

Summer Internship @ LearningMate

Heuristic Evaluation of K12 Courses

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ABSTRACT

Research on K12 (US Education system) and Heuristic Evaluation of K12 Courses.

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I also thank Prof. Ravi Poovaiah and Prof. Anirudha Joshi for giving us the basics of Interaction Design.

Summary

This report is a gist of my experience and introduction to the field of E-learning. It consists of the research that I did of K12 (US Education system) and further utilized my skills of Usability testing for evaluating the different courses which are available to the middle school and High school children.

It comprises of usability problems those were identified in the courses by a particular method of evaluation and giving Design solutions / Ideas for the same.

Further there were other task's involved of preparing a Questionnaire for the Content Writers and even taking a Learning session for the DSG group of LearningMate and introducing them with the field of Interaction Design.

About LearningMate

LearningMate is a company that started around 8 years back, a brain child of alumni of Industrial Design Centre, who are passionate about contributing the field of education.

Currently almost all the work that is being done is of education content designing and creation.

A fresh and young Design team is the biggest strength.

The designers in the team are very dynamic and each individually is highly competent and multitasker.

There are various other teams working in the office too, like Content writers, Flash programers, Management group etc. each contributing there share to come up with the best output.

K12 Research in US

Objectives

- Understand US education pattern/system
- Evaluate K12 courses developed by LearningMate
- Interact with the K12 development team
- Present research to management

A few pointers to do this project

User Study

- Students in US
- US education system

Cultural context

- User study - behavior, habits, environment
- Exposure to media
- Self-learning pattern/inclination
- Accessories

US Education System

Education in the United States is provided mainly by government, with control and funding coming from three levels: federal, state, and local. School attendance is mandatory and nearly universal at the primary and secondary levels (known inside the United States as the elementary and highschools levels).

At these levels, school curricula, funding, teaching, and other policies are set through locally elected school boards with jurisdiction over school districts. School districts are usually separate from other local jurisdictions, with independent officials and budgets. State governments usually make educational standards and standardized testing decisions. Attending public schools, state-certified private schools, or an approved home school program can generally satisfy compulsory education requirements.

Educational System in US consists of four major sections in terms of Education.

These are listed as follows:

1. Primary school (Elementary)
2. Secondary school (High)
3. Undergraduate school
4. Graduate school

1) PRIMARY SCHOOL (Elementary)

American children start school at the age of five years. The first year at school is called kindergarten. There are counselors who specialize in assisting parents and their toddlers through the preschool admissions process. It is required of all American children enrolled in the American education system. The second year at school is considered the first year of primary school and is referred to as first grade.

In America, the word GRADE has two meanings:

- the score achieved on an exam or in a course, and
- a year of education in primary or secondary school.

Primary school most commonly consists of five years of education, referred to as first through fifth grades. Elementary school is a school of kindergarten through fifth grade (sometimes, the first eight grades or up to fourth grade or sixth grade), where basic subjects are taught. Elementary school provides and often remains in one or two classrooms throughout the school day, with the exceptions of Physical education ("P.E." or "gym"), library music, and art classes. There are (as of 2001) about 3.6 million children in each grade in the United States. In general, a student learns basic Arithmetic and sometimes rudimentary algebra in mathematics, English proficiency (such as basic grammar, spelling and vocabulary), and fundamentals of other subjects. Learning standards are identified for all areas of curriculum by individual States, including those for math, social studies, science, physical development, the fine arts as well as reading.

2) SECONDARY SCHOOL (High)

Upon completion of fifth grade (the last year of primary school), American children enrolled in the American education system advance to secondary school. Secondary school most commonly consists of a total of seven years, referred to as sixth through twelfth grades. At this time, students are given more independence as choosing their own classes. Usually, starting in ninth grade, grades become part of a student's official transcript. Future employers or colleges may want to see steady improvement in grades and a good attendance record on the official transcript. Therefore, students are encouraged to take much more responsibility for their education. The ninth through twelfth grades are most commonly referred to as

High school. Generally, at the high school level, students take a broad variety of classes without special emphasis in any particular subject. Curricula vary widely in quality and rigidity; for example, some states consider 65 (on a 100-point scale) to be a passing grade, while others consider it to be as low as 60 or as high as 75.

The following subjects are fairly universally required in the United States:

- 1) Science (usually two years minimum, normally biology, chemistry and physics)
- 2) Mathematics (usually two years minimum, normally including algebra, geometry, algebra II, and/or precalculus /trigonometry)
- 3) English (usually four years minimum, including literature, humanities, etc)
- 4) Social Science (usually three years minimum, including various history, government/economics courses)
- 5) Physical education (at least one year) Many states require a "health" course in which students learn about anatomy, nutrition, first aid, sexuality, and birth control.

Anti-drug use programs are also usually part of health courses. In many cases, however, options are provided for students to "test out" or perform independent study in order to complete this requirement. Foreign language and some form of art education are also a mandatory part of the curriculum in some schools. There is a wide variety of Electives available to be taken which include Visual art, Performing Art, Computers etc. Upon completion of twelfth grade, American students are awarded a certificate called the high school diploma. In the American education system, students must have obtained a high school diploma before they are admitted into college or university.

3) UNGRADUATE SCHOOL

Students who have completed high school and would like to attend college or university must attend what is referred to as an undergraduate school. These are schools that offer either a two-year degree called as Associate Degree or a four-year

degree called as Bachelor Degree in a specific course of study. That course of study is called the major. While most schools that offer a four-year degree will admit students who have not yet chosen a major, all students are required to select (or declare) a major by their second year at school. Students who complete an associate degree can continue their education at a four-year school and eventually complete a Bachelor Degree .

4) GRADUATE SCHOOL

Students who have obtained a bachelor's degree can continue their education by pursuing one of two types of degrees. The first is a Masters degree. This is usually a two-year degree that is highly specialized in a specific field. Students are sometimes admitted to a master's degree program only if they have a bachelor's degree in a closely related field. However, there are many exceptions to this, such as with students who want to pursue a Master's in Business Administration (MBA) degree. Students who want to advance their education even further in a specific field can pursue a doctorate degree, also called a *PhD.* A PhD degree can take between three and six years to complete, depending on the course of study chosen, the ability of the student, and the thesis that the student has selected. The thesis is a very intensive research paper that must be completed prior to earning the degree. It is always required of students pursuing a PhD, and may sometimes be required of students pursuing a master's degree (depending on the school). Certain courses of study are only available at the graduate school level in America. The most notable of these are law, dentistry, and medicine. Students who want to pursue a degree in one of these fields must first obtain a bachelor's degree.

What is k12?

K-12 (pronounced just "kay twelve", or "kay through twelve", "kay to twelve") is a designation for the sum of Primary and secondary education. It is used in the United States, Canada, and some parts of Australia. The expression is a shortening of Kindergarten (5 or 6-year-old) through 12th grade (or grade 12) (generally 17-19 years old), the first and last grades of free education in the United States, Australia and English Canada. It is often used in school website URLs, generally appearing before the country code top-level domain.

Virtual School

The terms "virtual high school" and "virtual school" have become buzzwords, frequently applied to any K-12 learning activity or program that uses the Internet or other technologies. If you ask 30 people to define a "virtual school," you will probably get 30 different answers. A "virtual school" is here defined as "an educational organization that offers K-12 courses through Internet or Web-based methods." Virtual K-12 education is a form of distance education.

Distance education might be formally defined as "formal education in which a majority of instruction occurs while teacher and learner are separate" (Verduin and Clark, 1991). It includes delivery methods such as independent or correspondence study, as well as videoconferencing and other instructional technologies. Both home school and in-school students participate in K-12 virtual courses.

Majority of virtual schools appear to be using web- or Internet-based instruction as their only distance learning method. Of course, many are part of organizations that offer conventional, face-to-face education as well. Some schools require on-site meetings or offer optional group activities such as field trips. Independent study programs that have added web-based courses generally offer many of the same courses by both methods. In addition, print-based study guides traditionally associated with independent study are used by some schools. Video streaming capabilities are also allowing more virtual schools to incorporate video-based instructional materials into their web-based programs. Some of the peer group schools send CDs or DVDs to students to use as part of their course delivery. Many virtual schools moved to the Internet in the first part of the 1990s after first offering this kind of computer-based individualized instruction. There will be a course fee to be paid for by the student, parents or student's home school. Other materials would be purchased by the student, such as books. Materials can also add

up. Most courses will provide electronic materials free of cost, but others require some shopping on the students part. Textbooks are not required but can be used as an aid for coursework.

Teaching Methods

How concepts are taught

Many teachers use a "hands-on" approach that uses "props" or "manipulatives" to help children understand abstract concepts, solve problems, and develop critical thought processes. For example, they teach the concepts of numbers or of addition and subtraction by playing board games. As the children get older, teachers use more sophisticated materials, such as science apparatus, cameras, or computers. They also encourage collaboration in solving problems by having students work in groups to discuss and solve problems together. Preschool, kindergarten, and elementary school teachers introduce children to mathematics, language, science, and social studies. They use games, music, artwork, films, books, computers, and other tools to teach basic skills.

<http://www.bls.gov/oco/ocos069.htm>

Using multimedia resources which are Internet-based to teach K- 12 science is a great resource for teachers and home school parents.

Advantages of Teaching with Internet-Based Multimedia

Students respond to information differently; no two students are the same. Many have similar learning styles; however none have been pressed from the same cookie cutter mold. This is where Internet-base multimedia comes in, using a variety of formats to teach.

These are some advantages of using online multimedia:

- 1) Animation - encourages student interaction.
 - 2) Videos - stimulates visual senses to encourage interaction, no more than 5 minutes in length.
 - 3) Sound - stimulates the auditory senses to encourage interaction.
 - 4) Student Interest - concepts are conveyed quickly and effectively to students.
- Teaching basic concepts to Middle school kids with the help of Lego.
Teaching Mozart Maths - The MozartMath program teaches children music theory as well as music appreciation. The children learn to read notes, rests, time signature, etc., and how to play a simple rhythm instrument. The music skills taught can be a preparation for further private instrumental or vocal training. More importantly, no other music program integrates both math and music concepts.

Electronic Games for Education in Math and Science

children's interactions with computers

As certain studies of child-computer interaction suggest, many children actually personify computational objects and often consider computers as being "alive", able to "think", and having a personality. These findings provide an interesting new way of looking at human-computer interaction.

Design and use of (educational) computer games.

This involves looking at educational content and motivational elements in order to come up with suitable representation of concepts and interfaces in designing educational games.

Strategies and materials to integrate game-like computer activities with other

forms of classroom learning

We consider different learning styles and classroom activities and incorporate elements such as graphics, sound effects, stories, characters, humor, rewards and navigation to make learning a more enjoyable experience.

Using games for teaching maths and science proves to be very effective for kids. Heres a link where you can explore some research papers on the same. Few papers are related to kids reaction to color and graphics in educational softwares -

<http://www.cs.ubc.ca/nest/egems/reports/titles.html>

User Research

- Number of kids will decline slightly
- Matrix Generation kids are diverse
- One-third of kids get a regular allowance
- Most kids want to be rich
- Children are busy with hobbies and activities
- Hispanic children are least likely to join clubs
- Bicycle riding and swimming top list of sports and fitness activities
- Out-of-home entertainment is still popular
- Nearly all children read books for pleasure
- Children find time for movies and television
- Pop music has the greatest appeal
- Kids' rooms are not full of electronics
- Most kids know school is important
- Half of kids say watching too much TV is bad
- Older girls are most likely to be fashion conscious

Exposure to media Computers and Kids

(Ref: Allison Druin, Editor - chi-Bulletin-Kids@acm.org)

Today's children can be found spending hours interacting with computers, playing games, sending email to friends, visiting chat rooms, and sharing games over the Internet. At the same time, if there are five computers in a room with five children, within a few minutes, half of the children will be gathered around each other's computers. They will be doing anything from sharing a game to exploring a web site together. Children are social beings. They need to collaborate face-to-face and from afar. Children's social interactions need to be supported and encouraged by the technologies we develop. We can so often forget that there are huge changes taking place in young children's cognitive development and social understanding changes

which can offer us challenges in the types of hardware and software interfaces we develop. Kids increasingly are doing serious work online, learning as well as playing and socializing. Kids collaborating may be in the same place, in different places, or both. These disparate interaction modes are too often clumped together. For example, Druin showed the latest version of Kidpad and highlighted features designed to support two children working at the same machine at the same time, each with their own mouse.

In designing for kids, we assume:

- kids are intelligent

- kids are creative

- they need clear, simple UI design

- they are capable of great things (if we give them good tools and support)

- kids will rise to our expectations

- if they fail, it's our fault as designers

In Bruckman's MOOSE Crossing, kids build a virtual world out of words, learning creative writing and computer programming in the process. The community provides not just technical support, but also emotional support, a ready supply of role models, and an appreciative audience for completed work. In the AquaMOOSE 3D project (by Georgia Tech student Jason Elliott), high-school students learn by mathematically specifying the motion of their fish avatar in a shared world. In Palaver Tree Online (Jason Ellis), middle school students learn about history by interviewing elders who lived through that time. For example, students reading "Diary of Anne Frank" interviewed World War II veterans;

students learning about the civil rights years interviewed older African Americans. Since many household names from children's entertainment have websites, Jenny Preece (University of Maryland, Baltimore County) interviewed a sample of parents about their children's activity on the World Wide Web and then reviewed three popular sites mentioned in the interviews. Descriptions of how 6 children aged 3-9

years and 6 children aged 10-14 years use the Web suggest that the younger group likes software that they can control and that responds by moving or making sounds. Cartoons were mentioned the most and no one mentioned using software to communicate with others. The 10-14 year olds liked to be in control and for the software to be responsive. Several, aided by parents, send email messages to friends and family, and older children used word processing, the Web and Ebay with their parents. Two fourteen year olds had been banned from joining chatrooms, and safety was mentioned as a prime concern by parents. Although this study involved only 12 children, the findings support claims (Druin, 1999) that

children like software that enables them:
to be in control and not to be controlled
to create things and to express themselves, and
to be social and to collaborate.

Children can find it fun to play with others and often more engaging when they get to share experiences with friends and family. Computers have the potential to enhance social experiences by supporting users' interactions with each other as well as with digital artifacts.

Finally, Druin pointed out that in designing technologies for children, all too often we fail to consult children in the design process.

A series of questions were posed to the panel by elementary-school children via video:

Q) Why is collaborating hard?

Q) Why don't adults listen to kids more?

Q) Which is harder to do, collaborate with someone right in front of you or far away?

Q) What kind of technologies do you make to collaborate at home?

- Q) What kind of technologies do you make to collaborate at school?
- Q) How do you make computers that can help kids not fight so much?

Courses for Evaluation

FLVS courses

Math Courses developed for FLVS (FLorida Virtual School) for Middle-school

Link:

http://aristotle.learningmate.com/wan01dev/MATH/Grade_6/index.htm

Team Members:

- PM - Vikram Tayde (PMG)
- Lead Instructional Writer - DipNarayan (IWG)
- Visualizer - Luis Menezes (DSG)

UCCP courses

Math Courses developed for UCCP (University of California) for Middle and High school - Algebra 2 (High school)

Link:

http://aristotle.learningmate.com/uccp_pap/wan/mathaction.html

Team Members:

- PM - Kurush Wadia (PMG)
- Lead Instructional Writer - Jayanta (IWG)
- Lead Graphics - Ragini (DSG)
- Lead Flash developer - Hiren (FSG)

LWW courses

Medical science and Nursing related courses developed for Nurses

Heuristic Evaluation and protocol for E-Learning courses

This protocol was considered while evaluating the courses. There were certain Heuristics to be followed in each course. Few others were added while considering each course separately.

Protocol:

a) I made a point to spend sufficient time exploring the e-learning program before beginning the actual heuristic evaluation. The role of typical learner who would use this e-learning program was followed.

Collected the background information of each course as follows:

- 1) Target audience and learner characteristics: A thorough description of the intended audience and their learner characteristics (e.g., education level, motivation, incentive, and computer expertise)
- 2) Instructional goals and objectives: To know about the needs that the e-learning program is intended to address, ideally in terms of clear goals and objectives.
- 3) Typical context for using this program: Realistic scenarios for when, where, and how the e-learning program will be used.
- 4) Instructional design strategies used in the program: A description of the design specifications used in developing the e-learning program were considered, so to gather knowledge, of the appropriateness of the instructional design strategies are informed with respect to the instructional designer's intentions.

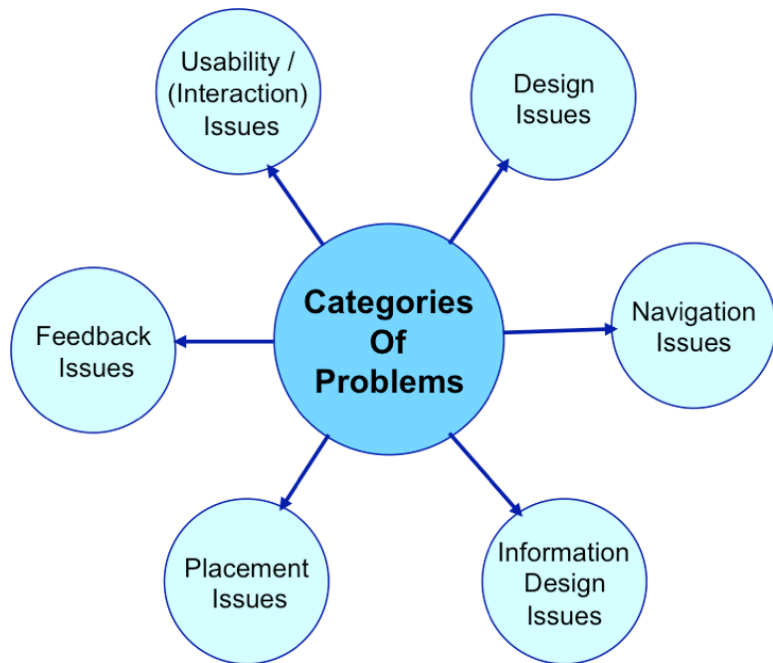
5) The status of the program's development and possibilities for change: Did understand about, where the program is in the development cycle (e.g., an early prototype, a beta version, or a completed version under consideration for redesign).

6) After spending enough time to become familiar with the program, i went through it from beginning to end to conduct the actual heuristic evaluation.

b) Each and every usability problem was noted. For each problem, I identified, each heuristic it violated, and then gave it a severity rating.

c) After all the usability problems were found, I browsed through every problem once again rating it according to the extensiveness scale.

d) A heuristic evaluation report was compiled. To understand the usability problems effectively, a categorization of typical problem areas was formed.



This categorization is as follows:

Design Issues –(relating to layout design)

Navigation Issues

Information Design Issues – (relating to metaphors and icons used in the course)

Placement Issues – (relating to spacing and placing of certain things)

Feedback Issues

Interaction Issues – (relating to animation/ video etc.)

Screen captures were used to point out the specific issues and Observations , Breakdowns and Design Ideas were noted in the report.

e) A set of recommendations for improving the usability of the e-learning program, were given . Those were as specific as possible to provide the designers with the information they need to eliminate the problems and improve the e-learning program

Heuristic Evaluation of FLVS course

Research

FLVS course is targeted to the kids of Middle school.

It's a virtual course and thus it is internet based teaching method. It needed to be very direct and simple to understand considering the absence of the teacher.

This course was in a developed and launched phase and thus it couldn't be considered for redesigning but the design ideas suggested further in the report were said to be considered while designing a new course.

The learner characteristics were considered, what is their age. Their computer expertise. Their concept of understanding different topics and their choices and likings. The actual teachings methods used in schools, in real environment.

Various teaching concepts available for Maths were also considered. As for example: Learning Mozart Maths i.e. Music and Maths together, How Lego or board games are used to learn Numbers etc.

As the target user's – Middle school Kids were in US, the Heuristic Evaluation method of Usability Testing was considered. A report was prepared, with Observations, breakdowns and Design Ideas. Let's consider some of the examples given below in Findings.

Heuristic Evaluation of FLVS course

Findings

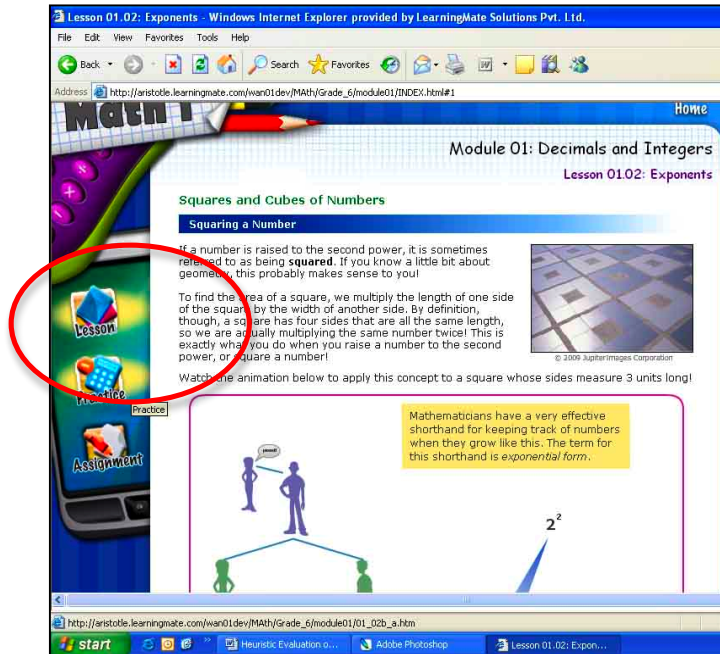
Let's consider few examples according to the categorization of the usability problems found and the corresponding design ideas given for the same.

Design Issues:

Lesson/ Practice and Assignment doesn't appear like a clickable icons. Doesn't suggest where we are currently.

BR: As given in the figure, it may not suggest the user they are on which page as both the icons are glowing at the same time.

DI: The icons can be connected with the page and appears like they are attached unlike now, as they suggest they are independent.



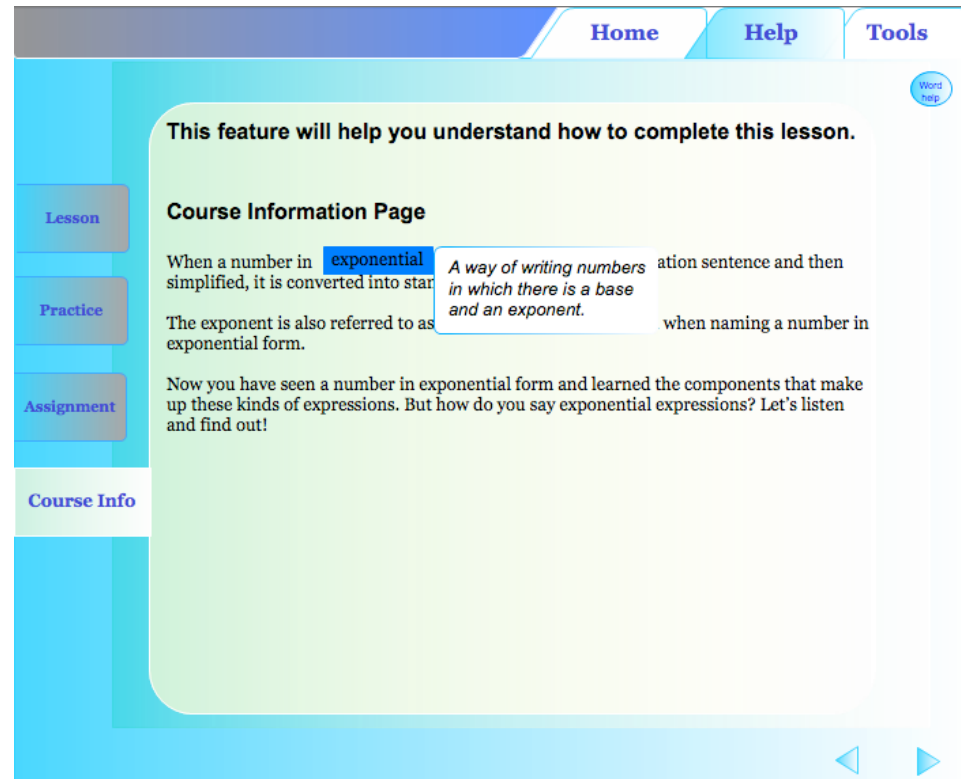
(See the screenshot of the prototype created using axure.)



Navigation Issues:

'Vocabulary' section is given after Lesson summary, which wont be of much use to the students while they can face the problems or difficulty understanding those terms while using the words in the module and not after that.

DI: There can be a 'Word help' button available that would actually display the meaning of the selected word, whenever it is required.

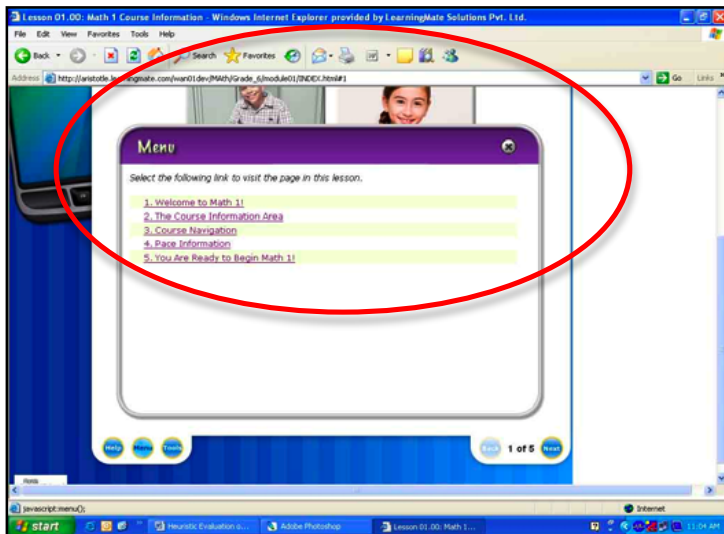




Placement Issues:

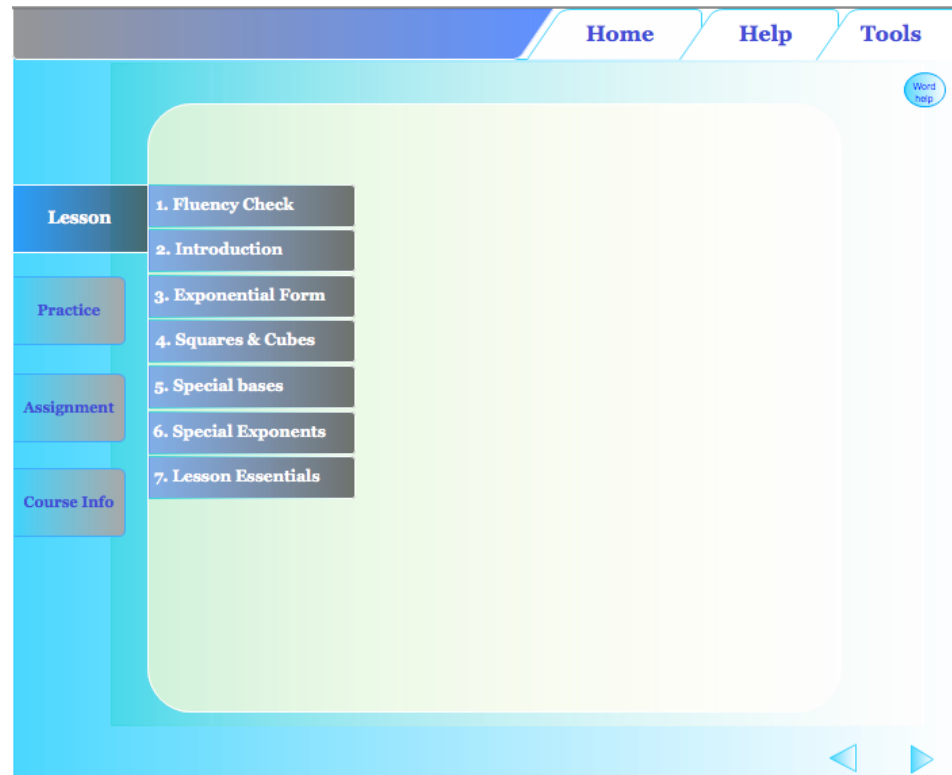
At the end of the task, the answer of last task and the scoring of the module appears in the same window.

DI: The 'score' can be separately designed/ placed or aligned with the activity task boarder. This would highlight the overall effect of scoring. For example a gift icon can appear, which when clicked that discloses the total scores.



'Menu' doesn't give any idea of which items are being displayed in the same. Are they homepage related (index items) or they are module related. It appears a bit confusing. It should be preferably on top, or it is overlooked.

DI: The menu list's basically includes the contents of Lesson, Practice and assignments, which can be actually added as sub- menus to the main menu.





Information Design Issues:

All the buttons and tabs ie 'icons' can have similar feature (appearance) which can enhance the look and feel and can bring in similarity in the whole learning module. They have different groups but need to have something that would enhance the similarity.

Feedback Issues:

The question mark can be replaced by the sign which is selected.

DI: The selected answer could be displayed in the box provided instead of the question mark, which becomes confusing.

Comparing and Ordering Decimals



Activity 1

1 of 4

Select **Submit** to see if your answer is correct.

Look at each pair of numbers. Decide which symbol should go in the box to make the statement true. You can compare using a number line, base-ten blocks, or place value.

0.17 0.32

☐ >

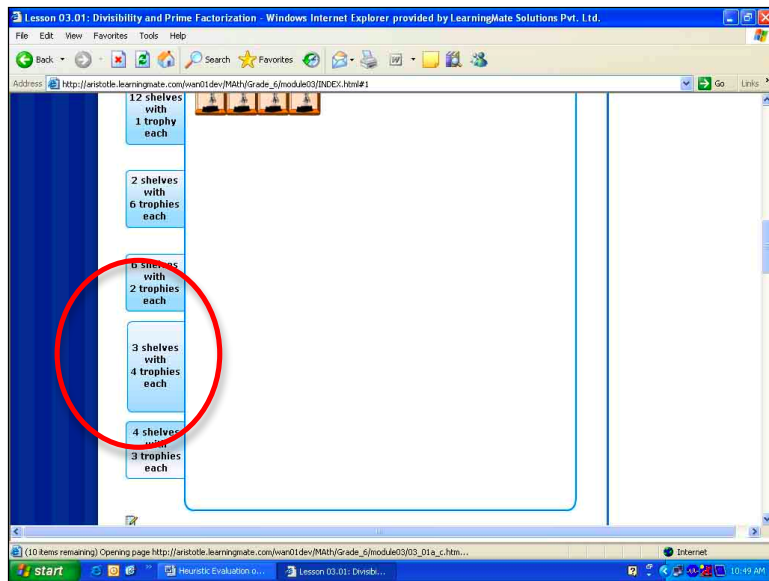
☒ <

☐ =



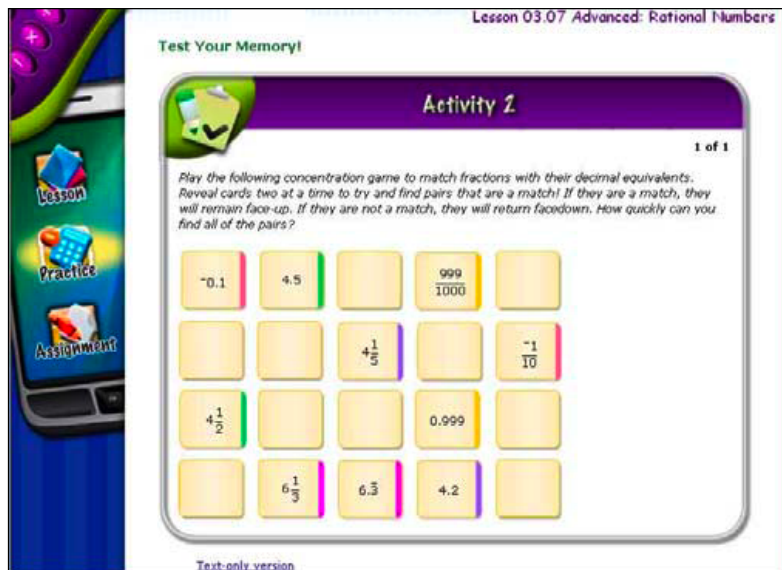
Great job!

Using any method you may choose, you will always find that 0.17 is less than 0.32.



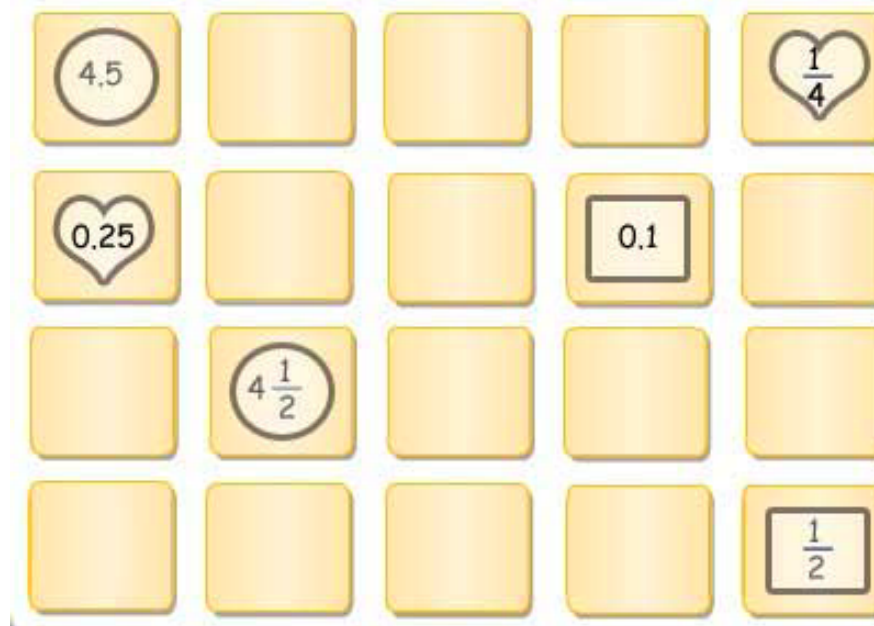
Interaction Issues:

The choices for displaying trophies is a good example but if the tabs were aligned horizontally it would have been easier to see and navigate, the breakdown is that when one scrolls down to 3 shelves or 4 shelves trophies option, one is not able to see the arrangement of trophies.



Further there was a nice memory test task to be performed to identify decimals and their fractions but the issue was with the color representation to tag the matches which distracted the concentration.

DI: This game can prove to be very effective if the colors are avoided and the matches are made, may be with the help of line drawing of shapes or just a corner with color, the concentration shouldn't go from matching fractions and decimals.



There were many other such issues stated in the report. It contained detailed analysis of each and every task or examples given. The bugs found in the course and also other usability issues.

Heuristic Evaluation of UCCP course

Research

UCCP course is targeted to the kids of High school.

It's a classroom course where the kids would have their teachers to assist them so, they needed to be described not much in detail. And also they did not contain much of practice problems to solve.

This course was in a developing phase and intended to implement the design changes suggested to them. The course design was approved by the client and so not much changes in the overall design could be made.

The learner characteristics were considered, what is their age. Their computer expertise. Their concept of understanding different topics and their choices and likings. The actual teachings methods used in schools, in real environment.

Various teaching concepts available for Maths were also considered. As for example: Learning Mozart Maths i.e. Music and Maths together, How Lego or board games are used to learn Numbers etc.

As the target user's – High school Kids were in US, the Heuristic Evaluation method of Usability Testing was considered. A report was prepared, with Observations, breakdowns and Design Ideas. Let's consider some of the examples given below in Findings.

Heuristic Evaluation of UCCP course

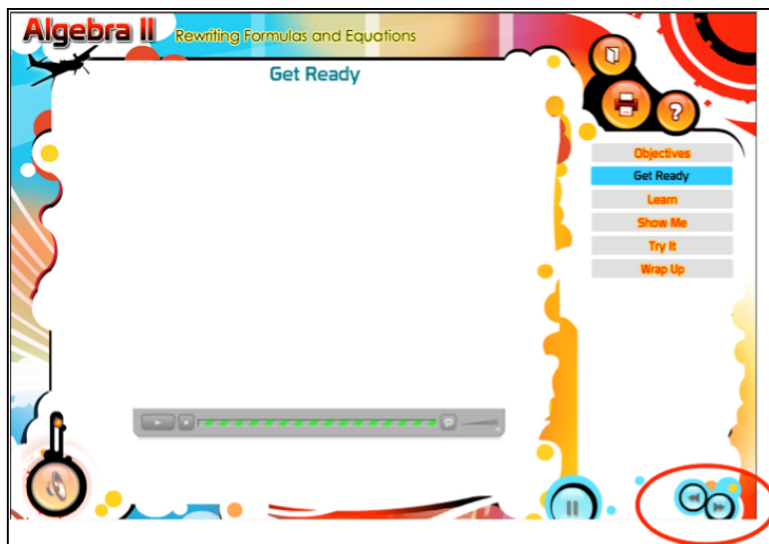
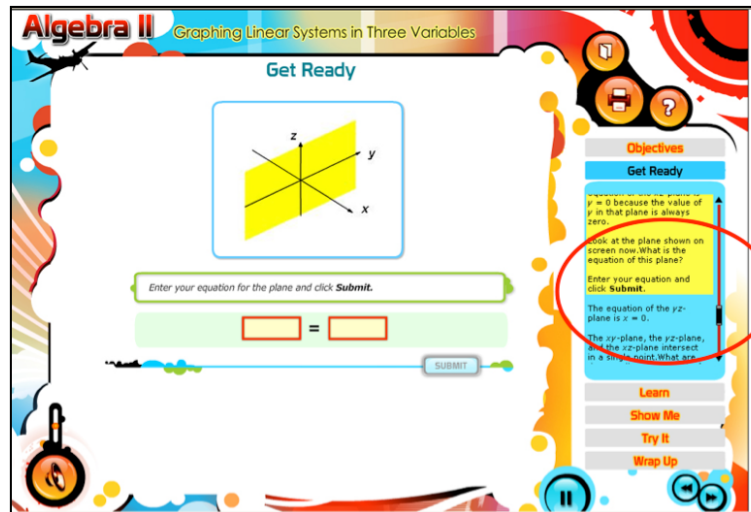
Findings

Let's consider few examples according to the categorization of the usability problems found and the corresponding design ideas given for the same.

Design Issues :

In the Get ready section, there were quick simple tasks given, but the answers were already revealed in the section given besides it, (below the highlighted yellow area) so it doesn't solve the purpose of asking questions.

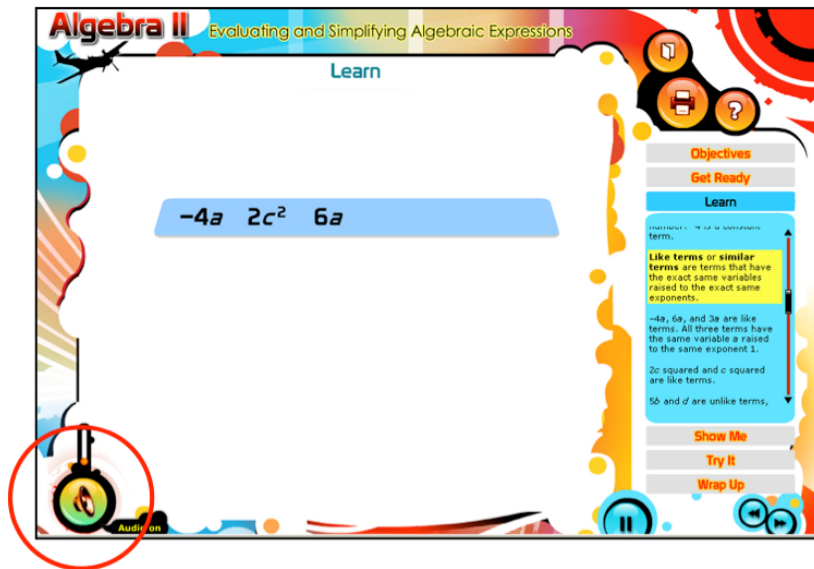
DI: The text would appear with the audio.



Navigation Issues:

Forward and Backward button works in between one part of the section and doesn't help to navigate from one part to another, for example one cannot go forward from 'Try it' to 'Wrap up' with the help of forward button on screen. Thus it can mislead the users.

It can be used to navigate within a section only like, 'Show me'



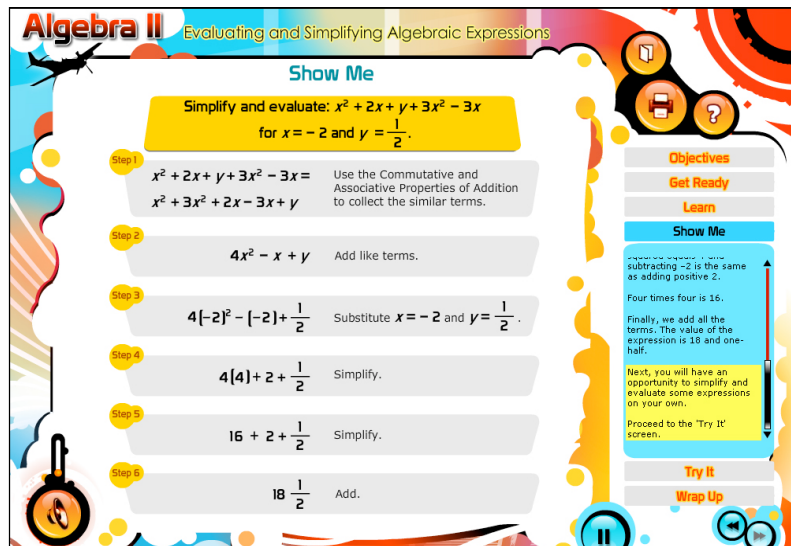
DI: It can appear with a specific part of the section, wherever it is applicable, because rest of the times it becomes inactive. OR

It can be used to navigate from one section to another.

Information design Issues:

The mute icon can go to “Audio off state” as soon as the volume has been turned completely low.

BR: The icon doesn’t give a feel or info, that when it is clicked it can be muted.



Placement Issues:

The background can look cluttered when there is too much text as for example in the given image – ‘show me’ doesn’t have enough white space suggesting a difference in the background and the content.

DI: Suggestion of the menu and selected content area by the same color, or the background layer could have lighter colors.

$x + y + z = 21$ (1)
 $x + 3y + 6z = 77$ (2)
 $x + y - z = 1$ (3)

Ordered triple = { **8** , **3** , **10** }

Not yet.

The two teams scored 8 extra points, 3 field goals, and 10 touch downs.
 You may now proceed to the 'Wrap Up' screen.

Feedback Issues:

The title in the window reads “Not yet” and the correct answer is displayed in the space provided, and also in the window. The kid may get confused with it. Rather it could be more direct.

Algebra II Solving Compound Inequalities

Learn

Graph the inequality. $a < 10$

Drag the correct circle and then the correct arrow in place on the number line. Click **Continue** when you finish.

0 10 20 30 40 50 60 70 80 90 100

Try again

Remember to place a closed circle at the correct point when you graph an inequality with “less than or equal to” or “greater than or equal to.” Also, we shade to the right when the inequality includes the words “greater than” and we shade to the left when the inequality includes the words “less than.”

compound inequality involving “or”. Let’s graph the inequalities on a number line.

Graph the inequality $a < 10$. First choose the correct circle. Then drag it and place it on the number line. Similarly, choose the correct arrow and place it on the number line. When you finish, click **Continue** to proceed.

Now, on the same graph, let’s graph the inequality $a > 20$.

Objectives
 Get Ready
 Learn
 Show Me
 Try It
 Wrap Up

Interaction Issues:

Once the circle, dot is dragged and placed on the number line, and one feels it is wrongly placed by mistake, the place cannot be shifted.

DI: Flexibility of changing / shifting the place of the line and circle, till one hits the submit button.

There were many other such issues stated in the report. It contained detailed analysis of each and every task or examples given. The bugs found in the course and also other usability issues.

Heuristic Evaluation of LWW course (Additional)

Research

LWW course is targeted to the nurses.

It's a Publication based course which is designed with reference to a famous Nursing / Medical study book.

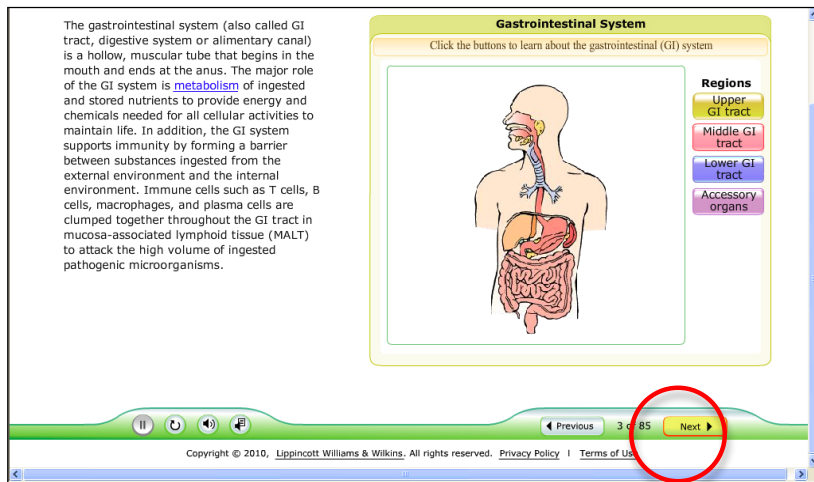
This course was in a Beta design phase and intended to implement the design changes suggested to them. The course design was approved by the client and so not much changes in the overall design could be made.

The learner characteristics were considered, what is their age. Their computer expertise. The course worked as a reference tool for the nurses, with the physical book.

This course was evaluated as an addition to my work, as it was encouraged by the LWW design team, as they appreciated my efforts and work in other projects.

As the target user's – Nurses were in US, the Heuristic Evaluation method of Usability Testing was considered. A report was prepared, with Observations, breakdowns and Design Ideas.

Let's consider some of the examples given below in Findings.



Heuristic Evaluation of LWW course (Additional)

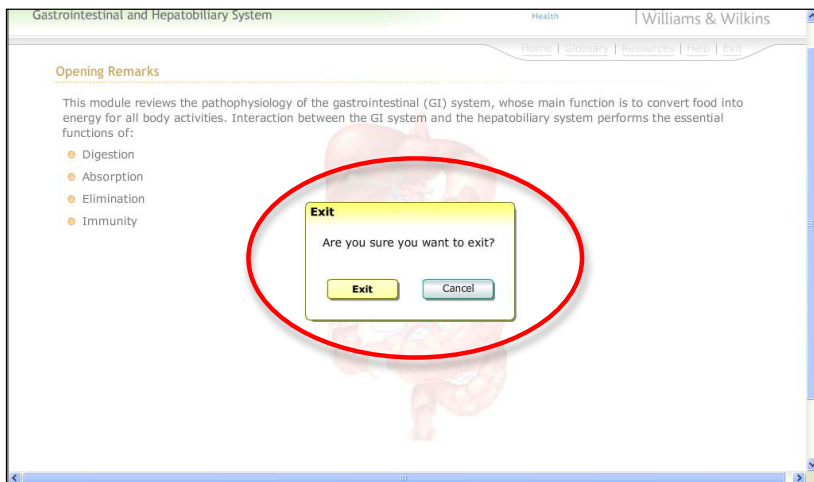
Findings

Let's consider few examples according to the categorization of the usability problems found and the corresponding design ideas given for the same.

Design Issues :

After the audio is complete, no instructions to proceed are given. The novice user's using this online course can get a bit confused with this.

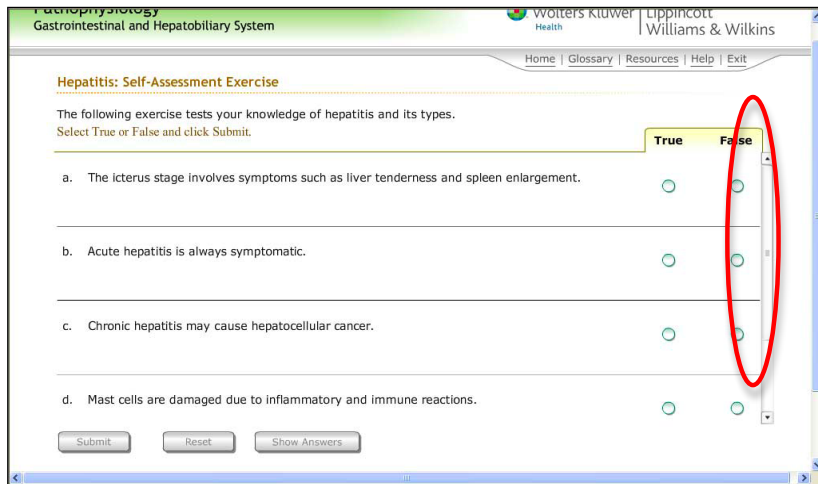
DI: The 'Next' button can blink after the audio is complete suggesting to proceed to the next screen.



Navigation Issues:

'Exit' option doesn't give an idea that the web page would close instead it gives an idea that one would exit from the module and reach the homepage.

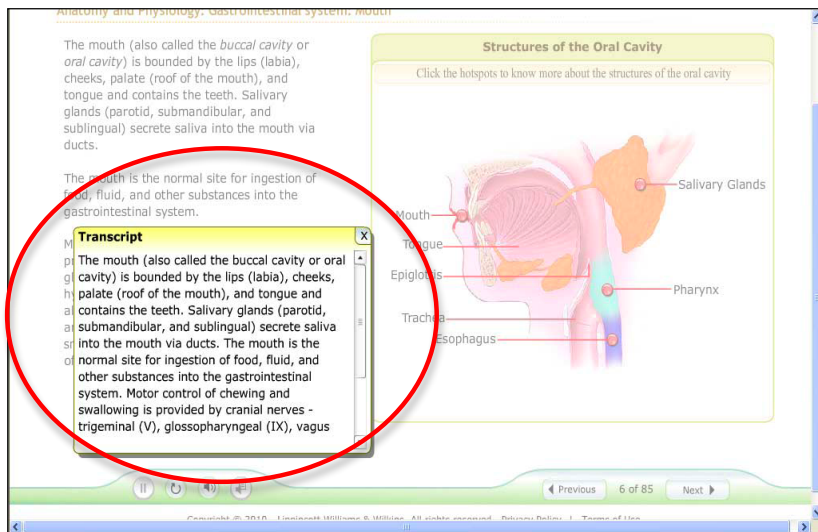
BR: The purpose of Exit button is not known.



Information design Issues:

OB: Scroll bar is not noticeable

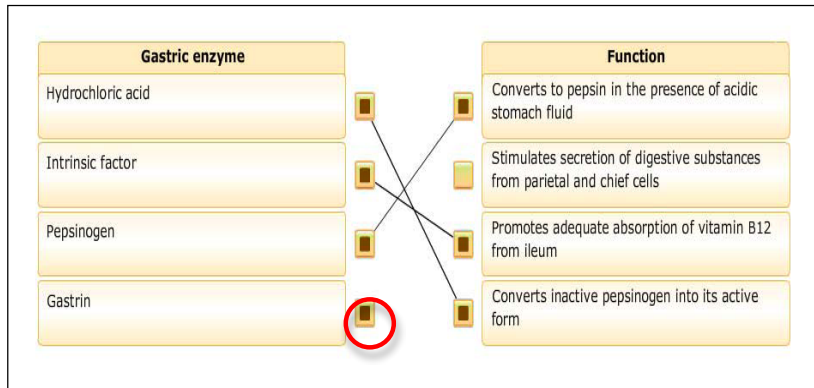
DI: The scroll bar color should be distinguishable, or should change at least on mouse over option, or else the questions below can be overlooked.



Placement Issues:

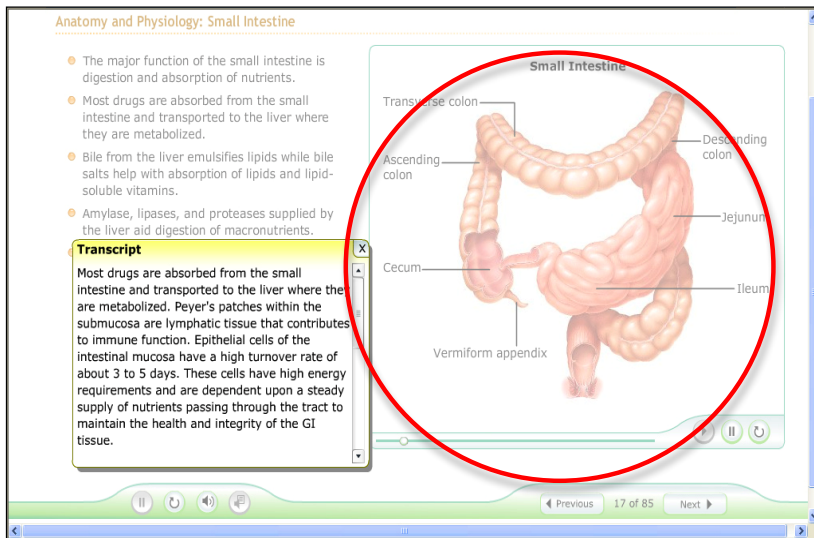
The transcript could appear just below the diagram horizontally rather than covering a lot of space, and introducing transparency effect on the screen. This disturbs the clarity if there are images on screen.

DI: Horizontal placement with good color recognition rather than giving a transparency to the complete screen



Feedback Issues:

BR: User is not able to uncheck the option when he again clicks on the same box.



Interaction Issues:

Even if the onscreen animation started to play, the page did not turn to clear screen view. Till the transcript window was closed.

DI: When the transcript for audio is open, and the audio is over the screen could turn to normal vision, rather than the transparency effect.

There were many other such issues stated in the report. It contained detailed analysis of each and every task or examples given. The bugs found in the course and also other usability issues.

Designing the Questionnaire for Content Writers

This task of designing the Questionnaire was given to me as their client was going to visit them from US. The group consisted of Content writers who had former work experience as Teachers. They had been writing for K12 courses, from quite some time (years) and so I had to prepare a set of questions that would help the designers to design with good understanding and of good quality.

Questionnaire for Content Writers

- What is your name?
- What is your Profession? Age?
- What is content writing and how is it different from copy writing?
- How do you write content? Process? Do you consider the real life scenarios while writing? If so can you explain us few with examples? What factors are considered for the same?
- What are the guidelines to be considered while researching for K12? How to go about it? In regards to the content and its representation.
- What methods are typically followed for teaching? And what resources/ mediums are used for the same? (Do games / quizzes prove to be effective for teaching?)
- What are the liking/ choices of kids?
- Kids favourite timepass? Movies? Games? Music? Television viewing habits?

Eating habits? Interests in reading / Writing? Social impact and influences? There studying patterns?

- Do kids like to interact with friends and learn (collaborative learning/ Sharing patterns?)
- Do they like to learn individually? (on there own) Their Learning habits?
- How much teachers / parents assistance is expected or taken by kids?
- What is the real life scenario in the schools? The teaching environment? Culture?
- Kid's computer and technology expertise? How much time do they give for technology? And how much they are engaged with the same?
- How do all these factors change according to various grades? Any significant aspects across the different grades in terms of liking towards studying/ Understanding concepts?
- How do you think the content that you write or want to be executed for kids can be well implemented visually? What percent of visuals and content would these kids like? (to know the content writers perspective for the same)
- What strategies / concepts can be used for the effective teaching methods for K12? Does having any theme across the course help the kids to understand the concept well and keep their interest in the course?
- What are the needs and objectives of any e-learning course?

- What is the amount of practice intended to be given through the course? Should it be good with making the kids learn the concepts well, and giving practice through assignments and tasks is secondary or both are equally important and expected by the kids and teachers?
- Do kids like to memorize things? Is repetition of certain things (content) necessary in a course? E.g.: providing reminders or revision of things.
- Should any content be directly represented or there should be a factor of 'discovering' things in a course? What do kids prefer?

Recommendations

I had listed few recommendations to be followed by the design team. Interaction design was a new field in LearningMate and its importance in the Design process was not known by the designers. So, following given are few of the recommendations:

- a) Documentation of usability problems in a form of report for the different courses.
- b) The OB – Observations, BR- Breakdowns and DI- Design Ideas should be suggested for the same.
- c) Scope of using Interaction design process in the current/ ongoing projects.
- d) Suggestions for trying out Paper Prototypes at the very basic level, for Usability testing.
- e) Conducting Heuristic evaluation after the first prototype is ready
- f) Evaluating the design as a third person, or taking the role of a 'User' itself and checking the interaction
- g) Arranging different sessions like brainstorming then affinity building to get design ideas etc.
- h) Getting user's involved for the usability testing, it would enhance the designs more.

Learning's & Experiences

Here I have written about the challenges that I faced, my learning's and experiences in LearningMate.

CHALLENGES

Doing User study, without being in the context of user's

Creating awareness about Usability Testing and it's benefits

Going through the complete module for several times for various courses

LEARNINGS

Had fun with learning experience.

Introduction to E-learning and how the courses are designed and implemented with regards to the target audiences.

Understood how the projects are handled on corporate level.

The execution of any project the process that goes behind from the beginning to the end.

Interactions with various teams due to an opportunity of presentations. Responses with good encouragement to do the work.

Research on K12 and US Education system in detail.

A good practice of doing Usability test.

I got an opportunity to work on few other projects too, working on image editing, for a project and preparing a celebration Session invitation card for the company, which takes place at the end of every month.

