



# Masters in ICT and Education

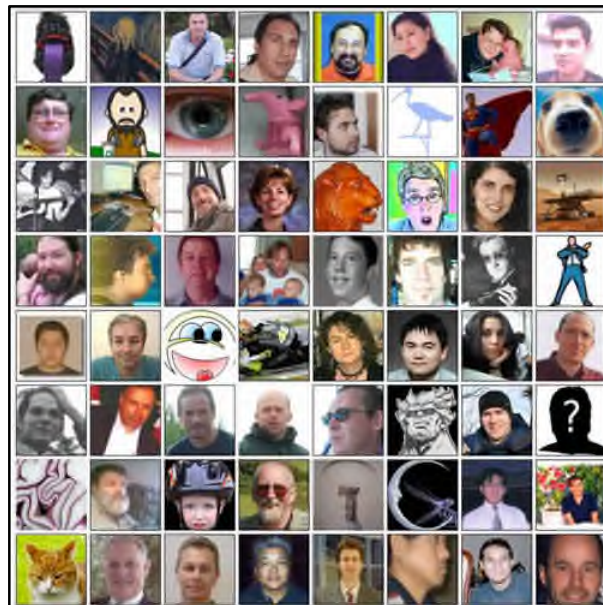
UNIT 5253 – Assignment  
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## Development of a Connected Moodle Environment for AS ICT Students in Secondary Education – ‘ConstructICT’

Around about 8,000 words (minus appendix and references)



*‘Moodling Away in a Community of Practice’*



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## Introduction

The development of this project was organised initially with [mindmaps](#) <sup>(FIG\_26,27)</sup> looking at course organisation and overall development; an organisational [Gantt chart](#) <sup>(FIG\_28)</sup> and [social bookmarked - 'del.icio.us'](#) <sup>i</sup> research. I have also used a weblog<sup>ii</sup> as a diary to the development of my WBLE<sup>iii</sup>. It has been a revelation that introduced me into the *connected* world of 'edu-bloggers'<sup>iv</sup> and their network of ideas. The weblog development using the Wordpress<sup>v</sup> engine also helped in the implementation of my separate student-blog<sup>vi</sup> which is to become part of a series of web-tools in connection with my WBLE. The student-blog is an important overall part of my learning tools but it will not feature in this assignment due to issues of time and length. My WBLE<sup>vii</sup> is named '[Construct ICT](#)' <sup>viii</sup>,



I must mention here that I have made use of many references from weblogs and other resources on the web. Usually within academic papers these sources are often considered as lacking significant peer review to be relevant. I however would contend for this assignment which focuses on emerging educational research, social software and web development technologies that these sources are extremely pertinent. Some of the *nodess* that I have used includes Berthelemy<sup>ix</sup>, Downes<sup>x</sup> and Siemens<sup>xi</sup> who have all published a variety of academic papers as well as publishing to their own weblogs, with expert review through comments from other *edu-bloggers*.

## Background

The choice of purpose for developing my own WBLE was my own, but it was suggested that it should relate to outside of this course within our own particular educational setting. This '*situated*'<sup>1</sup> (Smith, M. K., 2003) problem immediately motivated me to thinking about my own school and its needs.

I am working in Cairo at El Alsson British International School. The pupils are Egyptian from wealthy families who demand high GCSE grades of their children so that they may advance into a competitive University market. The students are high achievers but find it very difficult to motivate themselves for more than curriculum based work that fulfils criteria for their examinations. This mentality was reflected within ICT where students often stated '*if it isn't in the exam I don't want to learn it.*'<sup>2</sup>

However in the last two years we have managed to motivate students to go further and use ICT in a more creative way. Their motivation has been piqued by the opportunity to follow their own enthusiasms within computing, be that game design or flash animation. This has led to increased pressure on students who need much more support outside of school to fulfil this creativity while still achieving the results expected. SMT<sup>xii</sup> has backed these advances and discussed that within the ICT department and across the school there is a need for the implementation of an intranet or WBLE where students and teachers could communicate and share resources within a secure environment.

<sup>i</sup> My del.icio.us public bookmarks <http://del.icio.us/drtech69/MA>

<sup>ii</sup> ConstructICTism - <http://www.constructict.com/blog>

<sup>iii</sup> Web Based Learning Environment

<sup>iv</sup> 'Edu-bloggers' a term sprung from a large amount of educational practitioners who now produce weblogs about new ideas and practice regularly – all my edu-blogs are organised within my bloglines account in the folder 'ICT Eduk' at <http://www.bloglines.com/public/drtech>

<sup>v</sup> Wordpress is a template engine for producing weblogs, for more information <http://www.wordpress.org>

<sup>vi</sup> CreativICTism - <http://www.constructict.com/studentblog>

<sup>vii</sup> Note the WBLE is open for all to view, but the course is private and secured for my AS students, to view the course itself in action please use the following login details: - Username: *mastersquest*, Password: *mastersquestcict*, Logon to the AS Applied ICT course: *alsson* or contact me at [aperkins@constructict.com](mailto:aperkins@constructict.com).

<sup>viii</sup> CICT - <http://www.constructict.com/moodle>

<sup>ix</sup> Mark Berthelemys' weblog resides at <http://elgg.net/berthelemy/weblog/>

<sup>x</sup> Stephen Downes' weblog resides at <http://www.downes.ca/>

<sup>xi</sup> George Siemens' weblog resides at <http://www.elearnspace.org/blog/>

<sup>xii</sup> Senior Management Team at the school



I identified the following very general specifications that a WBLE would need to fulfil for all stakeholders involved:-

- Designed for the recent introduction of the EdExcel AS Applied ICT, as a summer holiday introductory course. In the long term it must be scalable to fulfil SMT wishes for other departments and courses.
- The course would focus on innovative research methods due to problems that students had found with the need to research independently on particular ICT subjects. This would provide work that AS students could include within their e-portfolios on return to school.
- Enhance and allow anytime access as the academic year is very short and had led to unfinished e-portfolios in the first year of the AS course. It is envisaged that this course would be followed by three '*blended*'<sup>xiii</sup> courses linking with AS units.
- The course must be motivating with a various practical activities that relate to their AS ICT examination but link to their own personal enthusiasms.
- Provide support for homework and other activities, to test student's knowledge in a regulated way (e.g. quizzes), in which students can receive immediate feedback.
- Enable communication between students out of school in a formalised way. It was noted that students particularly during holidays were isolated, as they lived in various parts of the city or travelled for long periods of time and would not meet face-to-face, only communicating with friends via the '*MSN-Messenger*'<sup>xiv</sup> tool. This lack of a group to study with maybe influences students study methods and the strange reliance on private tutors by parents.

## ***Pedagogical Rationale***

The WBLE will need to be carefully linked with ideas related to my thoughts on pedagogy and how students learn. I will explain over the following paragraphs my beliefs about learning in general and how that will lead to how my students will be learning online. I will discuss the question of '**what is knowledge**' and how I want my students to acquire this knowledge so that my WBLE has root and direction in learning.

My experiences of both learning and teaching ICT with secondary students has led to a belief that you need to build a learner who is able to work independently to solve problems. However that sentence is misleading because it is actually learning to be able to independently solve problems by knowing that there are '*communities of practice*'<sup>3</sup> (Smith, M. K.,2003) waiting to assist you. For example whenever a student comes to me asking how to eliminate a virus from their home computer, I will always point them towards a web-forum. Here they can post a question and become part of a community which doesn't actually sit down at their computer and delete the virus but gives them ideas and instructions as to how to experiment and solve the problem. The advice and discourse is iterative by nature and would lead to the knowledge of the community being improved through sharing and solving problems. This ideal is '*social constructivist*'<sup>4</sup> in thought and one in which I would want to be an integral part of my WBLE.

Students have found this, community problem solving ideal, difficult to understand within the isolated goals of examination courses and to take forward into their everyday learning. A prevalent student attitude is that the teacher is there to teach them everything they need to know when as a teacher I believe I am only there to facilitate their learning, that *I don't know but together we find can out*.

The bias of the course to research based work and e-portfolio production was a marked change from GCSE ICT courses. The first set of students laboured often with the weight of research within two units focusing on the **Digital Divide** and **Online Services**. Specifically they struggled

<sup>xiii</sup> A term that suggests that online learning will be combined with face-to-face learning in mixed lessons or courses

<sup>xiv</sup> This is one of the most popular CMC - Computer Mediated Communication tools along with Yahoo and AIM



with methods on how to find and disseminate the vast amount of information available on the internet. I found these students relying on **spoon-fed** links to research papers, websites and television programs. The limited number of students led to a misunderstanding of the value of communal work and research and a lack of skills and knowledge into how to expand their community outwards to like minded sources on the internet. My challenge was to see if I could provide an environment that would enable students to actively participate in this and understand the opportunities open to them within the *social web*.

My students although part of the '*Digital Native*'<sup>5</sup> (Prensky, October 2001) generation seemingly lack some of their attributes for reasons that would need a greater depth of study. However, it must be acknowledged that my AS students are surrounded by technology and use it on a continuous basis for leisure and study whether it is the *iPod* or the USB stick. It can be considered that students '*live in a state of continual partial attention*'<sup>6</sup> (Rainie, August 2005) following many different tasks at once and always deciding which to focus on and which to relegate to the background. Students use computers to continuously communicate and chat with *MSN-Messenger* while involved in a variety of other tasks. Informally I asked students if they participated in using new social collaborative tools like *mySpace*<sup>xv</sup>, surprisingly most of them had not even heard of this site. I believe that the opportunities that now exist on the '*Read/Write*'<sup>xvi</sup> web envisioned by Tim Berners Lee need to be opened out to students so that they are able to participate and realise the collaborative power that learning online can now support. If I am able to allow communication and many other activities to run within my WBLE then maybe this will allow the *partial attention* to be productive and continue while students are collaborating informally in their social, class groups and feeding into internet communities securely.

What has become apparent since the emergence of the *social web* and weblogs is the amount of knowledge and ideas being produced and written continues to expand exponentially. Look at Technorati's<sup>xvii</sup> published figures<sup>7</sup> (FIG\_1) to show in fact

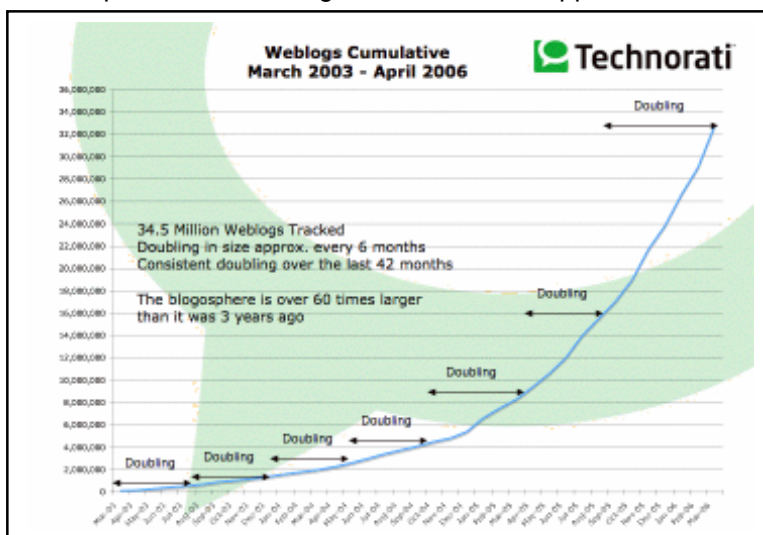


Figure 1 – Statistics for Blog Use from Technorati

there were over 34.5 million weblogs which will statistically double every six months. This *knowledge* is being recycled and placed into small chunks, that are often difficult to ascertain their relevance or worth. These chunks are linked with metadata<sup>xviii</sup> which is organised into an **organic mess** which alone is difficult to navigate. There are now many communities connecting together sharing and spreading knowledge in a way which can control this knowledge expansion. The main contributors act like hubs spreading information around in '*networked communities*'<sup>8</sup> (Siemens, April 2006) and become respected through acknowledged expertise. These *hubs* become very important and can act as filters to all these *chunks* of knowledge being spread via

<sup>xv</sup> A website that has raised much concern with parents and the educational community, which allows members to place personal information, photographs etc. on a personal web-page which can then be viewed by specific friends who can communicate with you if online -[www.myspace.com](http://www.myspace.com)

<sup>xvi</sup> An ideal of Tim Berners Lee inventor of the World Wide Web, who 15 years ago suggested that writing and publishing to the web should be as easy as reading from the web

<sup>xvii</sup> [www.technorati.com](http://www.technorati.com) – is a search engine for blogs

<sup>xviii</sup> Metadata is information about data; that means it can be categorised in a certain way. So for example the use of tagging and *Folksonomies* are very much leading the metadata use within the social web





weblogs, forums and RSS<sup>xix</sup> feeds. I believe it is extremely important for students to be taught how to use this network of knowledge to find what is **appropriate** for their work and research. The idea that must come out of this is Siemens' idea that *'the pipe is more important than the content within the pipe'*,<sup>9</sup> and that the information will continue to flow but how it is collected, filtered, transmitted and discussed is the real important process for students to understand.

How do student's best learn online? From a purely emotive, enjoyment based point of view you will always receive responses about animation, games and interactivity but many students will also like **simplicity** and focus on an educational website. Beyond the collaborative communities I believe that everyone enjoys learning in many different ways online as much as with face-to-face teaching. But I would say that every student when learning will use a variety of different *'intelligences'*<sup>xx</sup> to learn and so will respond to a variety of different online teaching styles; whether this is through an assessment quiz which tests and provides feedback to be repeated until understood or a video showing graphical information, to tutor, on a particular domain of knowledge.

In any environment the students *'affective'*<sup>10</sup> (Ann Jones, April 2004) needs, must be sufficiently thought through and students must be shown that there is trust from which learning can grow. Within a *blended* environment there will be natural *'shared histories of learning'*<sup>11</sup> (Smith, M. K., 2003) however how this is translated within a WBLE can clearly be different. Gilly Salmon expresses this very well in her ideas of steps<sup>12</sup> to a good interactive learning environment. Most of her research focuses on college level, but it is as important when it comes to younger students. Any course that is designed to *'scaffold'*<sup>13</sup> (Lev Vygotsky, 1933) a students learning and understanding must strive to provide a mutually supportive group in which various students are linked with close *'zones of proximal development'*<sup>14</sup> (Vygotsky (Schultz, December 2004))

The WBLE that I develop must be able to combine these pedagogies and ideas, in a harmonious way: -

- Constructivist activities –that involve active problem solving.
- Real life situations for these activities which will enable the skills learnt to be used in other environments and subjects.
- Social *communities of practice* to be built within the system, which should lead to expansion into using secure networked groups available on the internet.
- *'Behaviourist'*<sup>xxi</sup> quizzes and activities that train the students in particular domains of knowledge. These quizzes should give immediate feedback and lead to an overall score for their summer course.
- A variety of *'e-tivities'*<sup>15</sup> (Salmon, 2004) that give the student many ways to understand and process the learning involved including use of video, assignments, introductory forums and peer review.
- Use of and empowerment to use *social* tools safely to understand the principles of *connected learning* and its importance in their learning within the future. During research the students should practically learn how to use RSS feeds and aggregation, interactive online applications and social bookmarking.
- The environment will integrate with the face-to-face teaching element of the course, and the *'blending'*<sup>16</sup> (Valiathan, August 2002) of this summer course could differ from other courses during the school year.

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<sup>xix</sup> RSS - Has many definitions but the most well known being *Really Simple Syndication* or *Rich Site Summary* which is a coding method that enables websites to be regularly checked for changes that can then be collected and posted automatically to another site

<sup>xx</sup> The idea of *Multiple Intelligences* was first discussed by Howard Gardner who proposed that students had eight different intelligences and so strengths in the way they learnt

<sup>xxi</sup> *Behaviourist* ideas first introduced by Skinner, to suggest that learning is best helped by repetitive tasks that give immediate feedback to train the user to understand a task almost by reflex



## Chosen Design Process

I had to decide an overall process of development to produce a high quality learning space that would receive rigorous formative assessment throughout the design cycle. The initial Gantt chart, in which I had laid out the development in a way similar to the simplistic '*waterfall model*'<sup>17</sup> - process seemed to lack any obvious route to its end users. If parts of the WBLE were incorrect then the chances of catching problems related to the environments use, by students was poor.

Other acknowledged methods of modelling software development attracted my interest including that of *Boehm's spiral model*<sup>18</sup> (Boehm, May 1998). This allowed more possibilities in my methods of design enabling a continual forward motion of development while always being able to loop backwards to the nucleus of my ideas. From the [Gantt chart](#) (FIG\_28) I developed my own [spiral model](#) (FIG\_29) of how I thought that my WBLE would develop figuring in continual iterative feedback and evaluation from users regarding usability and accessibility.

## Learner Centred Design and SUNA

So where do I go from my initial analysis and specifications of the problem and my ideas of its basis in learning? What is the point into which I can begin actually designing my WBLE without having to be confronted immediately with technical considerations? The environment needs to be '*learner centred*'<sup>19</sup> in which the learning is not simply content-based but surrounds the learner in '*active exploration, construction and learning*'<sup>20</sup> (Norman, April 1996) to inspire a student to want to achieve and learn.

Each user of the environment should feel that it has been designed for them and have the ability to change the appearance of the environment so that it becomes personal. I was introduced to the idea of *scenario user needs analyses*. SUNA enables a designer to imagine example users that could be using there WBLE. For each user you would write a background and simple story indicating what the user would do and how they would use the environment, thinking specifically about their personality and how they would react to each problem or task. The power of a scenario is that it is very quick and easy to write and allows me as a designer to reflect carefully on exactly what a user needs to be able to effectively learn within the environment. It also enables me to view different viewpoints and different personalities and so '*directly integrate usability views with system and software views*'.<sup>21</sup> So far I had not thought about particular issues of '*usability*'<sup>xxii</sup> and '*accessibility*'<sup>xxiii</sup> and this would hopefully show any problems without me becoming mixed up in technical requirements and my limitations as a web developer.

As Carroll suggests SUNA enables designers to think at the lowest level of users and how they operate and interact with the system and also provides insights into the objects and needs of the operation of the system:-

*"Scenarios keep the designer of computer systems and applications in the swamp, but by their very nature also provide scaffolding to get a view of the design situation from a bit higher up."*<sup>22</sup> (John M. Carroll, 1999)

I decided to write four scenarios which would all consist of a background setting, a *real* user, an idea of what the user wants to achieve and the sequence in which they go through to *try* and achieve their aim. I chose to focus on candidates for the AS course next year: - Sherif, Mona, Mennah and Nada.

<sup>xxii</sup> Usability, in reference to this assignment, is about how easy the product is to use by an average person and often links to a set of acknowledged guidelines

<sup>xxiii</sup> Accessibility, described in reference to this assignment, is how easy my environment is to use for **ALL** people whatever their disabilities might be



## Summary of Scenarios

What was noticeable when writing and then reading through my [scenarios](#) <sup>(in appendix)</sup> was how easy it was for me to place myself within these students' personalities and so immediately see the drawbacks to initial ideas I had had about the environment. For instance I noted immediately when writing Mennah's scenario that she would be using a variety of different computers and maybe using Internet Cafés to do work and so it would be important for her that resources and download times would be kept to a minimum. Maybe she would need a resource or sitemap that she could see and download from so she could continue work when offline. Many other points continued to arise from looking back to my scenarios which would inform the design continually and changes to it.

The broad scenarios also helped with the summative evaluation of the WBLE, by being the genesis of four tasks that I would ask an *expert* and a *student* user to attempt. The final details of these tests were changed after the formative assessment was over and were included in the document [Design Submission Form](#). <sup>(in appendix)</sup>

## Systems Hierarchy Grid

These scenarios led me to an idea of what tools I would need to provide as well as what structure would be needed for the students to have a quality learning experience. The scenarios were summarised into a list of associated actions that a particular learner would need to do related to a particular task that they had needed to follow from their scenario. This led to a [hierarchy of systems](#) <sup>(in appendix)</sup> operations and needs that must be designed within the system. This grid is only a snapshot of the tools that the WBLE environment would need to accommodate and within my designs for the environment I will consider more than the four scenarios discussed here.

After the hierarchy I was then able to rapid prototype a WBLE in a simple way to test if the environment would satisfy the user's needs and decide on how I would be able to best implement the system.

## 'Out of the Box'

From the scenarios and systems grid I had produced I was concerned about the complexity of the tasks and tools that might be needed for my environment so it was now important that I began the iterative design spiral. The tools that I would have to provide **included**: CMC chat, forums, login facilities, a logical course structure, and immediate feedback to quizzes. I have produced websites and blogs before, but the complexity of the operational requirements alone meant that the site would have to involve a dynamic database structure to record and keep user's information, login details, uploaded work and grades. The flexibility that I was also demanding, related to the activities and communication needed, must also continue within other courses to fulfil my ideals of an 'OLE' <sup>xxiv</sup>.

I decided to investigate in more detail using a *Learning Management System* and whether it could fulfil my systems hierarchy and pedagogical ideals?

## Acronyms and Confusion

Do you know your 'CMS' <sup>xxv</sup> from your 'VLE' <sup>xxvi</sup> from your 'PLE' <sup>xxvii</sup> from your 'LMS' <sup>xxviii</sup>? There are as many definitions as there are acronyms of what comprises these systems. And to further

<sup>xxiv</sup> Online Learning Environment – all encompassing term similar to LMS

<sup>xxv</sup> Content Management System - a software system for organising and allowing collaboration of online documents usually in the form of a website

<sup>xxvi</sup> Virtual Learning Environment – is a software system specifically developed for educators to run courses for their students and administrate them easily

<sup>xxvii</sup> Personal Learning Environment – a term often contentious that suggests an environment that a person can organise their learning in a private informal way – an example would can be seen at [www.elgg.net](http://www.elgg.net)





confuse the matter each specific make of system fulfils often different criteria and offers different tools. To put it simply and collectively these environments are there to make an educators life easier and they are all 'used to refer to the "online" interactions of various kinds which take place between learners and tutors.'<sup>23</sup> (JISC Assist, 2002)

I shall choose the term LMS as it is resonably generic. An LMS should give a non-technical user the ability to combine a variety of user tools together, to allow students to interact with each other and their environment. The LMS should bring a consistent style and feel that can be customised to accommodate particular branding and graphics easily. It should allow me to concentrate on how the system teaches rather than on how I can build the system.

## System Choice

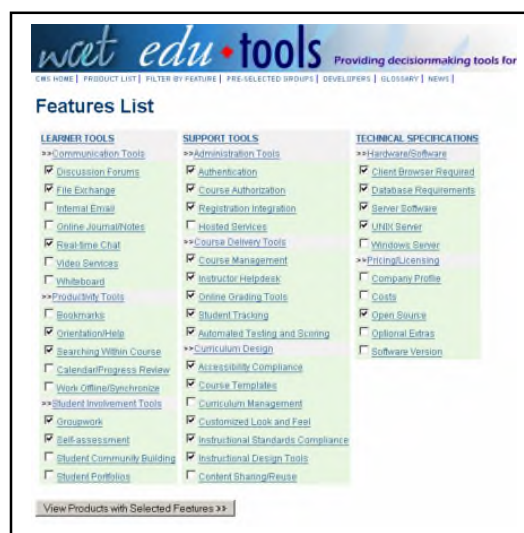
I decided to do a review of a variety of LMS systems and found the *EduTools*<sup>xxix</sup> website particularly useful. It gave a variety of examples of systems with a learning potential. Examples: – Atutor, BlackBoard, Web-CT, Moodle and Boddington. There are however other systems which focus less on being learning tools but could be developed into such systems including CMS<sup>xxx</sup> systems like Joomla, Mambo and even blog engines like WordPress.

I looked at both the associated ways of learning /pedagogy behind the systems along with their variety and flexibility. It would also have to be 'open-source'<sup>xxxi</sup> as the school was not willing to pay for the environment. From the initial tools review at *EduTools*<sup>24</sup> (FIG. 2) (*EduTools*, (2006), when compared with my systems hierarchy tables, there appeared only 3 candidates that were suitable:- **Atutor**, **Bazaar** and **Moodle**. Moodle offered a multitude of tools including **many** that had been mentioned in my scenarios including:- secure login facilities, organised course structures, uploading facilities and more.

The reviews of this environment were particularly interesting for four reasons besides the appropriate features that were involved. One is that that Moodle has a vibrant community of users located mainly at their *web-forums*.<sup>25</sup> (*Community Moodle*, 2006) Many users and *open-source* developers collect and support each other developing a wide variety of solutions, extensions and plug-ins. Secondly the pedagogy that is behind the design of Moodle from lead developer Martin Dougiamas is 'social constructivist'<sup>26</sup> (*Vygotsky (James Atherton, 15 August, 2005)*) in approach. Thirdly there are many real practitioners and secondary schools that are running Moodle environments successfully. On a small scale Miles Berry a Deputy Head at St Ives School has been running a Moodle system and expresses his enthusiasm for the way Moodle, if used correctly, can lead to learners online developing and learning through problem solving:-

*"...effective education is going to be characterized by ideas like reflective thinking, collaboration, intrinsic motivation, a well constructed knowledge base and an emphasis on problem solving. Moodle's unashamed grounding in this view of education means that the tools needed to support this sort of learning online are there in Moodle, right out of the box."*<sup>27</sup> (Miles Berry, Nov 2005)

Figure 2 – EduTools Website with Tool Choices



<sup>xxviii</sup> Learning Management System – similar in usage to OLE and VLE

<sup>xxix</sup> WCET Edu Tools website - <http://www.edutools.info>

<sup>xxx</sup> The website *Open Source CMS* has a very good review section on all management systems that are available <http://opensourcecms.com/>

<sup>xxxi</sup> *Open source* is software whose coding is open for viewing and changing by anyone. Generally the software is free to use in most instances that do not generate money although this can depend on the licensing agreement



Finally the community being one within an educational realm is focused on usability and accessibility issues. *The Open University*<sup>28</sup> (Niall Sclater, March 2006) for example has decided to adopt Moodle seeing it very much as at the beginning of developing an environment that can be accessible to all.

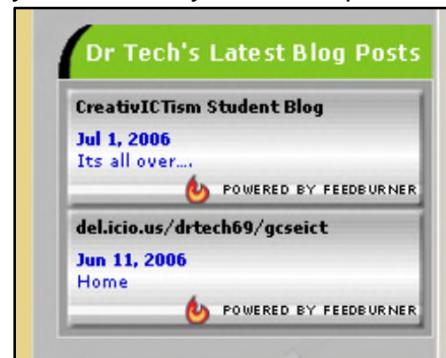
## Strengths and Weaknesses

With a system that is 'off the shelf' it was possible that it would not fulfil all my systems hierarchy needs. Although it might also have tools that I had not thought of at this stage that would enhance the users experience and hopefully the quality of learning within the environment.

My recent research into the learning pedagogy of 'connectivism'<sup>29</sup> (John CN June 2006 (Siemens 2004)), discusses the problems of an LMS and how restrictive this might be to producing a learning environment which encourages connected learning. Siemens suggests that 'beginning learning with an LMS is often a matter of wrong tool for wrong purposes'<sup>30</sup> (George Siemens, November 2004) However, when linked with my view that this environment would only be **part** of a set of web-based tools that would provide an overall system for my students I considered it less of an issue. I had already began implementation of a 'portal environment'<sup>xxxii</sup> my student-blog along side Moodle and hopefully other needs could be fulfilled maybe by developing a PLE with personal control and eportfolio tools.

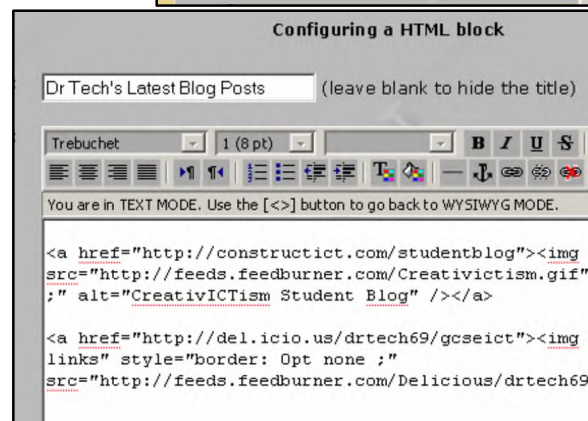
*"A tool that fosters a learning garden/ecology is one that places a user at the center and allows him/her to explore in various areas and directions of personal interest. Success is measured against the achievement of outcomes, but the pathway is driven by learner's personal goals/needs/context. The instructor provides planned exposure to content and learning intentions and then "unleashes" the learners in exploration and expression determined by their (the learners) choices, not the limitations of an LMS."*<sup>31</sup>

Concerns about personalisation of the environment and control will also need to be evaluated as this is something I placed high on my specification. Moodle however shows other strengths in flexibility that will provide a *connected learning* environment. This is shown within the use of



Moodle's HTML blocks interlinking with Web 2.0 widgets and tools. Through these blocks Moodle would be able to support as many links and feeds into the small, class community and keep up to date with the latest expert communities. Many social tools like *del.icio.us* - *social bookmarking* could be integrated and so become part of a *jungle* ethos of integrated tools that would lead a learner into a connected learning *ecology*.

Recent research by Derek Wenmoth has looked at the position of various LMS within their different teaching philosophies and technologies. I am hoping to be able to move the scope of Moodle further towards the emergent technologies and communications



**Figure 3 - Configuring RSS FeedBurner Widdget using a HTML block**

<sup>xxxii</sup> Considered a gateway site that would lead to other resources



he describes in his excellent 'Scope of OLE's'<sup>32</sup> (Derek Wenmoth, March 2006) diagram.

## Web 2.0 - Social Tool Integration

It is important that the course not only utilises and embeds practical Web 2.0 tools but that the students understand the implications of these tools and decide for themselves on their merits. As I have explained AS students need to show an appreciation of the many Online Services now available as this is one of their research topics.

But what are Web 2.0 applications? This is a difficult question as there are many definitions for Web 2.0 that range from the technical to the social of which Tim O'Reilly<sup>xxxiii</sup> seems to provide the most recognised:-

*"Web 2.0 is the network as platform, spanning all connected devices; Web 2.0 applications are those that make the most of the intrinsic advantages of that platform: delivering software as a continually-updated service that gets better the more people use it, consuming and remixing data from multiple sources, including individual users, while providing their own data and services in a form that allows remixing by others, creating network effects through an "architecture of participation," and going beyond the page metaphor of Web 1.0 to deliver rich user experiences."*<sup>33</sup> (Tim O'Reilly, October 2005)

The examples that the students will be mainly using on their course are the following:- [www.del.icio.us](http://www.del.icio.us) a social bookmarking tool for sharing bookmarks with *folksonomic*<sup>xxxiv</sup> tags; [www.bloglines.com](http://www.bloglines.com) an RSS feed aggregator for organising and reading chunks of information usually from weblogs; [www.numsum.com](http://www.numsum.com) and [www.irows.com](http://www.irows.com) spreadsheet online applications for sharing, writing and publishing numerical information. The main other use of these tools is the interlinking of the spread of information between students within the Moodle environment and onwards to the weblog, email and eventually MSN chat messages with RSS feeds. Hopefully my environment will engender a feeling within the students that will give them something of what Hinchcliffe describes as:- *"the power to publish, communicate, socialise, and engage, using an almost-dizzying array of methods, in online two-way discourse and interchange. The Web is the medium, but it's powered by people."*<sup>34</sup> (Dion Hinchcliffe, April 2006)

## Moodle's Plug-ins

After deciding to trial and rapid prototype with Moodle, my first aim was to setup a test version of Moodle on my web-server and look at a variety of the tools available to use within the LMS. Many standard tools I had researched and would definitely include, due to the needs of my systems hierarchy were: - Glossary, Forums, Quizzes, Assignments, Chat and Workshops. I found that the standard tools available would not fulfil all the needs of the students on my course and so also invested time in researching and looking at a variety of extra tools that could be plugged-in to the environment:- *Gismo*<sup>xxxv</sup>, *Presentation*<sup>xxxvi</sup>, *Quickmail*<sup>xxxvii</sup>, *YackPack*<sup>xxxviii</sup>, *Hot-Potatoes*<sup>xxxix</sup> *Module*, *Bitty Browser*<sup>xl</sup>, *Numsum*<sup>xli</sup>, *iROWS*<sup>xlii</sup>, *Camtasia*<sup>xliii</sup> and *Immedi.at*<sup>xliiv</sup>.

<sup>xxxiii</sup> Founder of the O'Reilly network - <http://www.oreillynet.com/>

<sup>xxxiv</sup> Folksonomies – simply described as a user created organisation system like personal tagging at [www.del.icio.us](http://www.del.icio.us)

<sup>xxxv</sup> <http://gismo.sourceforge.net/> - a java tracking tool, to see specifically how well a resource or activity is used for evaluation purposes

<sup>xxxvi</sup> <http://moodle.org/mod/forum/discuss.php?d=37698> - a tool that would allow me to present content as PPT like slideshows to relay information

<sup>xxxvii</sup> <http://cdc.humboldt.edu/moodle/course/view.php?id=3> - a tool that would allow me to communicate with all students in one mail shot

<sup>xxxviii</sup> <http://www.yackpack.com/> to locate our YackPack <http://www.yackpack.net/yackpack/ /index.jsp?ppid=4485&join=5075> - a Web 2.0 tool that allows for students and myself to leave voice messages and interact /feedback with each other in a personal way

<sup>xxxix</sup> <http://download.moodle.org/modules/> - an integrated tool with Moodle that allows for the offline building of quizzes including crosswords that can then be embedded in Moodle and will allow the automatic transmission of scores

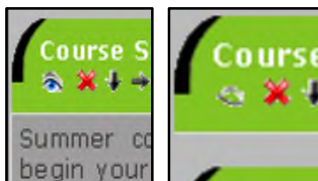
<sup>xl</sup> <http://www.bitty.com/> - a tool which allows you to place a browser window within a browser window

<sup>xli</sup> <http://www.numsum.com/>

<sup>xlii</sup> <http://www.irows.com/>, Spreadsheet available on the web located at <http://numsum.com/spreadsheet/show/20477>



## Creating the AS course



**Figure 4 - The Hiding Eye**

I then had to decide an overall method of development of my course to produce a high quality learning space. After the initial set of tests and rapid prototyping of activities within Moodle, it became obvious that choosing an LMS had distinct advantages when developing a course. It was continually possible to iterate in terms not only of design of the environment, but of the theme and also of the content and activities within the course. I was even surprised that I could develop items and tools that could then simply be hidden<sup>(FIG\_4b)</sup>, to come back to later, rather than having to delete. At this point my *spiral process* that I had envisaged became even more appropriate although I would have to add many more spirals to accommodate all the iterations and feedback from my users.

## Bricolage Design Methods

As I prototyped in Moodle I realised why it has become a well suited tool for any teacher to design online courses. The idea of a *bricoleur* was first discussed by Strauss in somewhat derogatory terms as a person that was *'adept at performing a large number of diverse tasks; but, unlike the engineer, ...the rules of his game are always to make do with 'whatever is at hand'...*<sup>35</sup> (Pierre-André Caron (The Savage Mind, Strauss 1966)) Members of the *'Bricoles'* team were then able to link this with how well Moodle, lends itself to this sort of person:-

*"One of the most striking features of the design approach favored by Moodle is the ease with which course materials can be developed and refined in an iterative fashion. This strategy of course development is very much in keeping with the notion of bricolage"*<sup>36</sup> (Pierre-André Caron, April 2005)

It is almost possible to be running a course and midway through change topics, ideas or tools as you see fit. Beyond this something which intrigues me is the idea that *'many instructors who use an LMS to accompany their face-to-face class build their course week-by-week, redesigning the plan both during and after the class. These kinds of "bricoleur-teachers" would prefer to continually capture their learning design after-the-fact and then share these evolving units in a wider community of teachers.'* It is almost as if the worry can be taken out of course design as if an activity doesn't work it can be simply deleted and replaced. With that in mind I began the task of implementation which would have five main areas of development: - *Theme and Graphics; Homepage and Layout; Course Structure; Resource Building; Plug-in / Web 2.0 installation.*

## Implementation

I will show here some clear examples with *screenshots*<sup>xiv</sup> of how the environment developed and changed during its motion around my spiral of development. It must be noted development continues daily and will for the lifespan of using CICT with students. Formative assessment will run throughout all iterations and prototypes using various methods that concentrate on usability and accessibility issues.

<sup>xliii</sup> <http://www.techsmith.com/camtasia.asp> an example screencast is located on the Moodle server here, screencasts converted to flash files so that they can be streamed or downloaded within the Moodle environment

<sup>xliii</sup> <http://constructict.com/moodle/file.php/2/Delicious1.rar>

<sup>xliii</sup> <http://immedi.at/> a system that whenever there is a new *chunk* of information linked via RSS it will send it to a user of MSN-Messenger as a chat item

<sup>xliv</sup> Please note that I have included most screenshots with the test and description of iterations and changes simply as a courtesy to the reader of this analysis so that it is easier to see the development without having to continually flick back to the appendix to see visualisations of what I am discussing





Accessibility and usability were constantly considered throughout the development stages. Often these two terms can get confused but Wikipedia, although much maligned, describe their differences simply as:-

*"Accessibility is a general term used to describe the degree to which a system is usable by as many people as possible without modification. It is not to be confused with usability which is used to describe how easily a thing can be used by any type of user. One meaning of accessibility specifically focuses on people with disabilities and their use of assistive devices such as screen-reading web browsers or wheelchairs."<sup>37</sup> (Wikipedia, 2006)*

## Formative Assessment 1 – Informal Comments from Student

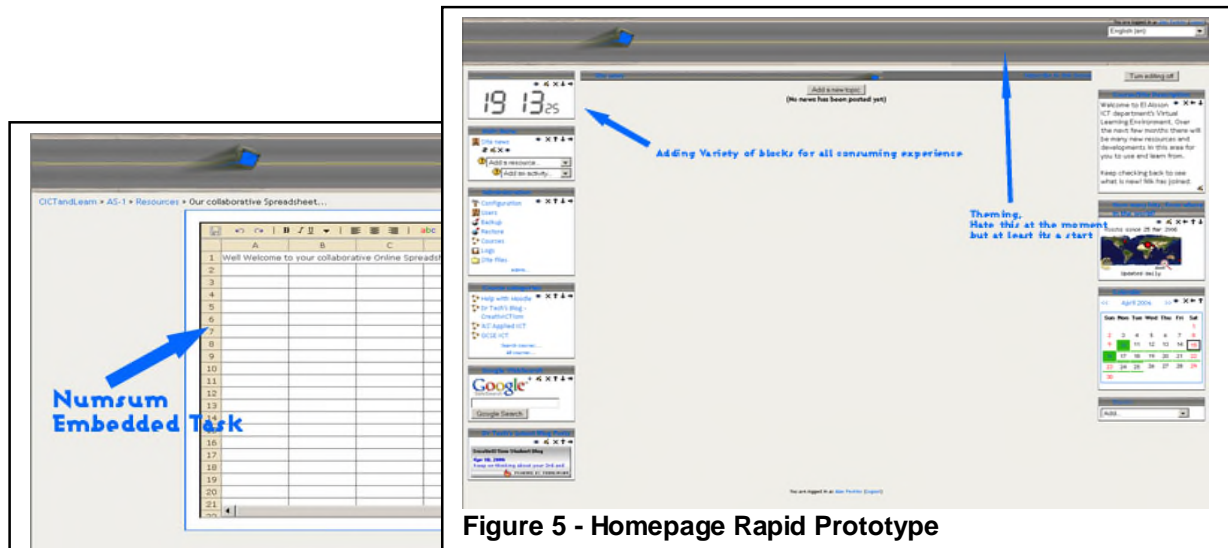


Figure 5 - Homepage Rapid Prototype

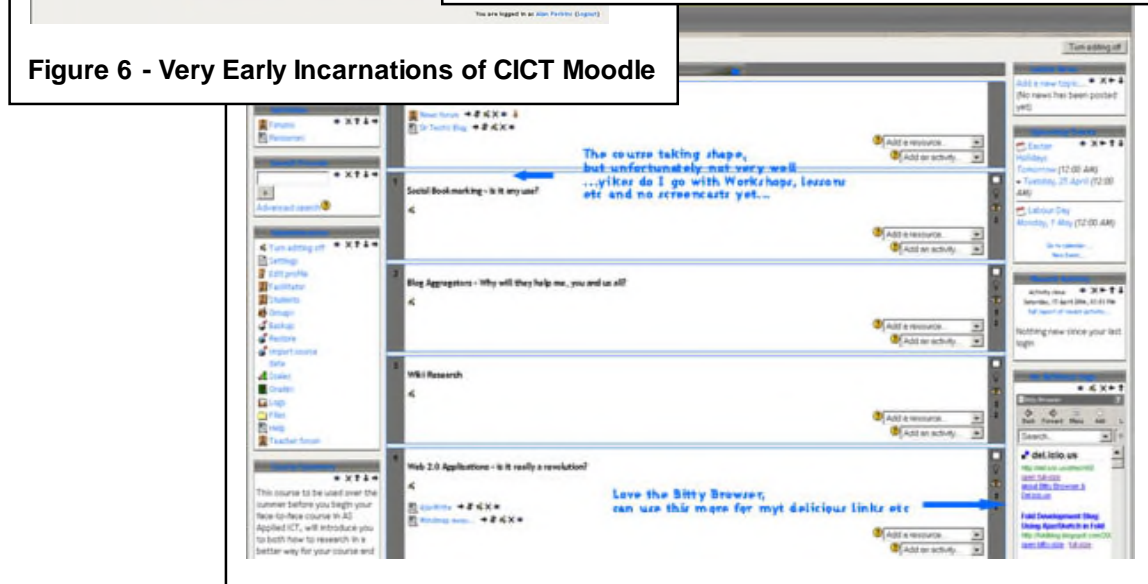


Figure 6 - Very Early Incarnations of CICT Moodle

Sherif<sup>xlvi</sup> helped with informal observations with the earlier prototypes. My initial designs were considered to feature too much white space, and to be too large for his monitor's resolution. He found the theme a little weak at the beginning and suggested a background that went throughout the different pages to improve consistency. He actually viewed the initial ideas and screenshots

<sup>xlvi</sup> See also [Scenario 1](#)





on my [ConstructICTism weblog](#) and said he thought that I should continue the design, styling and colour choice of the weblog further into the CICT environment. He suggested that the dark blue on grey was at times difficult to read and so with the next prototype I spent a great deal of time improving the CSS styles and producing a clearer but more individual design.

Sherif also suggested that he disliked the *busyness* of all the different blocks and widgets specifically on the homepage and that I should limit these to those that had function. This was a good point and one that I followed as much as possible while still fulfilling my *connected* environment pedagogy and so widgets like the Flickr slideshow quickly disappeared. Most interesting was when I asked Sherif to test some of the *Web 2.0* tools that I had rapidly embedded in the environment. He was surprised and interested both by the *Bitty Browser* *Del.icio.us* links window and the use of the 'Numsum' <sup>(FIG\_5, 6)</sup> spreadsheet idea.

## Formative Assessment 2 – Firefox Web-Developer Tools<sup>xlvii</sup>

A second prototype was then developed to which I used the web-developer plug-in and *tutorials*<sup>xlviii</sup> to test accessibility issues and problems. The tool offers many different ways to test my CICT environment of which I will discuss and outline some of the main problems that arose.

The first issue was once that there did seem to be some speed of loading issues for pages at home and school. I decided to check this and produced a detailed report of the size of both the home-page and the course-page with the *Detect Document Size* tool <sup>(FIG\_7)</sup>. The results showed that both pages were excessively large. Accessibility specialists would recommend sizes for web-pages to be in the region of 50Kb, although Nielsen would even suggest that you should keep below a 10 second response/reload page time to keep users on task<sup>38</sup> (*Jacob Nielsen, 2006*). I was able to do the following to reduce page size, while saying that it was still most important that I fulfilled the *connectivist* pedagogy of the environment with embedded tools. I was able to optimise picture size, make sure that the overall size of the HTML file did not increase to ensure progressive loading and limit blocks and widgets on each page.

Document Size - <a href="http://www.constructict.com/moodle/">http://www.constructict.com/moodle/</a>	
Documents (1 file)	26 kb
<a href="http://www.constructict.com/moodle/">http://www.constructict.com/moodle/</a>	26 kb
Images (20 files)	101 kb
Style Sheets (2 files)	38 kb
Scripts (6 files)	45 kb
Total	<b>210 kb</b>

Figure 7 - Web Developer Tool - Detects Excessive Size of Pages

Document Size - <a href="http://constructict.com/moodle/course/view.php?id=2">http://constructict.com/moodle/course/view.php?id=2</a>	
Documents (6 files)	104 kb
<a href="http://constructict.com/moodle/course/view.php?id=2">http://constructict.com/moodle/course/view.php?id=2</a>	75 kb
Style Sheets (2 files)	38 kb
Scripts (6 files)	50 kb
Total	<b>279 kb</b>

5. Does the site and its relevant pages load quickly? Does the site and its relevant pages load quickly?			
Response	Average		Total
Fast	11.1%		1
Okay	77.8%		7
Slow	11.1%		1

Figure 8 - Formative Questionnaire -Speed of Page Download

<sup>xlvii</sup> Web-Developer of extensions - <http://chrispederick.com/work/webdeveloper/>

<sup>xlviii</sup> Accessify Website - <http://accessify.com/features/tutorials/testing-with-firefox/>



It was noticeable when asked, most students selected that the speed of loading was 'okay'. This might have been due to the school always having a slow internet connection that they were used to, or the fact that especially for the main course page the loading is in a progressive manner so that a student can already be reading and looking at the first topics while the rest of the page is loading.

Other concerning tests were the lack of *<alt> tag attributes*<sup>xlix</sup> so that any object/picture has an alternate text equivalent. This is important as some browsers might not display an object correctly for example 'Lynx' is a text only browser and so the written alternative can give an idea of the content. Also those who have eyesight problems will use a *Screenreader*<sup>l</sup> to read out web-pages; the *<alt> tag* would let the user know of the object and what it was. It is strange as the *WYSIWYG*<sup>lii</sup> editor in Moodle that pastes images into HTML blocks always asks for an *<alt> tag*, however in the case specifically of the title (FIG\_9) image I must have added the image in a different way. Other concerning tests found that some of my embedded elements including the 'Gabbly'<sup>liii</sup> Chatbox<sup>liii</sup> required Java scripting (FIG\_11) to work. Not all browsers come with Java installed and the

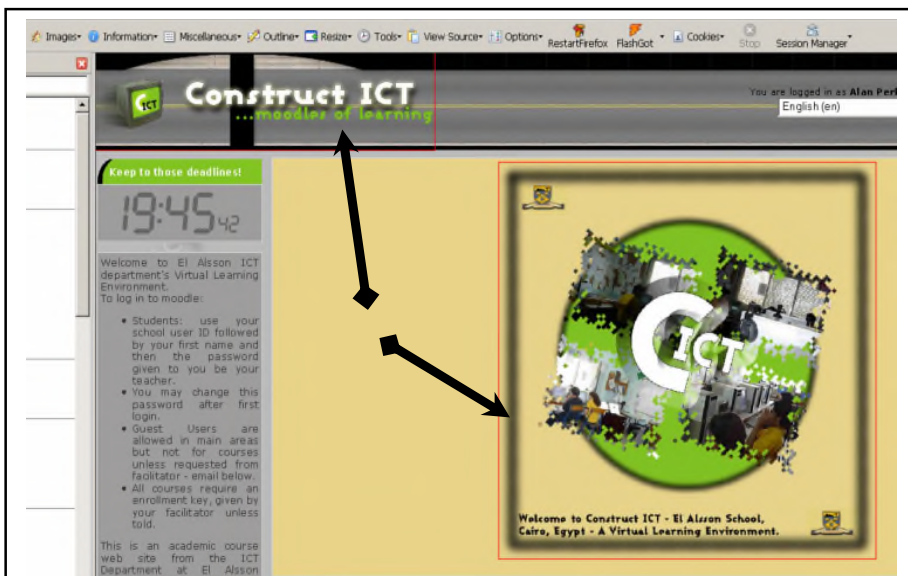


Figure 9 - Images with Empty Alt Attributes (Checkpoint 1.1)

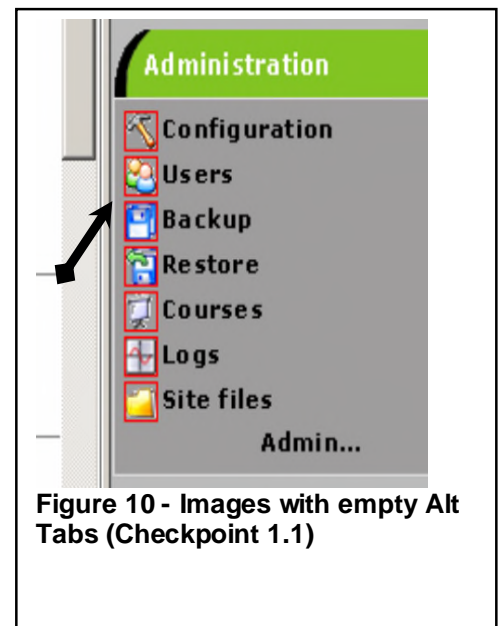


Figure 10 - Images with empty Alt Tabs (Checkpoint 1.1)

only way to warn users was to leave a notice within the initial *AUP*<sup>liv</sup> agreement suggesting that all students use a Java enabled browser. The last problem observed was some '*deprecated elements*<sup>lv</sup>' which are coding in HTML which might eventually become obsolete due to its age (FIG\_12)

<sup>xlix</sup> World Wide Web Consortium , world leader in promoting accessibility and guidelines  
<http://www.w3.org/QA/Tips/altAttribute>

<sup>l</sup> Text only browser - <http://lynx.browser.org/> , check the view of my environment in Lynx at  
<http://www.delorie.com/web/lynxview.cgi?url=http%3A%2F%2Fconstructict.com%2Fblog>

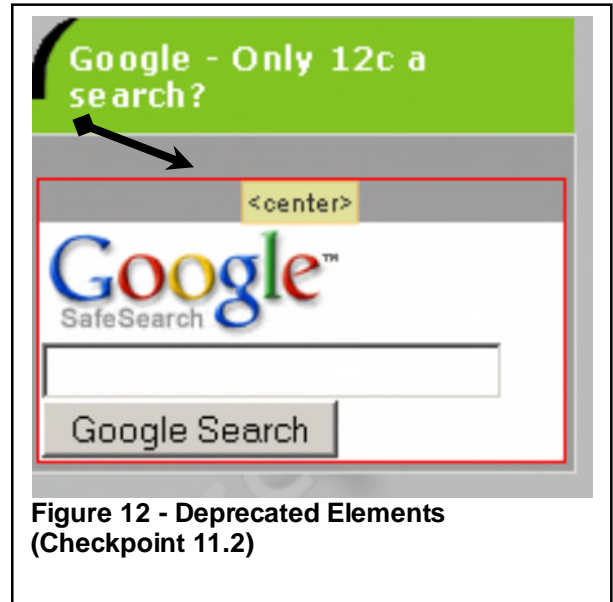
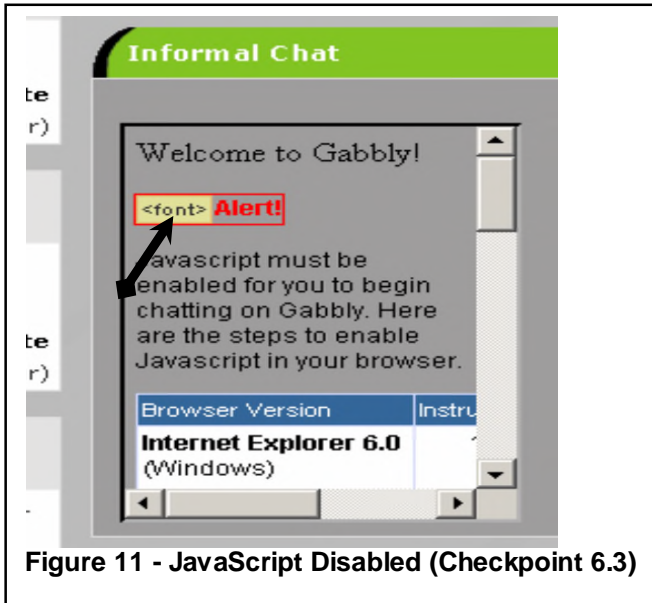
<sup>lii</sup> Screenreaders will read out a website or an application as a blind person is using it. I have limited experience of screenreaders and briefly tested JAWS - <http://www.freedomscientific.com/> on my WBLE, it must however be noted that this is beyond the limits of time and this assignment to make my CICT course fully accessible to screenreaders

<sup>liii</sup> What You See Is What You Get –usually used when talking about web editors

<sup>liii</sup> Gabbly Chatbox -<http://www.gabbly.com/> a java chat client that can simply be placed into any web page

<sup>liv</sup> Acceptable Use Policy – which all students are required to read and sign up for before they are allowed into the environment, in fact they have to click on a button to accept the policy

<sup>lv</sup> W3C -4 Conformance: requirements and recommendations, <http://www.w3.org/TR/html4/conform.html>



### Formative Assessment 3 – Browser and Resolution Testing

I had asked a second student to also help me with informal observations and analysis. Ahmed a Year 10 student, is very keen but unfortunately suffers from using old computer equipment in his home This was actually very fortunate for me as up to this point I had been developing my WBLE on a laptop with native screen resolution of 1920\*1200. It was with great surprise when Ahmed said that he could not see anything of the CICT environment but a large logo when he logged-in. He had to scroll horizontally along to read everything including important information about the course. In fact the screenshot you can see below shows the homepage even after I had reduced the size of the opening logo graphic by over 50%. (FIG\_14a)

I had to then re-size the graphics of the main logo, but other incidental graphics and some of the side blocks including the *chatbox*. I re-designed my pages to be viewed by a native resolution of 800\*600 which should enable all users to view easily without horizontal scrolling.

11. The difficult question. I have been having a lot of problems with the design of the environment for different sized monitors and resolutions. Can you tell me the size of your monitor and if all pages are easily read and appear clearly? The difficult question. I have been having a lot of problems with the design of the environment for different sized monitors and resolutions. Can you tell me the size of your monitor and if all pages are easily read and appear clearly?	
#	Response
1	'15 INCH 1024X786
1	12"
1	12". this page for examble is bit unclear and i have to concentrate in order to be able to read.
1	13" Monitor, everything appears clearly but the fonts are a little bit small
1	crt 12 inche.. they appear clearly but not easily read
1	i dunno
1	I'm on a CRT monitor and its about 12 inches (wonderful school).....and the pages seem to be a bit large for the screen, but not terribly bad
1	it's 16 inch and all pages appear easily and appear clearly.
1	Regular sized

Figure 13 - Formative Questionnaire Results on Monitor Size



Figure 14 – Monitor Resolution Problems



When asked after changes students responded that even with the 12" monitors at the school at 800\*600, viewing although not ideal was reasonable to read and learn with. The other problem outlined at this stage was that of the Flash plug-in that not all browsers have installed. Flash would be needed throughout the entire course for viewing *video screencasts* and so was essential for learning so I decided that I would add this to the *AUP* and place text at various points within the environment when it was necessary to have the Flash plug-in (FIG\_15) installed.

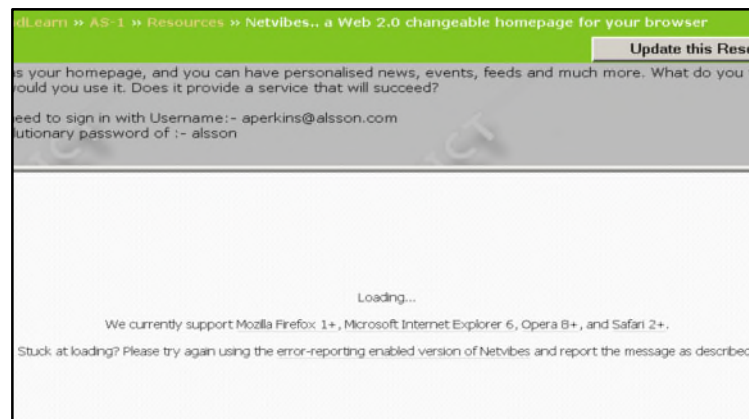


Figure 15 - Example Problems When Trying to View Netvibes a Web 2.0 Application due to Plug-in Problems

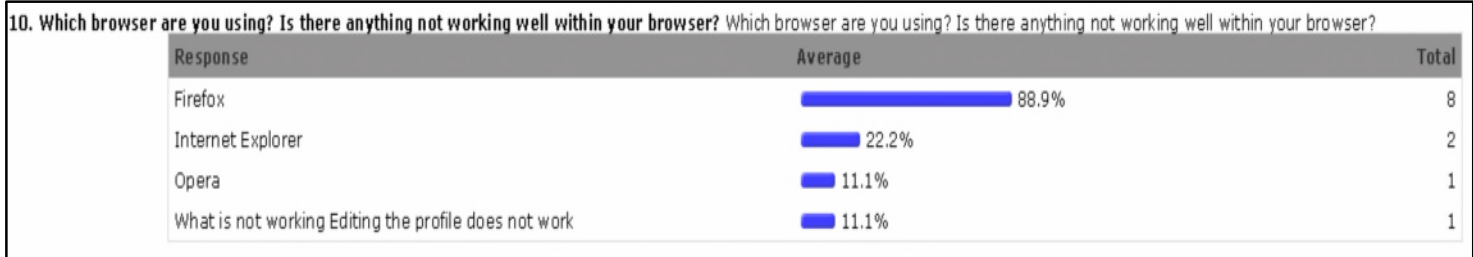




Figure 16 - Cross Browser Testing with Macintosh and Linux

It is always important to test across a variety of operating system platforms and browsers. When asked I was surprised that only two out of eleven of my prospective students were using *Internet Explorer*, one was using *Opera* and the majority using *Firefox*. I also knew through discussions with Ahmed that he was installing a Linux Operating System as a dual boot on his home computer. Although most users are Windows users on P.C. based systems, I decided to check that my WBLE would work with Linux and Macintosh systems and render correctly in their respective browsers Konqueror (FIG\_16a) and Safari (FIG\_16b). The simplest way to do this is with a new online system called 'Browsershots'<sup>vi</sup> which will test your browser in these systems without having to actually install the system. The results as shown were favourable.

Figure 17 - Browser Use Question



<sup>vi</sup> Note this online application is in development and does not show all the browser shots that it has links to at this moment, <http://v03.browsershots.org/website/http://www.constructict.com/moodle/#success>





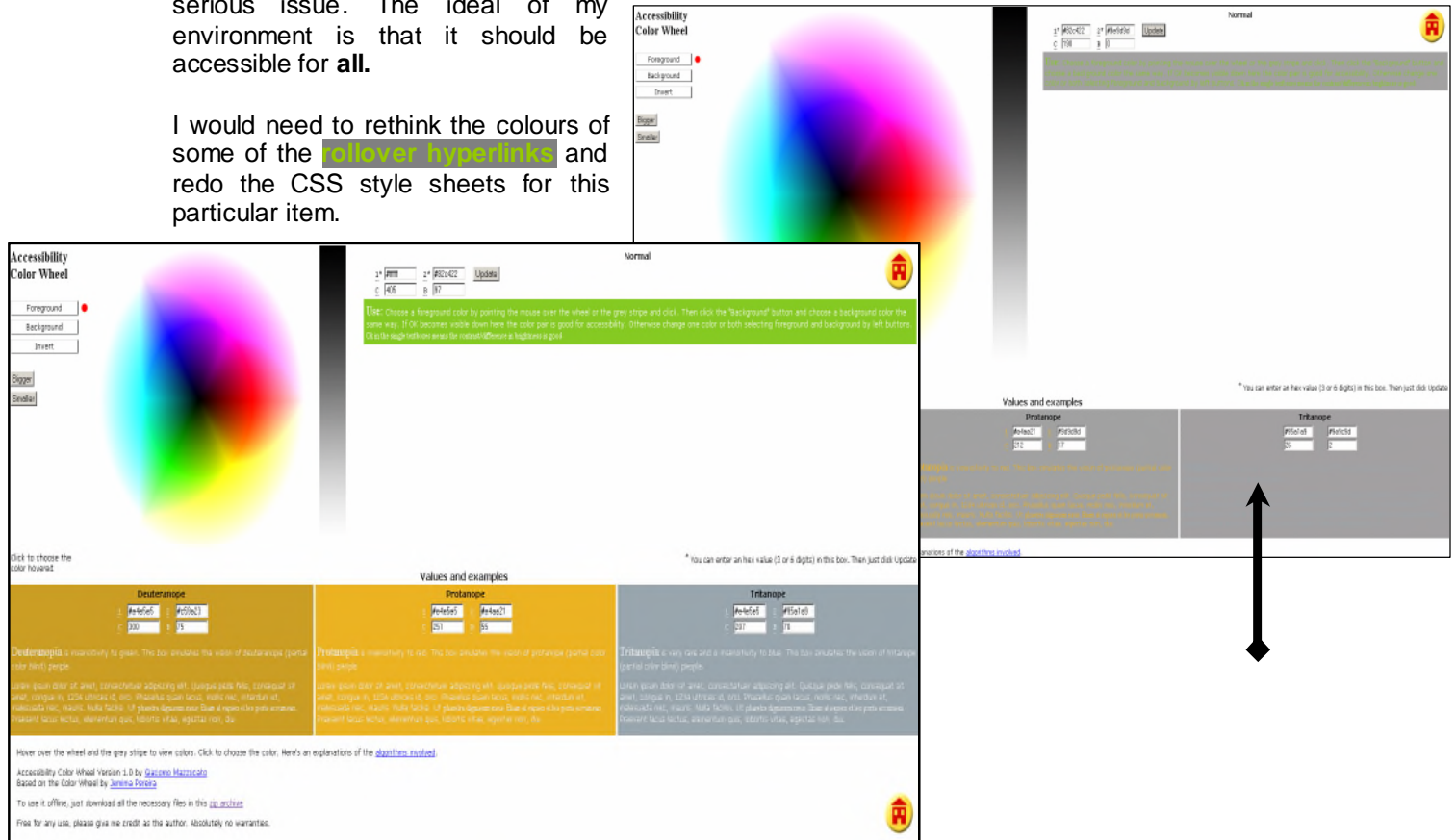
## Formative Assessment 4 – WAVE 3.0 Analysis (FIG\_30a)

There are a variety of online accessibility reporters which will check a page of your websites code and produce a report comparing this to the *Web Content Accessibility Guidelines*<sup>lvii</sup> published. This *WAVE 3.0 accessibility checker* (FIG\_30a) was user-friendly for an accessibility novice like myself. It showed a variety of problems of which those with red icons were the most worrying. For example it showed the same `<alt>` tag problems that the web-developer tool had suggested. But what I was noticing was that a lot of the accessibility problems showing up were in the actual Moodle code itself and I decided at this point to look in more detail at studies into accessibility of the Moodle environment and what community research was ongoing before I attempted any more changes. This research is dealt with in the summative evaluation.

## Formative Assessment 5 – Accessibility Colour Wheel<sup>lviii</sup>

The colour wheel tests for common colour blindness characteristics of the following types: - Deuteranope, Protanope, Tritanope almost immediately showed my colour choices have some unfortunate problems for certain users with particularly the *Tritanope*<sup>lix</sup> blindness (FIG\_19). The rareness of the condition for this type of colour blindness though does not stop it from being a serious issue. The ideal of my environment is that it should be accessible for **all**.

I would need to rethink the colours of some of the **rollover hyperlinks** and redo the CSS style sheets for this particular item.



**Figure 18, 19 - Colour Tests to Assess Usability for those with Eyesight Problems Showing Definite Problems of the Beige links on Green**

<sup>lvii</sup> Generally using W3C's guidelines

<sup>lviii</sup> Fabulous tool that you can actually download here <http://gmazzocato.altervista.org/colorwheel/wheel.zip> as well as use online here <http://gmazzocato.altervista.org/colorwheel/wheel.php>

<sup>lix</sup> Colour blindness of a blue/yellow deficit when seeing but it is very rare



## Formative Assessment 6 – Initial Questionnaires

My final method of formative assessment to improve and make my site more accessible was the formative questionnaires that I have already introduced and used results from. This assessment was at the end of the development, as prospective students were introduced to the environment to specifically have an informal wander around *CICT* and then fill in the online questionnaire as a practical task.

I received some pleasing feedback about how the site was organised and designed and was pleasantly surprised that only after a ten minute introduction session most students were able to reply that navigating around the site, logging in and finding their course were all reasonably easy to do.

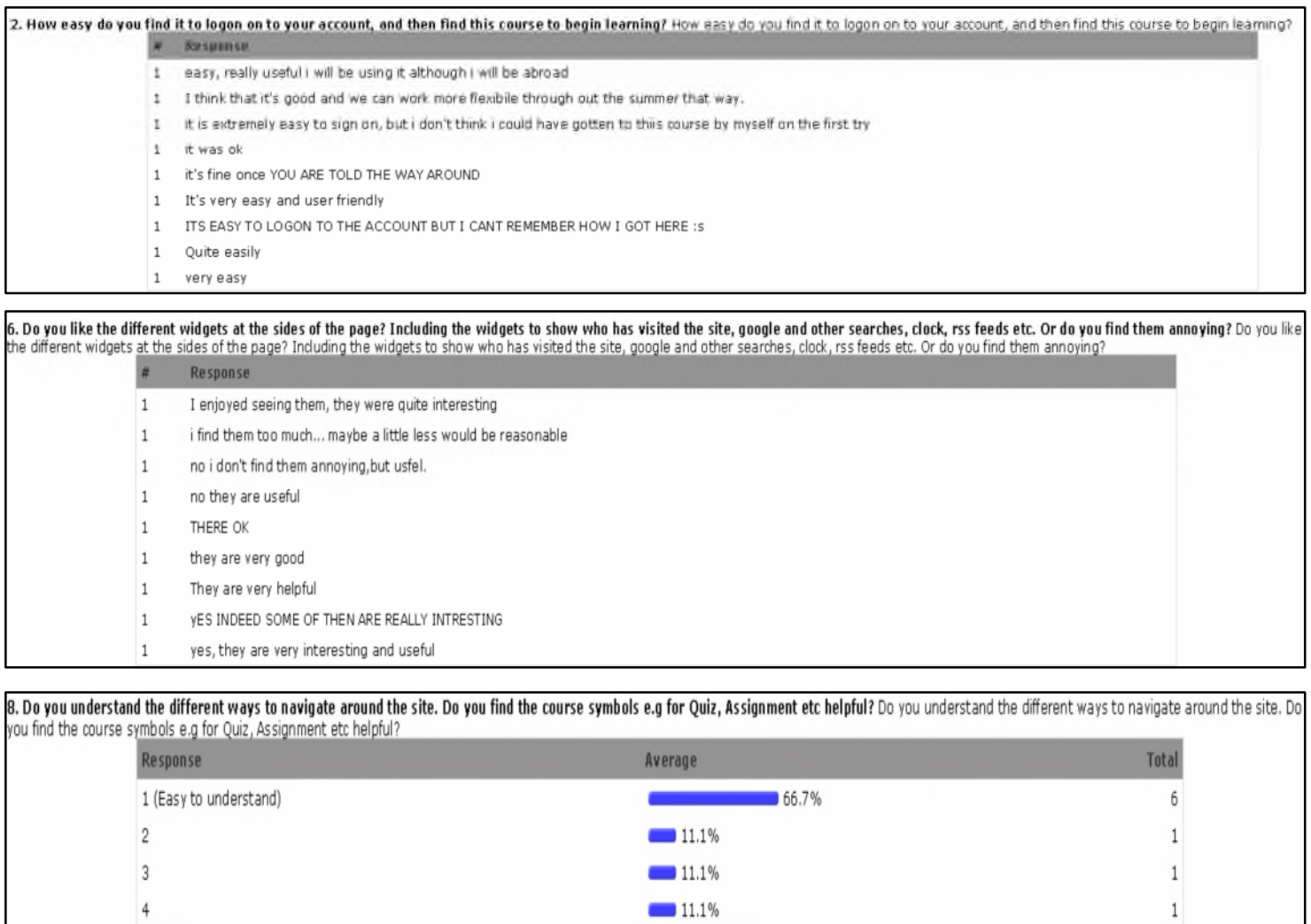
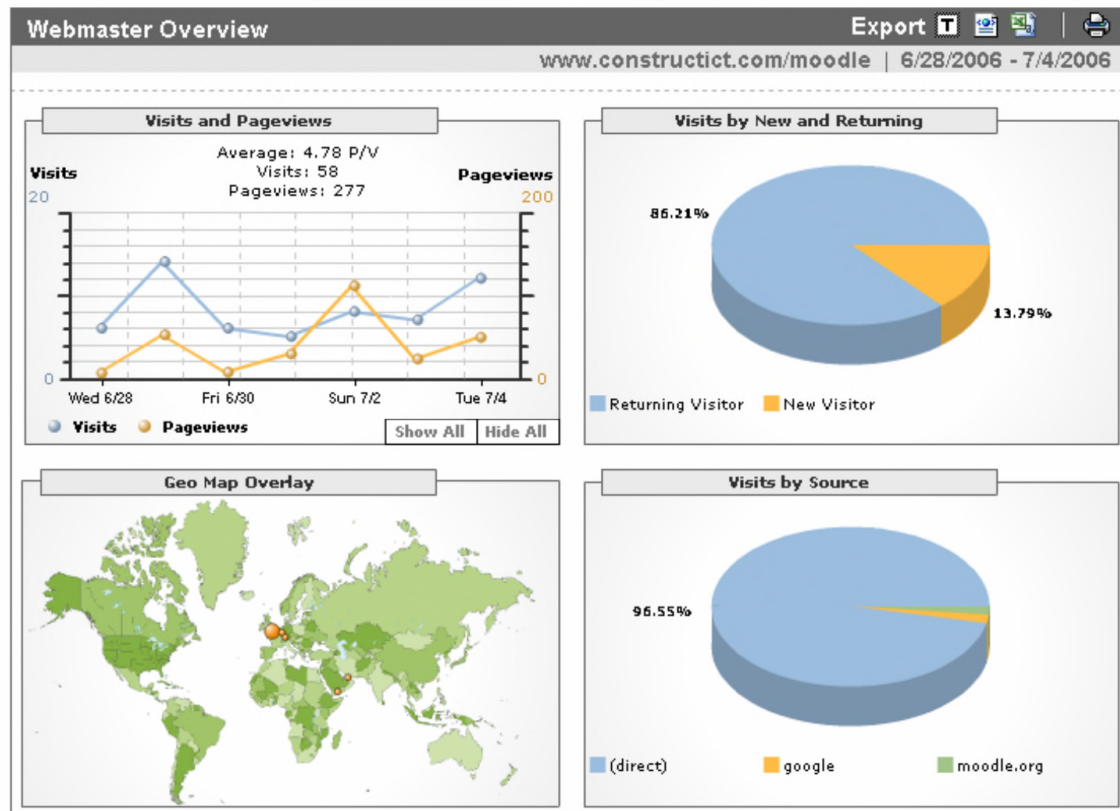


Figure 20 - Final Questions from Formative Questionnaire



## Summative Evaluation



**Figure 21 - Google Analytics Shows My Site is Live – It works!**

I was pleased that over such a short period of time I was able to develop and 'go live' with my [CICT](#) and [CreativICTism](#) but would it achieve the desired quality of learning? Unfortunately as this has been built as a summer course, the prospective students will only just be beginning to start the course so the basis for any evaluation into *learning* that has happened can only come from the two users who did various walkthroughs.

## Student Walkthrough

Ahmed was able to complete three sample activities on the course: - Forum and Questionnaire, *Del.icio.us* account creation and Glossary entry. Evidence of these activities can be seen in the screenshots <sup>(FIG\_22)</sup> below using both the logging facilities of Moodle and also the plug-in Java tool *Gismo* <sup>(TABLE\_1)</sup> which produced more detailed graphs and analysis of use.

Ahmed was able to complete these activities but it was obvious that setting complex practical tasks with assessment needs within an LMS needs to be very structured and explained explicitly. This was a failure of the tasks as Ahmed complained why he did not receive full marks as he did not know exactly how he was to be assessed. I have already rectified the descriptions of tasks and assessment criteria.



The top screenshot shows a 'View Grades' window with the following table:

Student	Main Stats	Total Stats	Student
Show All Students	points(125)	Percent points(125)	% Letter Grade Show All Students
Aboul Enein, Ahmed	22	17.6%	22 17.6% F Aboul Enein, Ahmed

The middle screenshot shows a forum post by Ahmed Aboul Enein with the title 'http://del.icio.us/Ahmed15' and the text 'List of Tags: ALASdivide, Ahmed, ICT'. The bottom screenshot shows a forum reply by Alan Perkins with the text 'Well Done Ahmed, at your first assignment / forum entry. Be careful of your spelling though, and it would be'.

Figure 22 - Screenshots with Grades at Top, Feedback to Assignment and Forum Entry

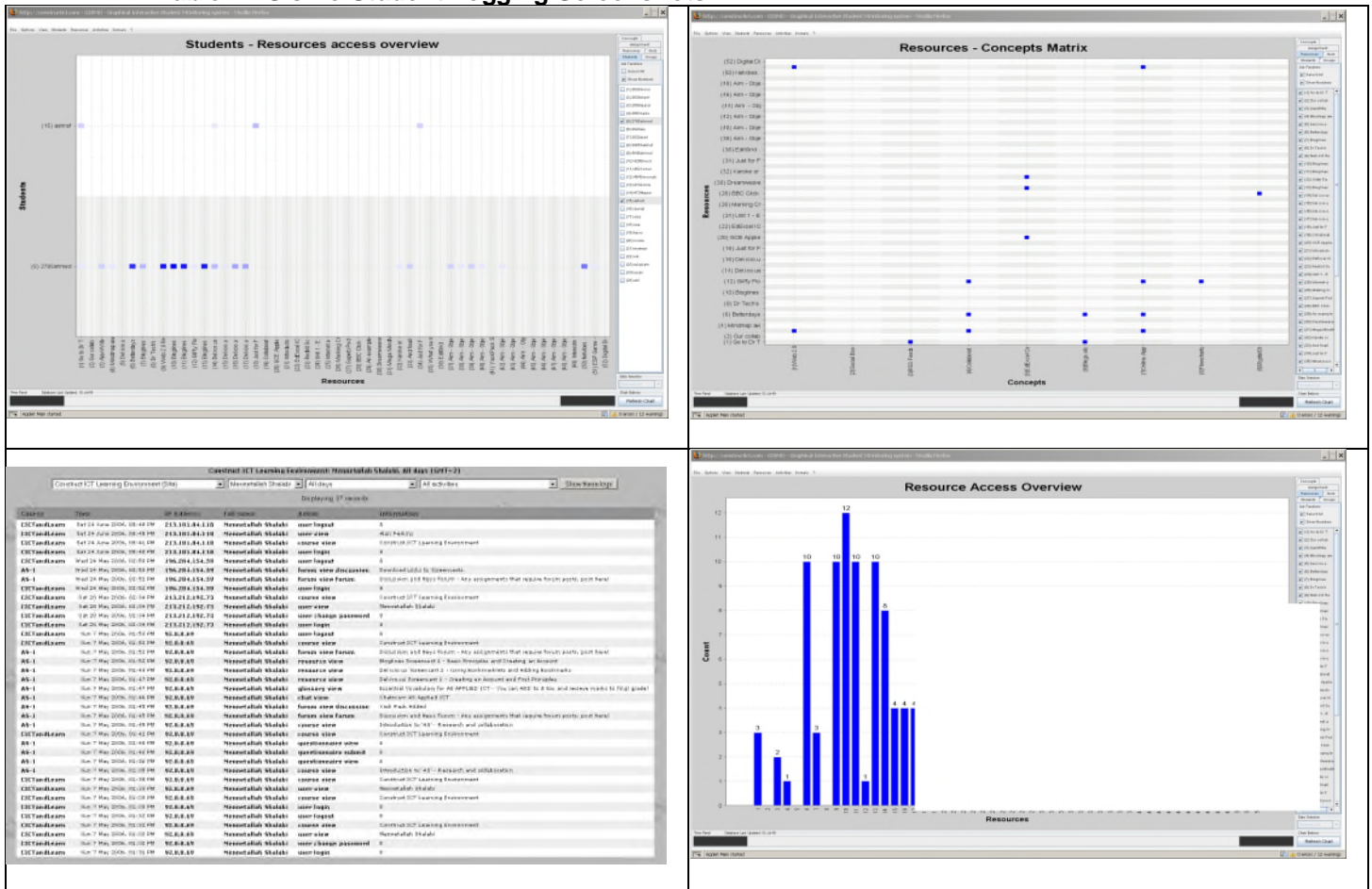
At this moment in time I have no evidence to evaluate on the *social* side of my environment as there have only been test users. Ahmed was able to fulfil the *del.icio.us* task and see that through placing a social bookmark on his account with the tag *ALASDIVIDE* that he was able to influence the content in Moodle itself in the *Bitty Browsr* window and *FeedBurner* feeds. However the greater relevance of this being a *connected* site in which a *community of practice* would bring together resources and understand these principles has yet to be realised.

The *Gabbly Chatbox* was an immediate success when tried in my *CreativICTism* weblog and has now been transferred to Moodle, where it superseded the rather clumsy chat facility. The informality of this system and its similarity with the *MSN-Messenger* system creates an environment as I desired where pupils are able to collaborate while chatting in an informal online study group. There are issues of security and supervision, of discussions that are taking place, and so maybe the *chatbox* should be placed actually into the course page where there is password access. It does keep a history of the discussion though, and this can be followed as an RSS feed.





**Table 1 - Gismo Student Logging Screenshots**



## Heuristic Evaluation – Expert walkthrough

To perform this *heuristic*<sup>ix</sup> analysis I decided that the walkthrough by Ashraf an ICT specialist would be able to follow the set tasks and to fill in a simple heuristic analysis form. I chose to use a very easy to understand ticklist form<sup>ix</sup> published by 'Information and Design' a usability consultancy that has a solid reputation.

Ashraf was impressed by the system but found that navigation around my CICT was difficult. When discussed it was obvious that the small amount of *face-to-face* time I had spent explaining how Moodle worked with students had helped their understanding of the layout of the environment. Ashraf, when attempting *Scenario 1*'s task was unable to find the link to his profile as it was not obvious until shown. This was interesting as often the word *intuitive* is used about web interfaces but this is misleading as often it is about *'the knowledge your users have when they arrive at the design (current knowledge), what knowledge they'll need to complete their tasks (target knowledge), and what the design needs to do to help them complete the task (the gap) are the key ingredients for making an interface that seems 'intuitive' to your users.*<sup>ix9</sup>(Jared M. Spool,

<sup>ix</sup> Heuristics – as such usability principles or guidelines that have been agreed by W3C

<sup>ix</sup> Gerry Gaffneys - Information and Design usability consultancy

<http://www.infodesign.com.au/usabilityresources/evaluation/webevaluation.asp>





Jan 10, 2005) Ashraf might have been helped with a good set of standard task user guides set online and linked from the homepage.

User control was another issue raised mainly due to the speed of pages loading and also the problems of the video screencasts and their large size; especially if you are using a dial-up connection. However, the information with download times given next to the screencasts at least warned the user of problems.

## **Project Evaluation**

At this point the design cycle is far from at an end and as suggested the spiral of iterative design will now continue to evolve and widen as more student's use my AS course. Through their feedback along with continued formative assessment I can make changes to enhance the learning within the environment.

The complexity of my environment, due to the fact that I chose to develop through a scalable LMS, meant that the scenarios that I initially wrote were of limited use as they did not open out to all the needs that the users of my environment might want. But as a starting point they worked well leading to a the systems hierarchy that enabled me to not only choose my LMS system but then be able to work at manipulating and adding to that system to fulfil the tools that were needed.

Accessibility and usability could not be covered in detail here and on reflection will need much more work to improve. The Open University have recently written a *proposal*<sup>40</sup> (Nicholas Freear, February 2006) into improving accessibility within the actual Moodle coding, however this does not take into account theme changes and modules. The Moodle forums on usability issues are also very buoyant which has led to a Moodle Wiki space being setup which looks into the argument of '*learnability versus usability*'<sup>41</sup> (Wikipedia, 2006) which again opens up an interesting argument into how much HCI<sup>lxii</sup> design is *intuitive*.

The course itself became complex and would need to be split into simpler courses. I did not realise that the time to develop such a course was **as** great and I do would wonder at this point if teachers within *EABIS* would have the time or passion to develop a course themselves. However the ideal would be that the Moodle community will share many different courses openly, so that eventually it will only be a matter of adapting courses to your needs and pedagogy.

My students have reacted well to using the Moodle environment although it is interesting to observe that they have some of the same *digital immigrant* behaviour that I possess. For example when using another course that I had imported into Moodle about game design the students were only interested in downloading all the resources and documents and printing them out rather than using them on the screen. The use of a video tutorial in the course was also treated as one they didn't want to use preferring printed tutorials.

This assignment has led to an exciting beginning both for the school, the students and myself in beginning to develop web tools for online learning to support there learning throughout school. As suggested earlier I definitely see Moodle and the weblog as part of a small '*ecology*' of tools as much as Moodle itself was able to consume and have tools plugged-in. The lack of personalisation of Moodle is of paramount importance and there are already exciting developments to link Elgg a PLE with Moodle so that the right tool is in the end used for the right job.

Finally I would like to express my frustration at what I have had to leave out of this assignment and *CICT*. Particularly the use of new tools like Immedi.at which enable RSS feeds to be sent to MSN-Messenger and so maybe enabling a more '*ubiquitous*'<sup>42</sup> (Marc Weiser, 1991) environment

---

<sup>lxii</sup> Human Computer Interface



away from my *C/CT* forming; as I believe that any environments we produce rather than locking themselves away need to open up to the connected possibilities of an '*online learning ecology*'<sup>43</sup>.

## Appendix

- Introduction to Scenario Setting
- Scenario 1 -Sherif
- Scenario 2 - Mona
- Scenario 3 - Mennah
- Scenario 4 - Nada
- Figure 23 - Screenshots showing whole screen resources and course layout
- Figure 24 - Homepage Screenshot showing Initial Problems with HTML blocks and layout
- Figure 25 - Course with Highlighted Topic Screenshot
- Figure 26 – Overall Planning Mindmap for Assignment
- Figure 27 - Overall Content Organisation Mindmap
- Figure 28 –Gantt Schedule of work for design and Implementation of WBLE
- Figure 29 - Spiral Iterative Development Plan
- Design Submission Form
- Figure 30 - Usability Forms Used in Conjunction with Design Submission Form -  
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[www.infodesign.com.au](http://www.infodesign.com.au).
- Figure 30a – WAVE 3.0 Usability Screenshot

## Introduction to Scenario Setting

It is acknowledged that all students in the scenarios will have registered for the AS Applied ICT course before the summer holidays and their teacher/facilitator will introduce the students to a new distance learning tool that they will need to use over the long holidays (note the GCSE students will have over twelve weeks!) They will be told that they will need to follow a short course to introduce themselves to this collaborative research methods that they will need for the first module of their AS course. They are all given a brief run down of how the WBLE works and are quickly taken through a brief example course.

### Scenario 1 – Sherif

Sherif is a 16 year old prospective AS Applied ICT student at El Alsson British International School Cairo. He is a very eager GCSE student expecting to receive an A\* in his exam and coursework this year. His recent final GCSE project was to produce a theme for an LMS, in which he was able to design and update the theme using CSS and HTML coding. He is **ultra** keen and has already asked whether there will be an AS Applied ICT course next year and is it possible as it is module based to do more than the three basic modules in one year. He tends towards an erratic way of learning that often leads to full enthusiasm for a week and a large amount of progress followed by weeks of friendly relaxation.

Situation :- (after written linked to Task 3 – Del.icio.us activity; see Summative Analysis)

Sherif logs onto the web address that has been given to him. It's a busy opening page welcoming any ICT students from the school to the page. He clicks on the Clustrmaps<sup>lxiii</sup> to see where in the world people have logged onto the site from and chuckles to himself that there are people all the way from Australia and Chile. He reads a little of the online news, and then looks at the latest

<sup>lxiii</sup> A simple widget that logs *ip* addresses of visitors to your site and places them on a map for you to view or embed in your site - <http://clustrmaps.com/counter/maps.php?url=http://www.constructict.com/moodle>



links at the bottom of the page on technology. They are interesting as they are labelled RSS feeds and seem to change. He clicks on one of the links, which as a Firefox user opens in a tab in the background. While doing this he notices at the bottom of the page in the corner a 'chatbox' and types in 'hello' to see if anyone is around to his surprise 'Dr Tech' (his teacher/facilitator) types back 'hello' and they have a small conversation about English football and whether Portsmouth are the best team in England before Sheriff is prompted to click on the link to start his summer course.

Sherif is presented with a log-in screen to his course, which he was told by his teacher/ facilitator would happen and he has seen once before. He fills in his username and password related to email address and name etc. But the screen refreshes with comments about the browser needing to allow cookies. He understands this well and sets Firefox to accept cookies from the URL and tries again to log in. The course screen immediately shows up with introductory news specific to the course along with a calendar, course titles, links to forums, widgets and a variety of other things that seem of mild interest to Sheriff.

The course is laid out in chronological order over many different units. There is some introductory collaboration **waffle** which Sheriff skips over and proceeds to the first unit which has six sections titled: introduction, forum, information on social bookmarking, video tutorial 'del.icio.us', things to do to complete section, quiz on terminology. He doesn't read the introduction, why should he? And goes straight to the forum where he reads an opening post explaining how he should conduct himself in the forum and that he should post an opening message introducing himself to the course. He posts a **jokey** message about himself and that he is a little confused to what this is all about, even though he has setup themes as a project for a LMS for one of his teachers as a GCSE project. He finishes his posting and heads back to the course page to see what else seems fun. He clicks and reads the information on the topic of 'social book-marking' but again it seems full useless, and then sees that there is a video presentation so aims straight for that. He has just started watching the video, when his mum calls him down to eat so he leaves the computer on and goes downstairs. 'Friends' is not on the television, so he watches the 'Bold and the Beautiful'.

Sherif returns to the LMS about two weeks later, and immediately finds his way to the video tutorial on setting up '<http://www.del.icio.us>'. He chuckles at the non-American voice (e.g. from his teacher) on the video demo and immediately in a second Firefox tab sets up an account and follows the instructions to upload five bookmarks related to a topic he will later study for his Applied ICT called 'The Digital Divide'. He posts his links to his social bookmarking account and heads back to the course summary and attempts the last part of the first unit entitled **terminology quiz**. Hmm... he has a go and realises that he has not read any of the background information or links and so finds it difficult and only scores 50%. He decides its only a silly quiz and heads to the next unit, he hopes there is more practical tasks there.....TO BE CONTINUED

## Scenario 2 – Mona

Mona is another 16 year old prospective AS Applied ICT student at EABIS, Cairo. She is a very hardworking student but would be known as a **plodder**. She will achieve well in her upcoming GCSE another A\*, but her coursework has mainly consisted of adequate but well documented projects in applications like PowerPoint. She has expressed that she would like to continue on to do an AS course but it will be her fourth choice and hopefully **easy** choice.

**Situation:** - (after written linked with Task 1 – Updating profile; see Summative Analysis)

Mona takes a while to begin the course; she is enjoying her holidays, but about 4 weeks in is a little bored and decides to check what it is all about. Mona logs onto the web address that was given to her. She finds the opening page interesting if a little too much. What has this got to do with next year she wonders?



The opening page to the environment has some opening news items and many small boxes of information which she ignores and immediately sees the link to her course and clicks on it. She types in her name and user number from school and is able to log into the course, and fill in her details. She wonders how long this will all take, there seem to be six units but at least the introductory explanation says this will all be part of her AS Applied ICT marks, she wonders if her teacher/ facilitator has lied at all? She studiously begins to read the introduction, and follows the instructions to click on the button clearly marked forum. What is a forum she wonders? However she is surprised to see some posts already there from Sherif and Mennah. She likes this – communicating with friends – she hasn't seen her friends from the class for almost four weeks and Mennah is in Sweden at the moment, so she writes a long introduction and chats a little about what she has been doing over the holidays.

She decides that as her teacher suggested she should update the information about herself, she specifically hates that she has no picture to identify her next to her forum message while Sherif and Mennah have funny characters. She tries to find a button or link marked update profile or background but cannot find it which frustrates her.

So she returns to the course descriptions a little short of motivation and tries out the first task, its about social book-marking and as she has read all the information understands when she watches the demo video what it is all about...She tries to do the task and start using this 'del.icio.us' website but finds it confusing, and is relieved she is able to watch the multimedia video a few more times so she understands the process. She takes a while but there is no rush and eventually decides to post her problems in the forum. She returns to the task a few days later and is pleased to see that Sherif has suggested what the problem might be even if it is written in his usual arrogant geek speak. She manages to setup her book marks in 'del.icio.us' and posts the link to the forum.

She is about to try one of the quizzes towards the end of the course units, but then does not remember where she will receive the score and if it will be recorded. Is there any point in doing it if it does not count? Or if she does it badly and it does count will this effect her AS grade? She remembers that there is a section of the environment that has a sample course with examples and tutorials that her teacher had shown her in the opening session they had before they left school for summer. She checks this first but it seems a little too complicated. So she posts a message to the main forum on that course, hoping that her tutor will answer promptly. The online quiz she decides to leave to be safe.....TO BE CONTINUED

### Scenario 3 – Mennah

Mennah is the **star** of her GCSE class. Before she started her GCSE she was very anxious about using computers with little experience but is now an accomplished independent learner and has produced advanced work in applications such as Dreamweaver and Flash. She is very interested in starting an AS Applied ICT course next year, and is concerned that she wants to be able to get a good grade all the way through to 'A' Level so she can go to a European University. She goes away to Sweden for the whole of the holidays as she used to live there and her father still has work in Gothenburg.

Situation: - (after written linked to Task 2 – Questionnaire Evaluation; see Summative Analysis)  
She is bored almost immediately at the start of the holidays and relishes the idea that she can be doing something interesting over the holidays (hmm would you believe it?) and after only a few days logs into the opening homepage. It's full of information but she finds a lot of it interesting, she tries the 'chatbox' but no-one seems to be around. She uses her own email to tell a friend from school that she will be working a lot on her ICT work and she can come and visit her on this page. She sees a link entitled 'Dr Tech's Blog', and decides to click on this and finds her ICT teacher/ facilitators own blog most of the information is about his own studies but she likes the layout of it and the silly pictures. She links through to the page which says RSS feeds and likes



the way that all the links keep changing and seem to be based on her teacher/ facilitators own bookmarks and studies.

She has had enough for today and has to fly to Europe tomorrow with her family. She returns the next from an Internet Café in Gothenburg and goes back to the main environments homepage. . After a brief scan across the page she notices that in this page there are changing links called RSS feeds similar to her teacher's weblog at the bottom of the page. However, she clicks on the main link to the AS Applied ICT course. She reads the introductory information and again is impressed with the information, but wants to see what the course is all about this time so clicks on the obvious link to the AS Applied ICT Introductory course. She logs in quickly.

She sees the simple chronological layout, and is pleased that there seems to be a lot of interesting topics that will help her next year in her studies and in other research work for other subjects. She remembers her teacher saying that he would like any feedback as this is an experimental online course and Mennah loves the fact that she is part of something new and different. She locates early in one of the topics a feedback questionnaire and fills this in critically noting that she dislikes the muted colours of the environment. She is delighted that she can click to see her results as well as Sherif who has also filled in the questionnaire. Of course Sherif was much more critical of her teacher's environment than she was.

She follows through the first task quickly on '*social book-marking*' reading all the information but then comes across a problem as she loves the videos of her teacher discussing and describing how to do the practical task but realises she has been in the Internet Café for over an hour now. At 20 Krone an hour her mother will not be overly pleased if she stays any longer. She decides reluctantly to leave at this moment annoyed that Sherif is probably getting ahead of her... .....TO BE CONTINUED

#### Scenario 4 – Nada

Nada is another GCSE, 15 year old prospective AS Applied ICT student at EABIS, Cairo. She is a student who does work hard but likes to find shortcuts to getting a good grade. She has little interest in ICT itself, and has opted for the simple project briefs enjoying anything that is easy but then is able to gain full grades within the projects due to being able to document the project well. When the AS was mentioned she said she would like to do it as a fourth AS Level if it is easy and that she would not be willing to do work over the **extensive** summer holidays.

Situation: - (after written linked with Task 4 – Wandering and Playing Games see Summative Analysis)

Nada tries once to do that summer work on the computer her teacher/facilitator had asked her to do. She feels that is enough and manages by phoning another friend on the course to type in the web address for the homepage. She looks around the page and sees the link to the Applied ICT course along with contact details if there are any problems and the chatbox, where she can see Sherif, Mennah and Mona have all chatted over the past few weeks as it keeps a simple history. Nada clicks on the link where she tries to logon to the AS course but can't remember her user number. The page gives her a link to be able to email and contact her course tutor /teacher to which she clicks and sends an email asking for her user number. However she then forgets to check her mail all summer. Oops...

Nada as you can imagine has a great summer. She returns for the new school year and after much consideration has decided she wants to still do Applied AS ICT and arrives at the first lesson. The rest of the 7 students have participated in the summer introduction distance course, and are chatting about it at the beginning of the lesson. They all managed to keep in touch, and say they have learnt a great deal but beyond anything else are comparing scores on the different quizzes they encountered online and specifically one very tricky quiz in which no-one completed every question on '*Web 2.0*' theory. Many of them have used their new web-research and





collaboration skills to start work on the first module in the AS Applied ICT course, the last of the six units on the introductory course outlined briefly areas which the students will have to research into for their first module: - *Digital Divide*, *Online Services* and *Six Individual Users Viewpoint on how ICT affects them*.

The teacher/facilitator sits down with Nada, and talks her through the first section of the summer course and suggests she has a week to complete the online course as she will need the skills so that she can start her AS research work and also because the LMS will be used alongside classroom teaching for each of the modules. The rest of the group suggest they continue with producing a body of knowledge that they can all use for the *Digital Divide* study, and propose they extend the Wiki they had begun producing in Unit 5 of the summer course. Nada goes home that night and this time logs into the CICT environment, but after hearing all the talk today from the students is intrigued by the games more than anything else. She wanders down through the topic lists and has a go at all the games and quizzes not doing very well as she obviously does not really understand the content of the subjects as she has not attempted any of the practical activities. She finally gets bored and logs off and does her more important first **Biology** homework of the year..... TO BE CONTINUED

### ***Full Systems Hierarchy Grid***

Key Activity	Associated Actions by the learner	System Operation and requirements
Task 1 written from Scenario 2- User to logon to an environment. Be able to change information about themselves including email and personal details /maybe a photo?	-User to type in URL in a browser -Users to be able to Login and Out	-Provision of distinctive homepage with introductory graphics to be able to be viewed in a variety of browsers
	-User to easily locate – Instructions on how to Login	-Provision of Homepage to display information using F-Pattern setup -Provision of Login Form and Buttons
	-User to be able to fill in Username and Password (note these will already have been given within face to face class time) -User to be able to click on a Login button	-Links to User Profile shown
		-Links to course sites shown
		-Welcome on Homepage shown and obvious acknowledgement that User is now Logged In
	-User to be able to change profile easily, accessed by hyperlink?	-Provision of form with details including email, information box, photo(?), and other relevant information -Provision of a photo field with upload button
	-User to be able to save their profile and view this easily	-Provision of save button, and then feedback that items are saved
	-User to be able to view other participants profile	-Provision of button to review who is on the course and look at different profiles / information about them. Maybe in a small card like flip format.
	-User to be able to logout of environment	-Provision of button to Logout – and obvious change in options when logged out?

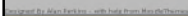
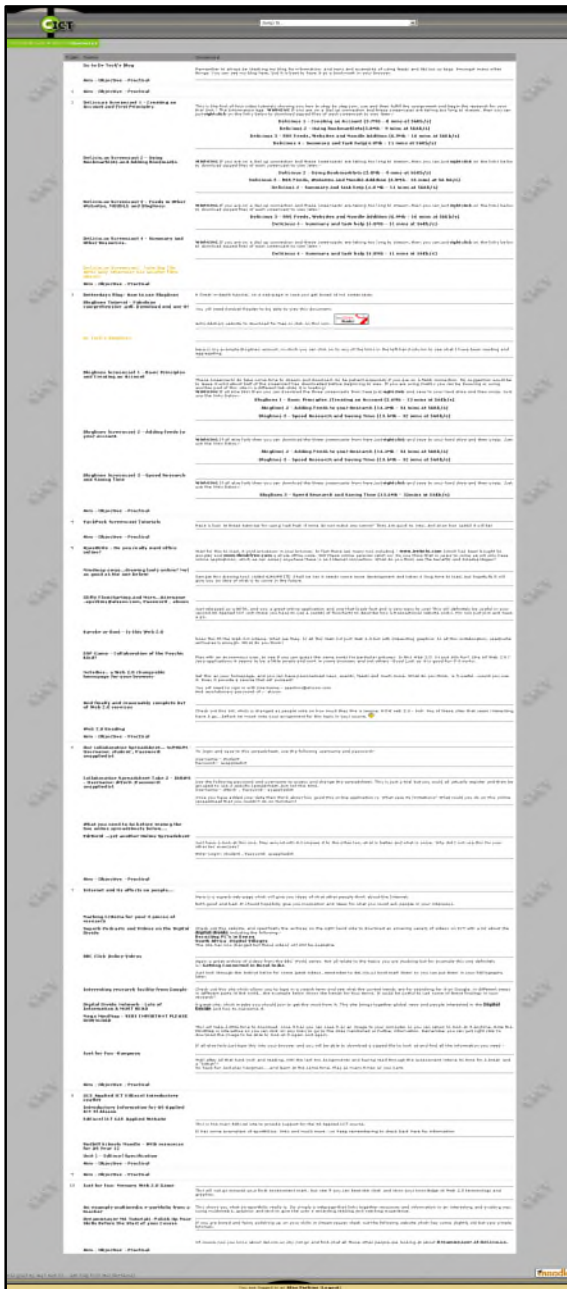


Key Activity	Associated Actions by the learner	System Operation and requirements
Task 2 written from Scenario 3 – User to login to environment, and access specific course related to them. User to read details and explore course in organic manner. Then locate a particular topic. User is able to interact with environment leaving messages to other participants and maybe able to give feedback to environment.	-User to be able to Logon easily on homepage with placement of Login box always constant and in left hand corner -User to be able to see courses open to them easily and be able to choose quickly to see course	-Provision of Login form and button in a left hand column  -Once logged in the courses that are available to the user must be shown in prominent position. (Note already decided that this course would not be open to any students from El Alsson school but only those that signed up by the facilitator) -Course label must be clickable /hyperlink straight to course outline
	-User to be able to read course content in a logical and structured manner	-Content set out in logical order and all able to be read on one scrollable webpage- Maybe numbered?
	-User to be able to read a news forum related to their particular course and be able to read posts and reply to posts of others	-Link to forum obvious maybe at top of page – with hyperlink to it -Provision of a forum type environment where users can read posts that have been written and reply to them. Link to forum page, with buttons for posting a reply.
	-User to be able to scan course and see course split into sensible sized chunks and be able to choose which chunk to use / interact with at any time	-Scrollable content page, with lists of topics and resources available. -Each chunk to have a description in plain text, and also a link to a resource that will explain its 'aims'.
	-User to be able to review course and its layout. And produce /or fill in a feedback form that suggest how to improve the course and environment	-Provision of a sitemap for the user to look over all course content -Provision maybe as part of course, for user to feedback through a form on quality of course and what improvements they would like for the environment to be better
	-User able to view other students /participants points of view	-Maybe provision for student to look at what other people have feedback – hyperlink to results

Key Activity	Associated Actions by the learner	System Operation and requirements
Task 3 written from Scenario 1 – User to Login to environment and access particular course. User to be able to follow a logical course progression and choose a topic /area to study which will involve being able to read resources within the environment, and then upload finished work to that environment. Example Topic will be on Social Bookmarking Services. Where a student will be asked to view a website resource on Del.icio.us, and then view screencasts showing a tutorial on how to set up an account. The student will then be asked to show evidence of their work. Student will then be able to see bookmarks of their delicious account maybe within environment that as such is published to everyone, and shared by everyone.	-As in other scenarios for logging on -As in other scenarios for finding course -User to be able to choose unit and activity related to 'Del.icio.us'	-As above -As Above -As Above with clearly indicated provision of topics and maybe what the aim of each activity is
	-User to be able to view video tutorials of how to use delicious User to be able to view alternate resources that will show how to do activity if video resources are too slow to download	- Provision of multimedia resources embedded into environment again maybe use of frames and flash -Provision of buttons so that user can play video and then maybe rewind and view again -Provision of documents that say the same as videos
	-User to be able to view an outline of what they have to do -User to be able to view mark scheme of how they will be assessed -User to be able to upload documents when they have completed a task to a database	-Provision of a simple, concise paragraph on what the assignment is, maybe connected to button for uploading -Provision of marks with the above -Provision of form with buttons for uploading a document maybe Word .doc to a database
	-Student maybe to be allowed to write straight into environment the solution to an activity -Maybe a forum -User to be able to contact the tutor for any questions	-Provision of a Form in which actually to write an answer and then a submit button -Provision of forums to be able to post items quickly that all students can view
	-User to be able to see the bookmarks that he has put into his account in the environment automatically -User to be able to view other students bookmarks	-Provision of obvious links to course teacher or administrator -Provision of a link to 'Del.icio.us' bookmarks via RSS feed in an obvious area in course page -Provision that other peoples social bookmarks also come to this area automatically



Key Activity	Associated Actions by the learner	System Operation and requirements
Task 4 written from Scenario 4 - User to Login to environment and access particular course. User to wander through topics picking out particular games and interesting activities. User able to choose which to play. User to receive feedback how they have achieved on certain games.	<ul style="list-style-type: none"> <li>-As above for logging in</li> <li>-Be able to find to communicate to administrator?</li> <li>-Be able to have password sent to her via email or from administrator</li> </ul>	<ul style="list-style-type: none"> <li>-As Above for logging on</li> <li>-Provision of hyperlink to administrator</li> <li>-Provision of button that finds her password in a database and sends an email to her address in database with password</li> </ul>
	<ul style="list-style-type: none"> <li>-User able to click on course for her</li> <li>-User able to see logical set of topics on one page</li> <li>-User able to choose activities to participate in, and maybe be able to decipher these through some sort of graphical icons</li> </ul>	<ul style="list-style-type: none"> <li>-Provision of easy list of courses and hyperlink to her course</li> <li>-Provision of tabular set of topics with information</li> <li>-Provision of some sort of graphical notation to suggest what activity it is e.g. game= ♠</li> </ul>
	<ul style="list-style-type: none"> <li>-User able to find a variety of games and quizzes including crosswords, matching exercises even arcade style games that link with content being learnt</li> </ul>	<ul style="list-style-type: none"> <li>-Provision of links to different game activities maybe a link to resources that has all games listed</li> <li>-Provision of these games to be embedded into environment so as to continue consistency and not lose user e.g. use of frames rather than pop up windows</li> </ul>
	<ul style="list-style-type: none"> <li>-User able to fill in quiz for example crossword, and receive help immediate feedback if they cannot get the answer</li> <li>-User to be put under some sort of pressured conditions and maybe only allowed to do certain quizzes once so as not to be able to cheat</li> </ul>	<ul style="list-style-type: none"> <li>-Provision for example of visuals of games</li> <li>-Provision of ability for game to link back to database of answers</li> <li>-Provision of maybe a clock</li> <li>-Provision of the database to log user has entered this game page via IP addresses maybe</li> </ul>
	<ul style="list-style-type: none"> <li>-User to receive a score for completed quizzes which might add to overall score for course</li> </ul>	<ul style="list-style-type: none"> <li>-Provision of database to record score</li> <li>-Provision of database to add to an overall grading mechanism</li> <li>-Provision of button to allow user to navigate to their grades</li> </ul>



Alan T Perkins – Student No: 200234422  
EDUC5253 – Design and Evaluation of Web-based Learning Environments, 2006-07-06, 1:07:38 PM





Figure 24 - Homepage Screenshot showing Initial Problems with HTML blocks and layout

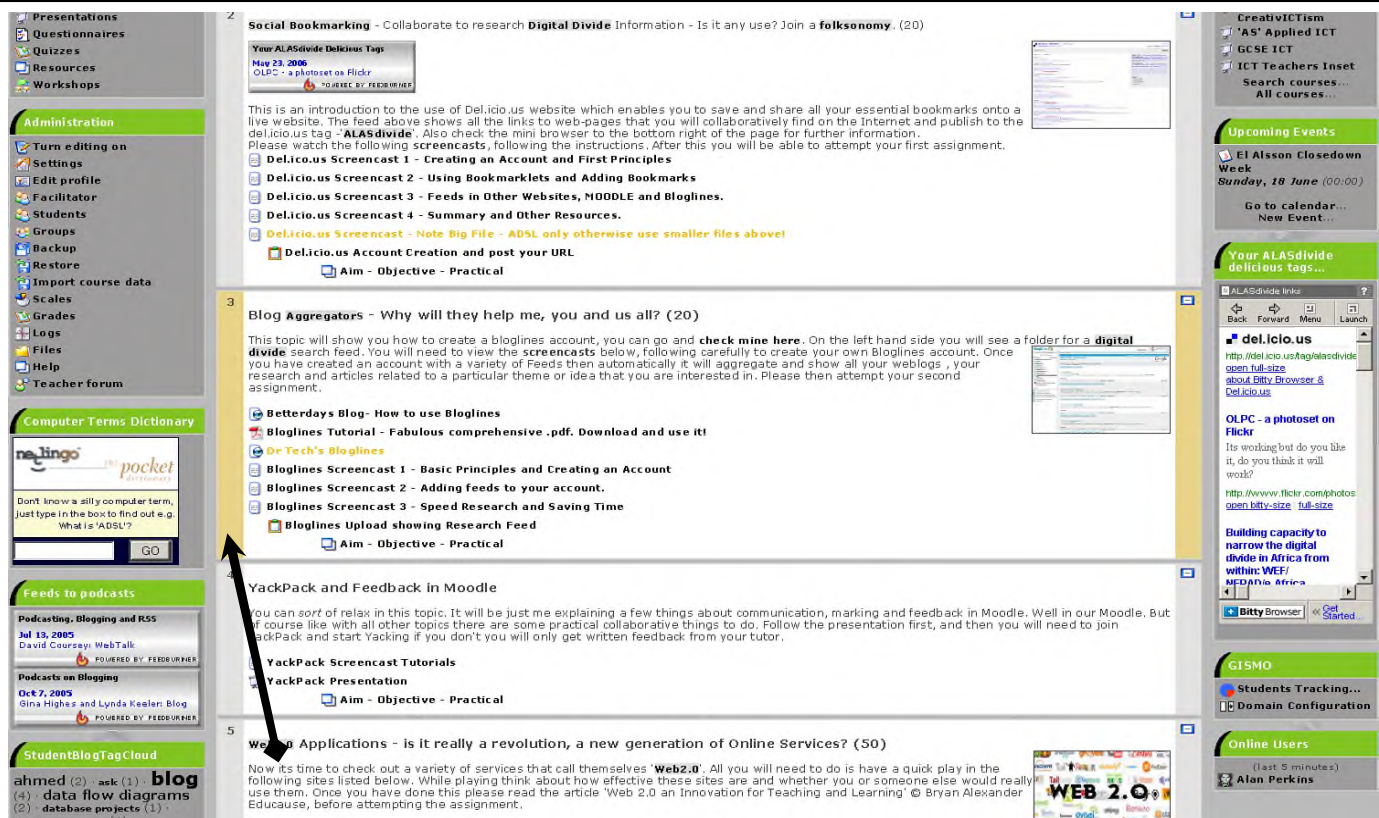


Figure 25 - Course with Highlighted Topic Screenshot



## Mindmap Outlining Assignment

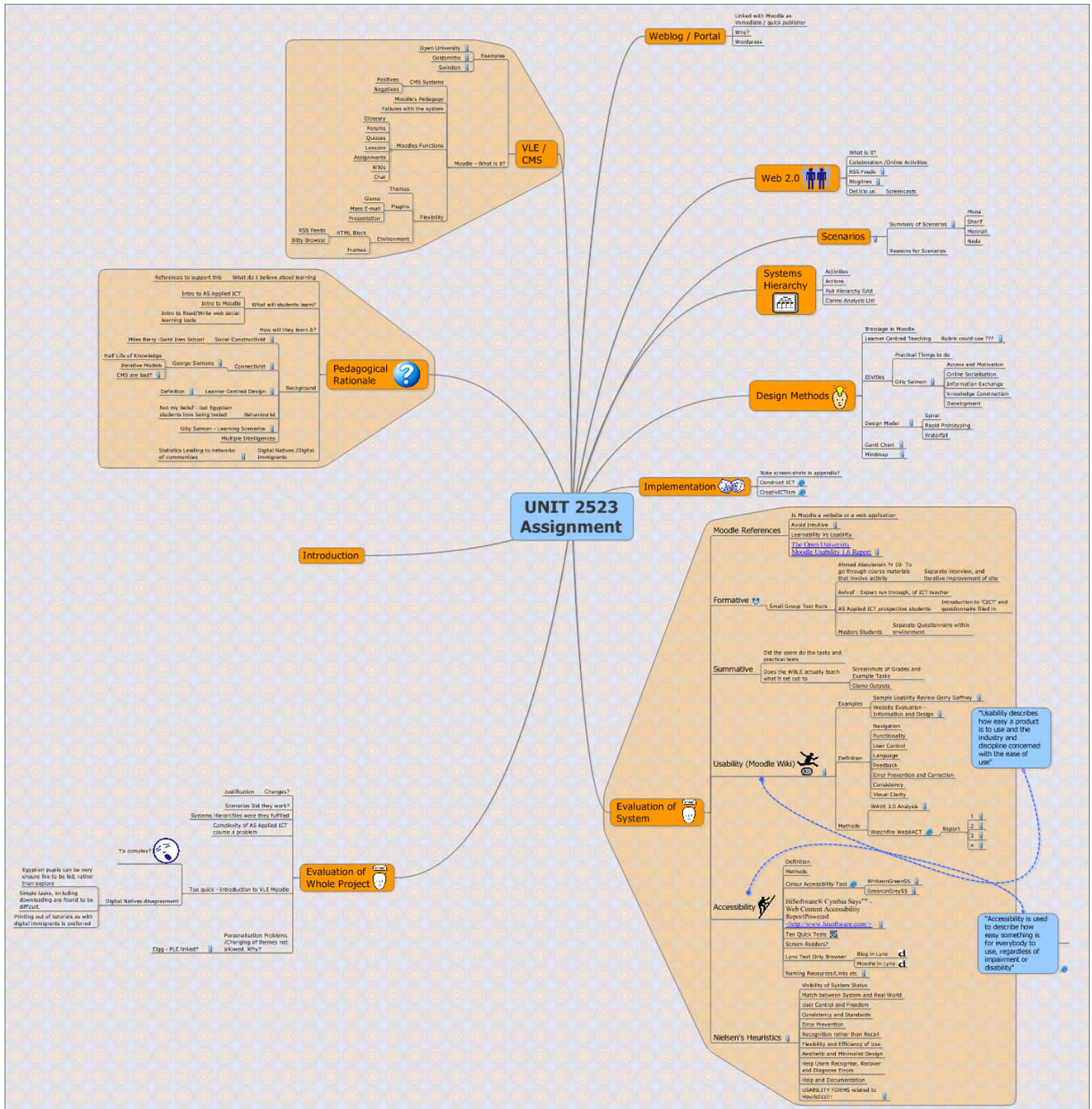
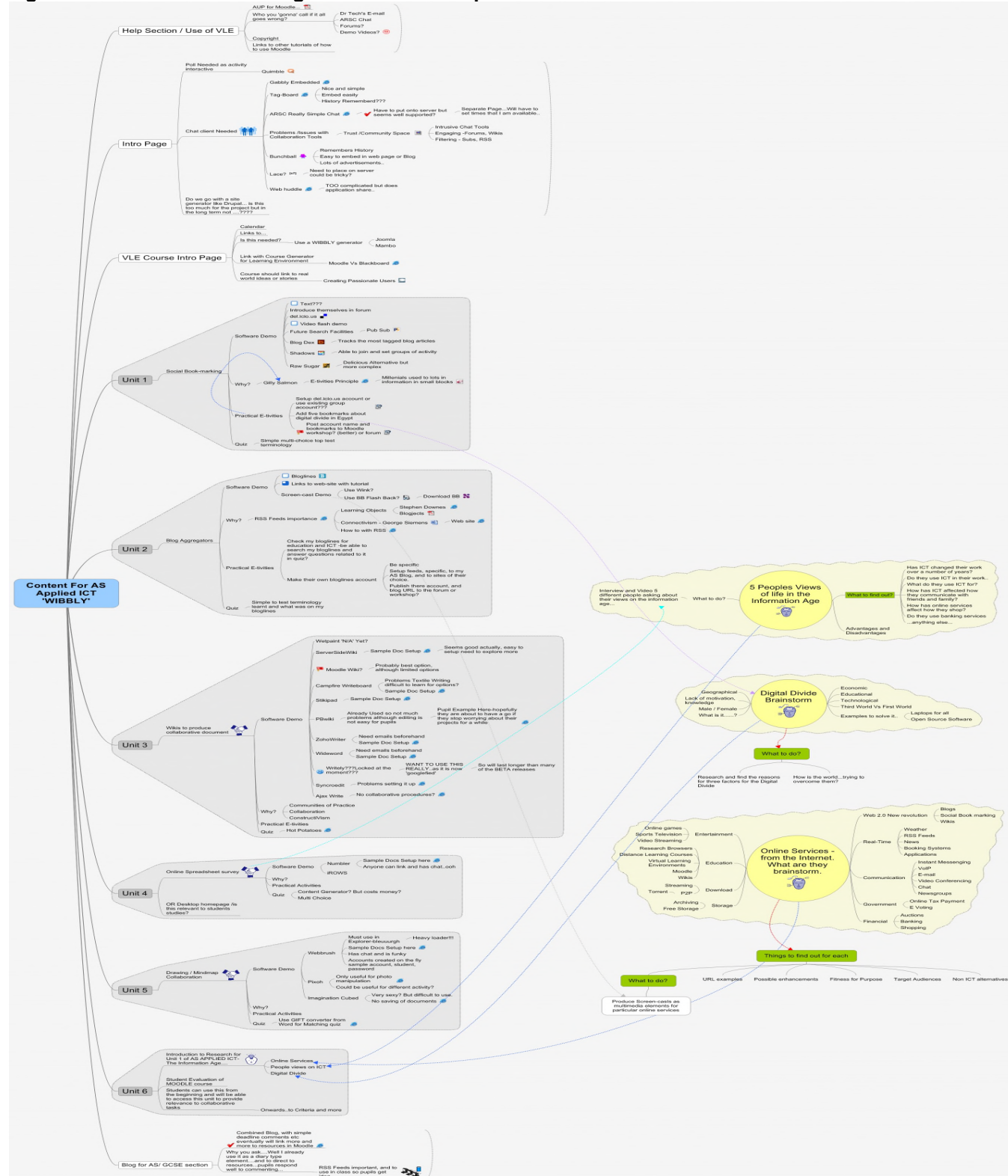


Figure 26 – Overall Planning Mindmap for Assignment

## Mindmap Outlining Course Content

### Figure 27 - Overall Content Organisation Mindmap





## CICT- Gantt Chart

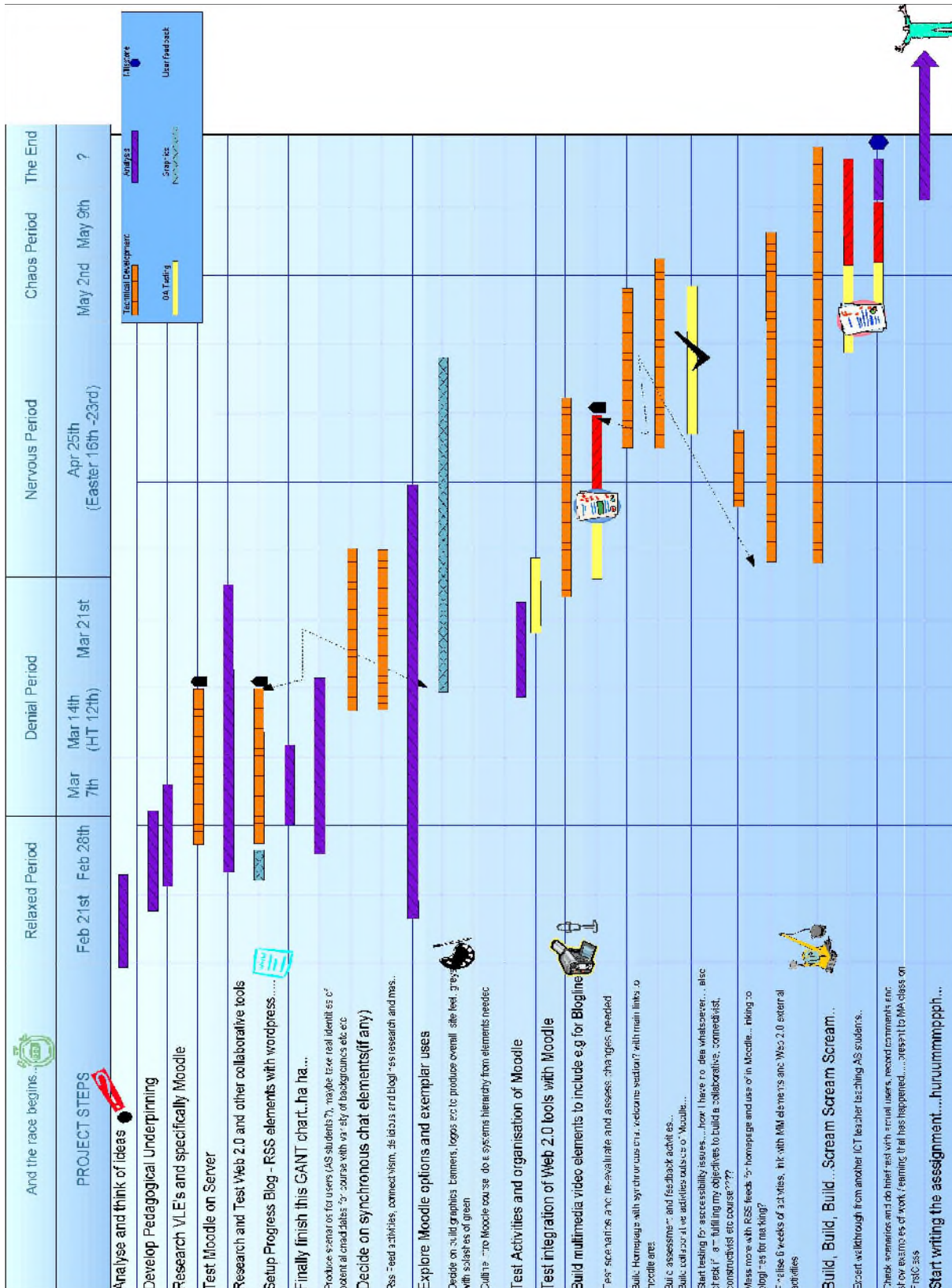
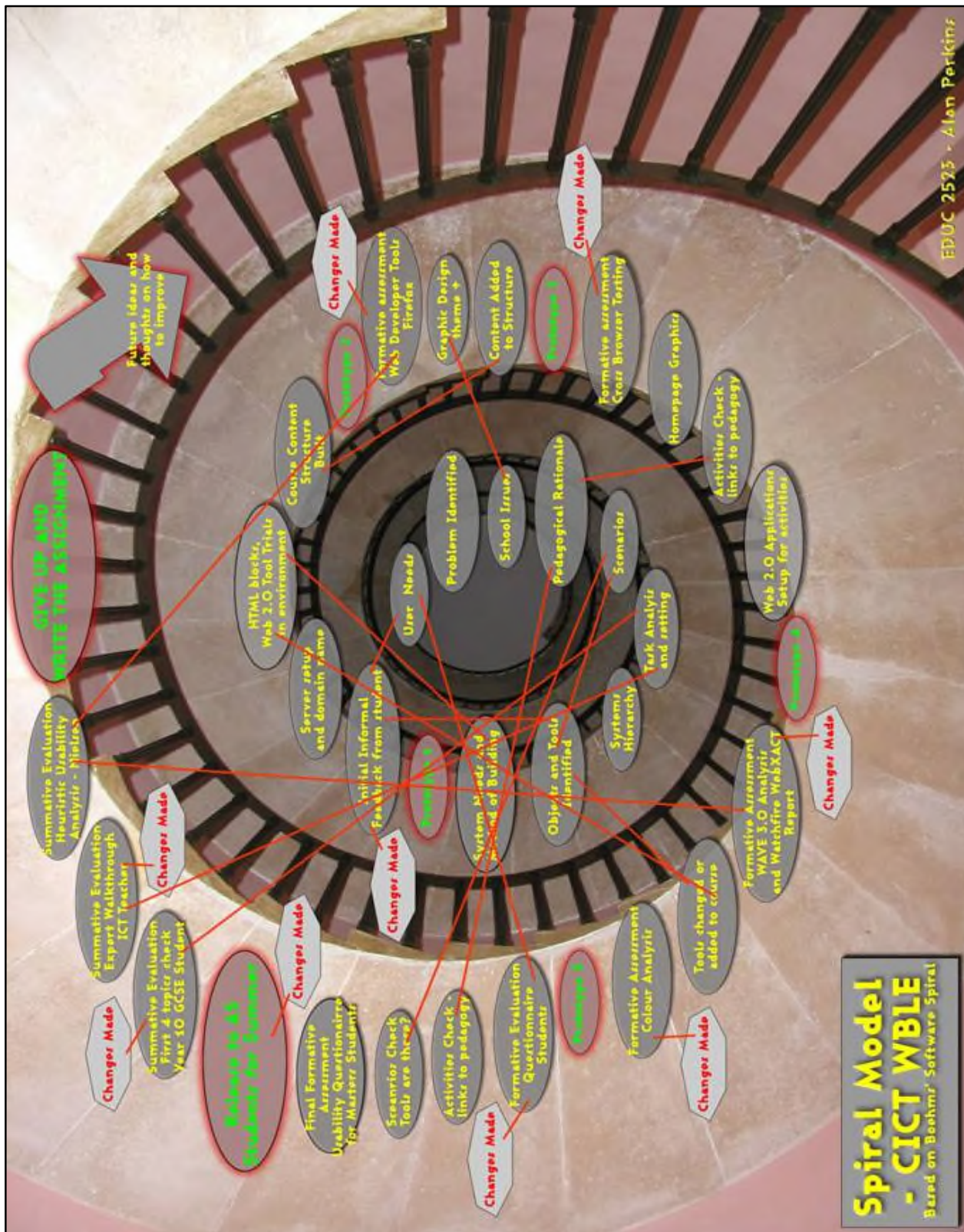


Figure 28 –Gantt Schedule of work for design and Implementation of WBLE



## ***CICT – Spiral /Iterative Design Process***



**Figure 29 - Spiral Iterative Development Plan**



## ***Design Submission Form***

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The purpose of this form is to acquaint evaluators with the nature of the design being developed. The submitter of the design should provide detailed information below; this information should be reviewed carefully by each evaluator prior to beginning the evaluation.

### **General Information**

Project Name: **Construct ICT Moodle and CreativICTism Student Blog**

Date Submitted: **05/06/2006**

---

Designer's Name: **Mr. Alan Perkins**

---

Designer's Email Address: [aperkins@alsson.com](mailto:aperkins@alsson.com) , [aperkins@constructict.com](mailto:aperkins@constructict.com)

---

Other Contact Person/Address, if any: **NONE**

---

Desired Deadline for Evaluations: **ASAP**

---

(ASAP Please)

The design is: attached available at this URL: <http://www.constructict.com/moodle> or  
<http://www.constructict.com/studentblog>

---

### **Select Evaluation(s)**

Select the type(s) of evaluation you would like at this time. You may select one or all:

- 1) **Technical** - Heuristic Evaluation (Evaluator: Use Guidelines Checklist)
- 2) **Technical** - ADA Section 508 compliance evaluation for **websites** (Evaluator: Use ADA Checklist)
- 3) Gerry Gaffney's Simple Usability Evaluation Checklist

**PLEASE USE BOTH CHECKLISTS after following all four scenarios.**

Identify any areas of concern that you would like to have the evaluators examine in particular.

Usability issues have become apparent within the Moodle Website environment specifically to do with the following:-

-Screen resolutions of 800\*600 lead to some difficulties in viewing of courses?

-Use of some scripting widgets have led to problems including use of Bitty Browser and Java scripted RSS Feeds

-Use of Moodle with a Screen Reader is problematic at this moment in time, and although important has not been a necessity as within the cohort of students at El Alsson there are no students with these needs.

### **Intended Audience**

Describe the intended audience/user group for your project. Include information about the expected age range, education level, level of familiarity with computers, and any domain-specific knowledge your users will have. Also indicate whether most of your audience will be one-time, occasional or frequent users.



Intended audience for the AS Applied ICT summer course, will be students of El Alsson School aged 16 and above taking A Levels. The environment obviously will also be available to be used by GCSE students above 14. El Alsson School students are from Middle to High Class Egyptian families, with a good level of spoken English. However it must be noted that their written English can sometimes be of variable quality. El Alsson Students who are taking the AS Applied ICT course should have a good understanding and use of applications and computing in general. But they have never used a VLE before, and so will be introduced to this environment and distance learning techniques over the course of the year within a blended learning environment.

### **Primary User Level**

Indicate which level(s) of user this site or system was designed for in terms of general computer experience.

- ☐ Novice or Beginner
- ☒ **Somewhat Experienced User**
- ☐ Experienced User
- ☐ Advanced User / Expert User

### **Design Constraints**

List any design constraints you faced that had a significant impact on your design (if any), such as size or color requirements,

It must be noted that the both systems the Word-Press Blog and the Moodle environment are systems that are setup and then the particular themes can be altered using CSS styling. This means there is a certain limitation on how the structure of the web learning environments could be changed. For example the Moodle environment provides a linear structure to all its courses that is shown immediately to a student. The Weblog shows daily posts in chronological order with the latest post at the top of the home of the blog.

Limitations had to be taken into consideration regarding both the size of monitor resolution at school, to which the sites have been designed for a minimum of 800\*600 monitor resolution. Although it has to be noted that the CICT Moodle environment specifically looks much better and is much easier to use and read within a resolution of 1024\*768.

Finally the use of Web 2.0 technologies and scripts within the AS Summer course in the CICT Moodle environment must be acknowledged to be cutting edge technology with many problems specifically with rendering and use in different browsers. This is taken to be part of the course for which AS students are looking to be able to review and criticise these online services.

### **Design Stage**

Indicate which stage your design is in at the time of this evaluation (prototype, partially complete, complete, released, not yet released, etc.)

The CreativICTism Weblog is fully released and has been used for over three months, and this is why I would ask an evaluator to focus primarily on the



Moodle - CICT learning environment which is still at the prototype stage with a variety of students using it only in a test capacity before release to a wider range of students next school year.

### Task Scenarios

Provide 1 to 4 typical (or important) tasks for the evaluators to accomplish so they can return comparative results for your review. For example, describe something that a typical user would need or want to do using your system or site.

There are four tasks to complete, with varying outcomes and asking you as a user to look at and test various different areas of the CICT Moodle Learning Environment.

Usability Checklists -You will find after these tasks come from Gerry Gaffney's simple Usability Checklist. If you are feeling brave and have a good background and technical knowledge within Web Design and Interface Design then I will provide you with the two other checklists outlined above. Both are complicated checklists and I would simply like you to fill in the information, that you are comfortable with and have noted as problems or plus points to the CICT Moodle Learning Environment. The designer will have already filled in most of these points in red anyway. Of most importance is your overall comments placed at the front of each checklist.

#### 1 Test Task 1 – Short Task (15 Mins)

- During the task please note down any problems with accessibility or usability of the learning environment. Do not go over the time assigned beyond a few more minutes. Please note if you have time problems.
- Goto <http://www.constructict.com/moodle>
- Logon with your username and password given to you before
- Click onto your Username and enter your profile setup
- Scroll down through your profile and alter any incorrect data
- Change the small 'avatar'<sup>lxiv</sup> picture, to reflect something more personal
- Write a small description of yourself within the correct area
- Go back to the main homepage within CICT Moodle
- Read the News Section
- Add a reply to the latest news item, introducing yourself to anyone who enters the Moodle CICT environment
- Logoff

#### 2 Test Task 2 – Short Task (20 Mins)

- During the task please note down any problems with accessibility or usability of the learning environment. Do not go over the time assigned beyond a few more minutes. Please note if you have time problems.
- Goto <http://www.constructict.com/moodle>
- Logon with given username and password
- Locate and click on the Introduction to AS Applied ICT Course
- Read through the Course Outline and have a brief look around all the

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<sup>lxiv</sup> Avatar is a name for a small picture that can represent you within a virtual world, it originally comes from the Hindu religion to indicate an incarnation of a higher being





- Topics and items presented
- Goto Topic 1 and fill in the questionnaire on Usability which relates to your status whether you are a Leeds University student or an El Alsson Student
- Finish the questionnaire and return to the AS Course Page, and then review and look at your answers in the questionnaire
- Logoff

### 3 Test Task 3 – Long Task (1 Hour 15 Mins)

- During the task please note down any problems with accessibility or usability of the learning environment. Do not go over the time assigned beyond a few more minutes. Please note if you have time problems.
- Goto <http://www.constructict.com/moodle>
- Logon with username and incorrect password
- When you realise this is the incorrect password, use a facility to have your password resent to your email
- Open Email account and see if email arrives
- Re logon to Moodle with password
- Enter your AS Introductory Course and go straight to Topic 2
- Read the outline and the 'Aims and Objectives' of the Topic
- Follow the instructions and view the available resources
- Finish the assignment and upload
- Logoff

### 4 Test Task 4 – Very Short Task (10 Mins)

- During the task please note down any problems with accessibility or usability of the learning environment. Do not go over the time assigned beyond a few more minutes. Please note if you have time problems.
- Goto <http://www.constructict.com/moodle>
- Logon with username and password
- Try out the following games in different topics – be warned that two are for fun and one is for grading:-
  - Topic 7 – Hangman Game
  - Topic 9 – Web 2.0 Crossword
  - Topic 10 – Memory Matching Game
- Within the main forum comment upon the games, and how effective they could be in learning specific ideas, concepts and vocabulary.
- Logoff

Thanks for your time and help.

Alan Perkins.

This form has been developed from resources freely available at [www.infodesign.com.au](http://www.infodesign.com.au) and at [www.merlot.org](http://www.merlot.org) which provides .pdf documents from the Interface Design Evaluation and Assessment Group. These resources were checked for reliability and amongst many freely available resources provided a good cross section of evaluation of usability materials.



### Usability evaluation checklist for web sites

This brief checklist is an aid to evaluating a web site for usability. The checklist may be freely used and distributed, provided the copyright information is retained.

#### Navigation

	Compliance			
	Always	Sometimes	Never	Notes
There is a clear indication of the current location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
There is a clearly-identified link to the Home page	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
All major parts of the site are accessible from the Home page	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If necessary, a site map is available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Site structure is simple, with no unnecessary levels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If necessary, an easy-to-use Search function is available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

#### Functionality

	Compliance			
	Always	Sometimes	Never	Notes
All functionality is clearly labelled	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
All necessary functionality is available without leaving the site	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No unnecessary plug-ins are used	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

#### Control

	Compliance			
	Always	Sometimes	Never	Notes
The user can cancel all operations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
There is a clear exit point on every page	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Page size is less than 50Kb/page	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
All graphic links are also available as text links	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
The site supports the user's workflow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
All appropriate browsers are supported	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

#### Language

	Compliance			
	Always	Sometimes	Never	Notes
The language used is simple	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Jargon is avoided	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Web site evaluation checklist v1.1

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#### Feedback

	Compliance			
	Always	Sometimes	Never	Notes
It is always clear what is happening on the site	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Users can receive email feedback if necessary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
All feedback is prompt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Users are informed if a plug-in or browser version is required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Users can give feedback via email or a feedback form	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If necessary, online help is available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

#### Consistency

	Compliance			
	Always	Sometimes	Never	Notes
Only one word or term is used to describe any item	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Links match titles of the pages to which they refer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Standard colours are used for links and visited links	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Terminology is consistent with general web usage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

#### Error prevention and correction

	Compliance			
	Always	Sometimes	Never	Notes
Errors do not occur unnecessarily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Error messages are in plain language	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Error messages describe what action is necessary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Error messages provide a clear exit point	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Error messages provide contact details for assistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

#### Visual clarity

	Compliance			
	Always	Sometimes	Never	Notes
The layout is clear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
There is sufficient 'white space'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
All images have ALT text assigned	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Unnecessary animation is avoided	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Web site evaluation checklist v1.1

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Figure 30 - Usability Forms Used in Conjunction with Design Submission Form

## WAVE 3.0 Analyses in Detail

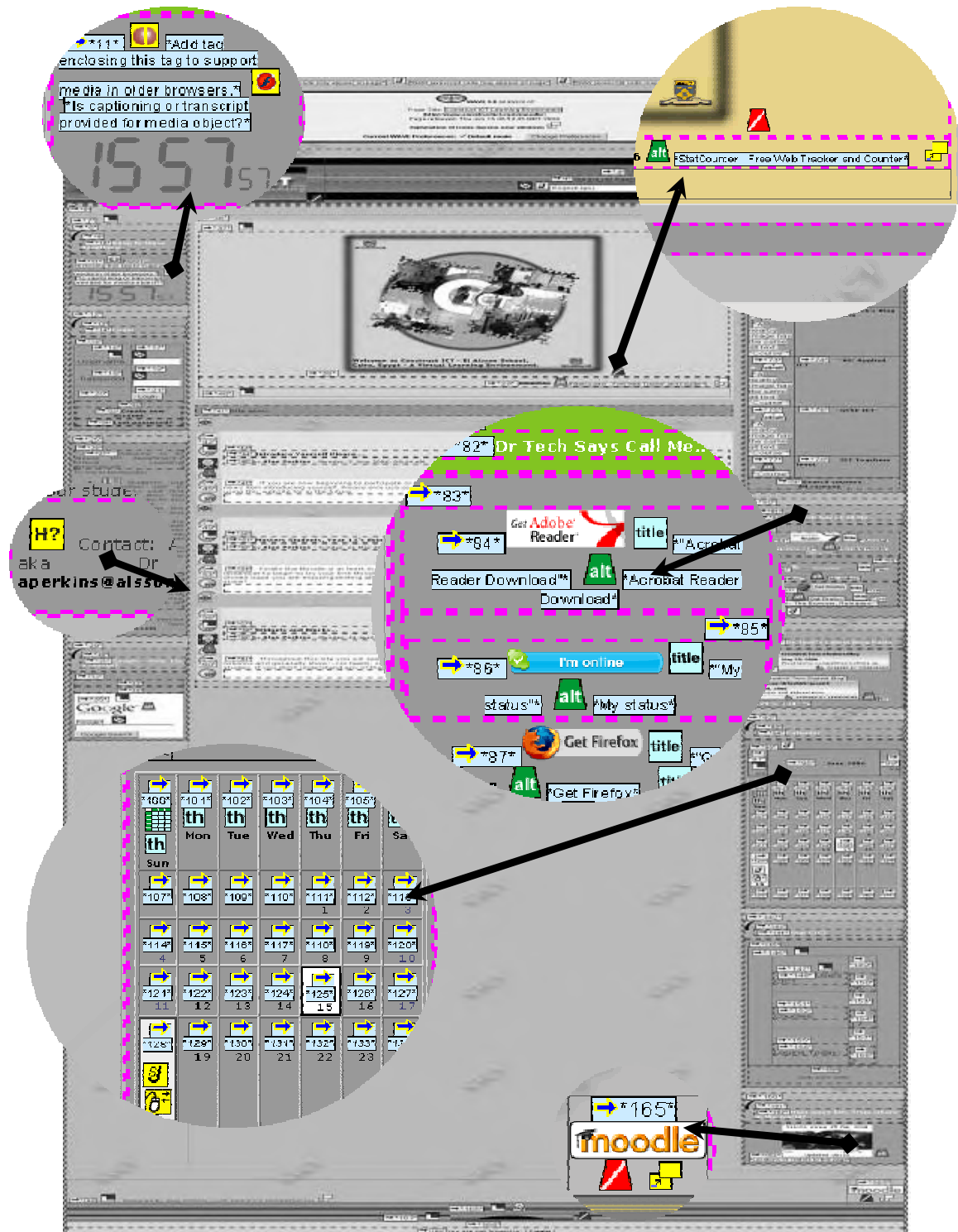


Figure 30a - WAVE 3.0 Analyses in Detail



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