

**NORTHCENTRAL UNIVERSITY
ASSIGNMENT COVER SHEET**

Learner: **Steven Diaz**

THIS FORM MUST BE COMPLETELY FILLED IN

Please Follow These Procedures: If requested by your mentor, use an assignment cover sheet as the first page of the **word processor** file. Use "headers" to indicate your course code, assignment number, and your name on each page of the assignment/homework including this assignment cover sheet. .

Keep a Photocopy or Electronic Copy Of Your Assignments: You may need to re-submit assignments if your mentor has indicated that you may or must do so.

Academic Integrity: All work submitted in each course must be the Learner's own. This includes all assignments, exams, term papers, and other projects required by the faculty mentor. The knowing submission of another persons work represented as that of the Learner's without properly citing the source of the work will be considered plagiarism and will result in an unsatisfactory grade for the work submitted or for the entire course, and may result in academic dismissal.

LTM5010

Dr. Anthony Pellegrini

E-Learning: Theory and Process

Assignment 8: e-Learning Resources

Faculty Use Only

<Faculty comments here>

<Faculty Name>

<Grade Earned>

<Writing Score>

<Date Graded>

e-Learning Resources

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Annotated Bibliography

Assessment and Learning in Knowledge Spaces (ALEKS). URL: <http://www.aleks.com/>

ALEKS is a web-based and artificial intelligent assessment and learning system that uses adaptive questioning to determine what the students know and do not know about the course content. Students have an individualized learning experience when using ALEKS because they learn only what they are ready to learn, not what they already know. Students' knowledge of the course content is represented visually in ALEKS with a pie chart, which has a dual purpose: (a) it helps students keep track of their progress in the course; and (b) it serves as a navigational tool that gives students the ability to explore those topics they are ready to learn and control the application based on their needs (Allen, 2003). Students must purchase an access code to use ALEKS in a course or as an independent user.

Students master the course content by selecting the topics listed in the pie that they are ready to learn. Each topic consists of a set of free-response interactive practice problems that students must consistently answer correctly to prove mastery. When students do not know how to work a practice problem, they have access to a complete explanation of the problem in text and visual format. Nevertheless, multimedia resources, such as videos, animations, e-book, slide presentations, etc., can be added to the system using the textbook integration option available in ALEKS. To ensure students retain the topics that they have learned, ALEKS periodically assess students with a 25-question assessment and adjust their pie accordingly for re-teaching based on the results of the assessment. However, instructors have the option to turn off these periodical automatic assessments.

ALEKS provides other features to facilitate students' learning such as a math dictionary, scientific and graphic calculator, printable extra-practice worksheets, English-Spanish translation option, e-mail to communicate with the instructor and other students within the system, and more. Instructors have access to detailed reports of students' performances and usage of the system. In addition, instructors can customize ALEKS based on the course objectives and create timed quizzes and tests.

The instructional model of MAT099 Introductory Algebra is based on students learning mathematics by doing at their own pace anyplace anytime. Students receive an individualized learning experience using a myriad of resources to help them become active learners and prepare them for the rigor of college level math courses. ALEKS is the key e-learning resource that makes the instructional model of MAT099 Introductory Algebra possible.

Fotobabble: Talking Photos. URL: <http://www.fotobabble.com/>

Fotobabble is a free web-based application that allows users to add voice recording to images and post these in social networking sites (e.g. Facebook) or embed it in personal sites. Using this web2.0 tool just takes three easy steps: (a) users upload an image to the site; (b) users record their voice directly through the computer using a microphone; and (c) users hit the *publish* button to save their talking image at the site. Users must register to Fotobabble for them to create talking photos; however, registration is not required to view and listen published talking photos. In addition, a Fotobabble application is available for iPhone users.

This e-learning resource is one of the alternatives to overcome the challenges of communicating effectively mathematical ideas in heavily text-based e-learning

environments, in particular during the discussion forums. Students and instructors can upload a diagram to Fotobabble and provide effortlessly a verbal detailed description or explanation of what math concept or skill the diagram conveys. Fotobabble provides an option to those students who shy away from asynchronous discussions because they prefer oral communication than written communication (Waterhouse, 2005). In addition, this e-learning resource is a digital storytelling tool that could add appealing and motivating context to the learning experiences (Allen, 2003) that takes place in the asynchronous discussions.

GraphSketch. URL: <http://www.graphsketch.com/>

GraphSketch is a free online graphing tool of mathematical functions created by Andy Schmitz. This tool can graph up to six math functions at once and allow users to customize the display settings of the graphs. Once a math function is graphed, the users can download and save the graph to their computer as a portable network graphic (PNG) image file or get a permanent link of the graph.

This last option of saving the image of a graph as a permanent link is what makes this tool very useful in the asynchronous discussions that take place in MAT099 Intermediate Algebra. One of the main concepts of this course is linear functions, which will be discussed extensively during the asynchronous discussions. Unfortunately, the discussion forums in Blackboard do not have a built-in graphing tool that facilitates communication and comprehension of abstract concepts and skills such as linear functions. Students can insert math related images in their discussion posts but they must do an unreasonable number of steps to accomplish this task, which only distract students' attention of the learning process and impose on them an unneeded cognitive load (as cited

in Smith and Ferguson, 2004). With GraphSketch, students just create the graph of the math function, copy the image using the right button of their mouse, and paste the image in the body of the message of their discussion post in Blackboard. In other words, the process to insert graph images is effortless.

HippoCampus : Your Free One-Stop Educational Resource. URL: <http://www.hippocampus.org/>

HippoCampus provides free multimedia content on several general subjects for high school and college students. This website is an Open Education Resources (OER) project initiated by Monterey Institute for Technology and Education (MITE) with the purpose of improving access to quality education for everyone. Users must have Adobe Flash Player installed in their computers to view, listen, and interact with the multimedia content available in HippoCampus website. Instructors can create custom HippoCampus pages for their students to match with the course objectives and make it suitable for students' needs. Multimedia content is also available in Spanish.

There are no lectures in the instructional model of MAT099 Introductory Algebra course; instead, students learn by doing with the individualized assistance of the instructor and tutors. However, many students still have the preference of learning from the instructor's lectures before doing math problems. These students prefer a linear and structured instructional model. To meet the needs of these learners, the detailed presentations of course content available at HippoCampus will be used as lectures in MAT099. In other words, HippoCampus will serve as an e-lecturer.

Jing: Add visuals to your online conversations. URL: <http://www.jingproject.com/>

Jing is a free screencapturing tool from TechSmith that can easily enhance monotonous online text-based conversations by adding visual elements. Anything

displayed in the computer screen can be captured as an image or video with Jing. Users can take advantage of Jing's *emphasis tools* to emphasize important visual information contained in captured images by inserting text boxes and using colorful highlighters, arrows, or rectangular frames. In addition, users can create short videos (i.e. at most five minutes), also called *screencasts*, to add more clarity to whatever content captured from the users' computer screen. Unlike the other e-learning resources mentioned in this list, Jing is not a web-based tool. In other words, users must download and install Jing to their computers.

The simplicity of using Jing is what makes this tool very useful for students and instructors. To capture an image or record a screencast, users only need to define a rectangular area on what they want to capture from their computer screen by dragging the computer's mouse. Capturing and publishing computer screen content is just two clicks away. All captured content can be uploaded to Screencast website, a storage place for high quality images, videos, and documents, or saved in the users' computers. Users can share their uploaded content in Screencast website by posting its link or embedding it in blogs or websites. The free version of Jing gives users two GB of storage and bandwidth at Screencast website.

Jing is an excellent tool to provide detailed feedback to students' math work posted in the discussions forums. Blackboard has a built-in math editor (i.e. WebEQ). Unfortunately, this math editor is not *copyable* or *modifiable*, which means the instructor or students cannot copy and modify the math notation created by a previous person when replying to this person's discussion post (Smith & Ferguson, 2004). In other words, it is impossible to insert feedback within someone's math work to pinpoint where the

mistake(s) happened. With Jing and its *emphasis tools*, the instructor and students can capture someone's math work to provide detailed feedback where the conceptual or procedural mistakes happened. A screencast also can be used to provide detailed feedback; however, users must be careful not exceeding the bandwidth limits of the free version of Jing because Screencast website will block users of viewing the videos.

Math Interactives. URL: <http://www.learnalberta.ca/content/mejhm/index.html?l=0>

Math Interactives is an e-learning resources created by the Department of Education of Alberta, Canada, which contains real-life applications of mathematics concepts and skills. Students see connections between mathematics and everyday life through videos, interactive activities, and printed activities. This site provides detailed lesson plans on how to use the interactive and printed activities in the classroom and enhance learning.

Though the site focus on K-12 mathematics, the topics are similar to those covered in a remedial math course such as MAT099 Introductory Algebra. In fact, MAT099 students often question the purpose of learning mathematics. This e-learning resource will provide opportunities for students to gain awareness of the relevance of mathematics in their daily lives. Math Interactives is a compelling and engaging way to enhance students' learning motivation in mathematics because it gives an appealing context to the course content (Smith, 2003). This e-learning resource will be frequently used in the once a week face-to-face class meetings of MAT099 Introductory Algebra at the computer lab. The printed activities available at Math Interactives are ideal for the onsite learning setting.

Purplemath. URL: <http://www.purplemath.com/>

Purplemath website is a popular math help site among algebra students created by Elizabeth Stapel. She started the site as a personal website for her math students; however, traffic to her personal website increased significantly as a result of her effective techniques to explain abstract math concepts and skills in plain English to students. Stapel also uses visuals effectively to help students' understanding of math concepts and skills, which according to Smith and Ferguson (2004), "A properly constructed diagram can greatly speed comprehension of a math problem" (para. 6). Purplemath is a comprehensive math resource. In addition to the available algebra lessons, the site also provides homework guidelines, learning discussion forums, math sites reviews, a self-assessment about math study skills, and algebra tutoring from the author of the website via email for an hourly fee.

Students often find difficult understanding the explanations of math concepts and skills provided by the instructor, course textbook, or the web-based math application ALEKS. They have difficulties understanding topics that are described using too many math terms. Therefore, they often request for easier ways of understanding the course content. Due to the popularity of Purplemath website among algebra students thanks to its simplicity in explaining algebra topics, it is imperative to include this e-learning resource to complement the instructional model of MAT099 Introductory Algebra, in which students have choices to select those resources that best meet their needs.

Sketchcast: A new way to express yourself. URL: <http://sketchcast.com/>

Sketchcast is an easy way of communicating online using a whiteboard, a microphone, and the computer's mouse. Richard Ziade created this free web2.0 tool, in

which users create a sketch on a whiteboard using the computer's mouse in the same manner they will sketch on paper with a pencil. If users have access to a graph tablet, then the quality of their sketches will be better. Sketchcast's whiteboard provides the user with a pen of multiple colors, an eraser, and the option to insert text using the keyboard. In addition, users can include a voice recording to add more clarity to their sketches. Creating a sketchcast involves three easy steps: (a) record sketch; (b) preview sketch; and (c) publish sketch. Users can share their sketchcast by posting the permanent link of their sketches or embedding their sketch in a blog or website.

Smith and Ferguson (2004) suggested that a math-friendly e-learning environment should have the natural flexibility of the chalkboard or paper, which allows the instructor and students to communicate easily with diagrams, formulas, and text. Sketchcast can provide such natural flexibility during the asynchronous discussion in MAT099 Introductory Algebra. Therefore, this e-learning resource is another alternative to overcome the challenges of communicating effectively mathematical ideas in heavily text-based e-learning environments.

Screenr: Create screencasts and screen recordings the easy way. URL: <http://screenr.com/>

Screenr is a free web-based screen capture from Articulate Global Inc. Screenr allows users to create a short video (i.e. at most five minutes) of whatever content is displayed in their computer screen. Users just need to place the recording frame on the area they want to record from their computer screen, hit the *record* button to start the screencast, and hit the *done* button to end the screencast. Using a microphone, users can add a narration while recording their screencast. Users must have a Twitter account to create screencasts with Screenr. In fact, Screenr was created as a tool to enhance Twitter

users' text-based updates called *tweets*. Once users have uploaded their screencast to Screenr website, they can share it using Twitter, posting the link in social networking sites, or embedding it in blogs or websites. Screenr allows users to upload their screencasts to YouTube or download it as a MP4 file for mobile devices such as iPhones.

Screenr is an excellent tool to add narration to PowerPoint presentations about the course content and post these as mini-lectures in Blackboard. In addition, this e-learning resource is also an easier way to create short tutorials on how to use course tools (e.g. Microsoft Excel). Finally, Screenr is one more alternative to overcome the challenges of communicating effectively mathematical ideas in heavily text-based e-learning environments, in particular during the discussion forums.

University of Idaho – Polya Math Center: Online Lectures. URL:

http://www.sci.uidaho.edu/polya/math108/On-Line_Lectures/On-Line_Lectures.htm

The Polya Math Center of the University of Idaho (UI) created a comprehensive set of video lectures for their students in MAT108 Intermediate Algebra blended course. These video lectures last at most 12 minutes and are the primary source of instruction for UI students enrolled in the course. Real Player and a fast internet connection are required to watch the streamed files of the online lectures. In the videos, students will always see an instructor explaining the math concepts and skills using a white pad and black marker.

As mentioned earlier, there are no lectures in the instructional model of MAT099 Introductory Algebra course; instead, students learn by doing with the individualized assistance of the instructor and tutors. However, many students still prefer watching an instructor explaining math concepts and skills instead of watching a narrated presentation or demonstration. These students dislike the idea of learning from an unanimated object

such as the computer; however, this aversion can be mitigated if students see a human on screen explaining course content. To meet the needs of these learners, the video lectures from UI MAT108 will complement the instructional model of MAT099 Introductory Algebra, in which students have choices to select those resources that best meet their needs. Fortunately, many of the video lectures for UI MAT108 also cover the course content in MAT099 Introductory Algebra.

References

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