the fact that the following stages are not being catered directly by the “BBC Online Learning” website but through links directed from the “BBC Online Learning” front page towards other websites delivering various instructional material.

Even though the websites presented by “BBC Online Learning” may have a complete instructional design model covering the ADDIE model components, the “BBC Online Learning” website *per se* still doesn’t

have a clear direction towards a final design that leads to a targeted audience with comprehensible objectives and goals.

Development - Implementation – Evaluation

The last three phases which completes the ADDIE model Development, Implementation and Evaluation, cannot be connected to the “BBC Online Learning” website, this is because these components are directly related to other websites delivering the subject to be evaluated. There aren’t any subjects which are directly delivered from the “BBC Online Learning” as previously mentioned the “BBC Online Learning” make use of a hierarchal navigational system which links towards other educational websites.

Conclusion

The Website is in a continuous stage of analysis and referring to **ADDIE Model** the following analysis are still to be evaluated:

- Who are the audience and their characteristics?
- Identify the new behavioral outcome?
- What types of learning constraints exist?
- What are the delivery options?

There is still room for improvement on the material delivery side. A *Sequence Content* structure as state in one of the **Kemp Model** (http://www.instructionaldesign.org/models/kemp_model.html) could be adopted for a better material distribution.

Website 2 Net Skills

<http://www.netskills.ac.uk/onlinecourses/tonic>

Analysis Phase

Net Skills seems to have a complete Instructional Design Model respecting the ADDIE components. Their services are well explained and demonstrate clearly their aims and objectives, including a good sequential structure, which helps visitors to navigate through the website in a sequential and logical system. The evidence which complete the Analysis phase can be read on “Netskill’s” website under the “About us” section within the “Philosophy” page demonstrating detail information of their **Analysis Phase** structure. (<http://www.netskills.ac.uk/content/about/vision-mission.html>)

Design Phase

Visiting the training section web page shows that “Netskills” website has developed the design phase, producing a logical process focusing on specific learning objectives, creating a sequential user friendly navigational system which completes the Design Phase determining the user’s needs.

Development Phase

The development phase shows an accurate delivery and a complete production of the content material complementing the logical structure produced previously in the design phase leading to a complete specific Development phase in connection to the Design phase.

Implementation Phase & Evaluation Phase

The implementation action procedure is delivered in two ways **Online** and **Onsite** which reflects both behavioral theories (**Constructivist** and **Objectivist**). The evaluation stage for the online courses is evaluated through an online Virtual Learning Environment using “Blackboard”. The rest of the evaluations are well described but there is no indication of how they will be evaluated with regards to feedback, as far as I am concerned the only way is using the contact page.

Conclusion

The website seems to be completed from the aspect of instructional design model. Referring to the **ADDIE** model with regards to Analysis and Design the website demonstrate practicality in design structure and a well planned updated analysis. “Netskills” seems to approach both theories **Constructivist** and **Objectivist**; this is because even though the material is being delivered in a collaborative structure, courses can be also taught onsite in a classroom environment.

Website 3 Web Monkey **webmonkey**

www.webmonkey.com

Aims and objectives of “Web Monkey” website are to deliver information, latest news and tutorials related to web services and developing. Targeted audience are web enthusiast, reference for web designers, reference for web developers and can be a good resource for lecturers teaching web developing and related subjects.

The approach towards the **ADDIE** instructional Design Model covers almost three main components of the ADDIE stages:

Analysis Phase

Targeted audience and objectives are clearly directed towards web developers and user/learners in related environments. This demonstrates that “WebMonkey” completed the phase of **who is the learner** and **what to deliver** in the analysis phase, which leads to the next step;

Design Phase

All learning objectives and exercises are undoubtedly focused on web developing and the web sector in general directly targeting the audience analyzed in the Analysis Phase. With regards to the user friendliness, the website has a hierarchical navigational structure which makes it easy to navigate keeping the user in the proper direction focused on the information he is searching with the minimum amount of clicks.

Development Phase

The evidence of this phase is demonstrated due to the continuous updated of news and tutorials which are published on the website consequently in conjunction with the Analysis and Design Phase.

Implementation Phase & Evaluation Phase

The phase of assessment is not appropriately covered by the “Webmonkey” website since the main target of this website is to deliver interesting and innovative tutorials related to the world of websites, the only way that the user/learner can deliver his feedback (in general) is using a Twitter blog page within the “Webmonkey” website even though this is not the evaluation as it should be, based on summative and formative evaluation.

Conclusion

Web Monkey has a rich content of information related to the latest technology with regards to web services and developing including a good supplement of online tutorials. Is not easy to relate an instructional design model to this website because is not a website that has a delivery structure based on teacher and student communication (Objectivist) but more on an informative and tutorial based delivery strategy, targeted to a specific audience (Constructivist).

Web Site 4 MIT Open Courseware



<http://ocw.mit.edu/index.htm>

“MIT Open Courseware” website delivers free publications of courses materials which are already taught. Targeted audiences are students and teachers with undergraduate and graduates level of education. These publications consist of notes, lecturing notes and courses material which may help students and teachers in their studies during their courses as references.

Analysis Phase

The Analysis phase in the case of MIT website is in continuous developing since the website is topped up every year with new material. There isn’t a specific subject but it diversifies in all the subjects that the MIT offers reaching different audience in different specializations. This demonstrates that Goals, Objectives and the audience’s needs through existing knowledge are continuously processed.

Design Phase

At this stage the MIT website clearly defines the objectives according to each course subject. This phase is covered before submitting the courses online, since the courses in concern are previously taught at

the “Massachusetts Institute of Technology” that indirectly completes another phase of the design stage prototyping and testing. With regards to the navigational structure MIT adopted a simple user friendly hierarchical structure, using a vertical linear structured menu at the top level leading to the main pages, making it user friendly as possible for visitors to navigate the website.

Development Phase

As previously mentioned in the Analysis Phase the material is in continuous development due to the fact that the course material is updated constantly and systematically based on the design phase demonstrating the connection between phases in the ADDIE model.

Implementation & Evaluation Phases

The Implementation Phase is demonstrated through the MIT website online delivery structure. The varieties of courses material are well placed in action and the delivery procedure is targeted towards the Teachers and the Learners. A complete feedback can be achieved through the “Facebook” group (<http://www.facebook.com/MITOCW>), with regards course evaluation related to summative and formative theory this will be done by the teacher delivering the course guided through assignments included in the course material.

Conclusion

MIT Website delivers a large amount of past course material, which indirectly exchanges experiences forming innovations for future resources. MIT tends to approach **Kaufman’s Organizational Elements Model (OEM)** considering the fact that the MIT website inputs material, delivers material and how is being used, reflecting the Means and End steps of the OEM model.



Website 1 own research

[http:// http://www.tizag.com](http://www.tizag.com)

One of the main reasons I use “Tizag.com” is due to its simplicity that makes it very easy to navigate through the website. I use this web site for references and also to create power points presentations related to web developing subjects. Tutorials are easy to follow they are structured in a logical sequential way. The information is based on an exchange of experienced information keeping up to date the content of the website. “Tizag” web site seems to embraces the “**Kemp Design Model**”. The following are some of the components that “Tizag” website covers concerning “Kemp Design Model”:

- **Learner characteristics.**
- **Identify Subject Content**
- **Instructional Objectives**
- **Mastering Objectives**

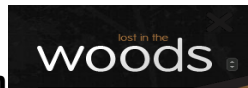
Weaknesses and Improvements

The website has lack of images and this makes it less attractive and less accessible. Images can help to understand better the content of the website and create a more accessible navigational system environment especially for people with different abilities. Well designed icons can improve the layout design and user friendliness of the website, another improvement which the website developers might consider regards to accessibility is to create a visual web page including video lessons. Using the above suggestions will cover one of the **ARCS Model** components (“arousing interest”).

The colour scheme of the website has low contrast properties; this makes it more difficult to read and also tiring. A proper colour scheme with high contrast colours not only will facilitate the reading of the website content but will affect the overall design perspective making the site more attractive.

Some of the website content needs to be updated. Some of the tutorials are based on older versions applications and this can lead to improper information. To improve this situation the website needs to be frequently updated, this does not concern the structure of how the website content is being delivered but delivering the material equivalent to an updated application.

Web site 2 Own research



<http://blog.themeforest.net/>

This website is meant for students and teachers in the web developing and digital media area having an advanced level in the use of various scripting languages and digital media tools. The content of this website is tutorial based and mostly used for references and teaching resources.

I find “**Blog.themeforest.net**” a good resource for the deliveries of web develop lessons. On “**Blog.themeforest.net**” there is a substantial amount of video tutorials which are self explanatory and easy to follow due their sequential structure (step by step tutorials). The resources available are perfectly suitable to deliver creative lessons stimulating students with practical examples.

The instructional design which has similar properties to the “**themeforest.net**” website is **Kaufman’s Organizational Elements Model (OEM)**. **Kaufman’s Organizational Elements Model (OEM)** is based on two main aspects “**Means**” and “**Ends**”. “**Means**” component consists of two steps “**Inputs**” and “**Processes**”, the **input** part focuses on delivering raw material and the **process** part will focus on the quality of the material delivered. The second main component is “**Ends**” which is divided in three steps “**products**” focusing on the lecturer’s accomplishments, “**outputs**” delivery of tutorials to the users/learners and “**outcomes**” focusing on the effect of the delivered products. The “**Inputs**” stage in the case of “**Blog.themeforest .net**” is the upload of tutorials contributed by their visitors. The “**Processes**” stage is done by the administrative section by analyzing the material before being

published. The End part is not completely covered since this is a website which reflects a totally Constructivist theory based on collaborative learning, therefore the **“products”** stage is not covered while the **“Outputs”** and **“Outcomes”** are evaluated through the website’s blog and community section.

Weaknesses and Improvements

The navigational structure even if it seems to be simple to navigate it’s not. The website presents a top level menu with four main links; including submenus which lead to different pages and websites accordingly, consequently there are other links to other websites and other web pages, ending up with a disorganized hierarchical navigational structure not mentioning hidden links that pops out when hovering over the header. This disorganized navigational structure turns the website into a non user friendly navigational system with the consequence of disorienting the visitors.

“Blog.themeforest .net” can improve their navigational system by planning an organized hierarchical structure with links pointing specifically on the proper subject without overlapping on other similar subjects and letting visitors know where they are. Links pointing to different pages must be grouped apart on a specific area of the website giving visitors clear directions.

Completing the navigational improvements suggested above, the website can be more user friendly facilitating access to certain areas of the website where visitors can find valuable material which eventually are not reaching.

Reference

(Benjamin Bloom-David Krathwoh-Elizabeth Jane Simpson. (2011).Instructional Design Models. Available: <http://www.instructionaldesign.org/models/index.html>. Last accessed 10 Nov 2011).

Charles M. Reigeluth (1999). Instructional-design theories and models, Volume 2. 2nd ed. USA: Lawrence Erlbaum Associates.

Garry Morrison. (1998). Kemp Design Model. Available: http://www.instructionaldesign.org/models/kemp_model.html. Last accessed 20th Nov 2011.

June Cohen (2003). Unusually Useful Web Book. USA: Stephanie Wall. p140-p207

Jakob Nielsen, Kara Pernice (2010). Eyetracking Web Usability. Canada: New Riders. p108-p236.

Jennifer Niederst Robbins (2007). Learning Web Design. 3rd ed. USA: O'Reilly. p165 - p183.

Mahnaz Moallem, Ph.D. (2001). Applying Constructivist and Objectivist Learning Theories in the Design of A Web-Based Course: Implications for Practice. USA: Educational Technology & Society .

(Michael Molenda (2003). In Search of the Elusive ADDIE Model. USA: Michael Molenda. p1 -4.)

Roger Laing & Rhy Lewis (2002). Web Design. London: Starfire Book.

Strickland, A.W (2006). "ADDIE". Idaho State University College of Education, Science, Math & Technology Education. Retrieved 2006-06-29.