Assignment 4

Conducting an Evaluation for Prototype Development

In partial completion of the requirements for

ETAD -873

Instructional Design

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For: Dr. Marguerite Koole

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Part A: Usability Testing

Usability testing, or in other words, a small group pilot project, is conducted with targeted audience members in order to determine the effectiveness of the instructional design and to identify any potential problems with the design or instructions.

Preparation:

Room	• In order to replicate the experience that students will utilizing this resource a standard classroom set up with Chromebooks and a Smart Board will be utilized to conduct this usability test. • To test the course content, a group of 10 student, from Grade 7 will work individually with a Chromebook. The teacher will utilize the Fraction, Decimal and Percent resources developed to teach the class. The students will complete the activities in class. If occasions arise, the teacher will help the learners.
Equipment	Learners will have: • A Chromebook • Access to a networked computer with internet access. • Access to their Google Drive Account. • Access to the Math Fractions, Decimal & Percent resources shared through Google Drive with the students.
Test Materials	• Opening script (To be read aloud to testers) • A copy of the step-by steps handout on "How to change a Fraction to a Percent?" • An example of changing a Fraction to a Percent. • Final test questions to have students "Show what they know."
Instructions for participants (See script)	• There will be 10 participants – an equal mix of boys and girls and if possible students will be selected based on three ability levels (3 in mastery, 3 in proficiency, 4 in approaching understanding) based on their results in math to date. • Instructions for solving a Fractions to Percent problem. This can be copies of the slides that the teacher will instruct in the lesson.

	• Purpose of the course • Role of the tester • Conclusion

Script for the Usability Test

Introduction:

Greeting	Hello Grade 7 students! First of all, I would like to thank you for agreeing to be my technological tester for this lesson. I truly appreciate that you are willing to take time after school to work on the testing of this online Fractions to Decimal unit. Your feedback will help me improve the technological part of this lesson and I look forward to hear your thoughts!
Purpose stated:	The purpose of this test is to see how technology can help you learn how to change Fractions to Decimals. The use of technology is not required in math, but if we can integrate it in our lessons successfully, it will improve your understanding of this concept and make learning this more interesting.
Explanation given:	As part of the testing process, I want you to think out loud. At first it may be something that may feel uncomfortable and different to you, but know that no one is here to judge you. During your tasks, you can ask questions to yourself if the instructions are not clear. For example, if you cannot find the course package to follow along on your Chromebook, feel free to express that confusion. If you have questions, I ask that you try and work through them as if I were not available for help. I am here to watch you work through this unit and to write notes throughout the testing lesson. These notes, and your comments, will help me improve this course as I continue to develop these lessons. Remember that if you have difficulty with any parts of the process, it is most likely due to a problem with the instruction and is something that I will need to fix.

	If you are at a lost to the point of frustration, please let me know and I will help you. I want you to have an enjoyable time testing out this technology and learning something new in Math. I hope that you will walk away with a positive experience about technology in the classroom.
Materials needed	In order to complete this lesson all the materials required are available on the computer in front of you. When told, you will follow the instructions of your teacher as she guides you through the lesson and navigating the computer. At the end of the lesson, I will ask you to give me your comments about the experience orally and I will record them. To help me be precise in getting your comments about the course, I will ask you a few questions about what the lesson was like, the instructions given and the activities. At this time do you have any questions for me about this process or about the purpose of this test? (wait and respond to questions) If there is no further questions, please turn your attention to the teacher, who will give you instructions on how to access the presentation and give you instructions on how to change a Fraction to a Percent.
Conclusion	Again, thank you for your participation in testing this technological resource. To improve the lessons, I will like to ask you a few questions (See Appendix A). Your honest answers are appreciated and remember that your answers are not a judgment of my work but an opportunity to improve this resource for future students. I look forward to hearing what you liked and what can be improved.

Conducting the test:

Protocol followed during the test.	**Procedure for Testers** 1. Students will begin to log onto their Chromebooks and access the Math Fractions, Decimals & Percent google slide presentation located on their Google Drives. 2. The teacher will also open up the Google slide presentation on the class Smartboard. They will then go through the first lesson, starting with the understanding how to change a Fraction to a Decimal. 3. Teacher will demonstrate on the board using Google the Google slides, students will follow along on their Chromeboooks. 4. Students will then have sample questions to complete and work through. These questions can be completed using pencil and paper. Students will be informed that they may go back and review the notes for assistance.	**Procedure for Evaluator** 1. Using a checklist and chart the evaluator will make their way around the classroom watching each student logon. They will record observations. 2. Evaluator will stand at the back of the class and determine how well the students are following the teacher's instructions and following along on their Chromebooks. 3. Using a checklist the evaluator will observe each student as they attempt to complete the practice questions. Evaluator will record not only how well they answer the questions but observe if, and how often students went back on the google slides to review and get assistance.

Tester:	**School:**		**Date:**	
Forms / Checklist for Usability Test				
Objectives	**Yes**	**No**	**Information Gained**	**Revision Decision**
Students will be able to turn on their Chromebooks, log into their student accounts and access their Google Drives.				
Given access to either pencil and paper questions or computer based questions, Grade 7 students can divide fractions to determine decimals with 80% accuracy.				
Given access to either pencil and paper questions or computer based questions, Grade 7 students can change a decimal to a percent by multiplying by 100 with 80% accuracy.				

Given access to either pencil and paper questions or computer based questions, Grade 7 students can read and solve word problems requiring them to change a fraction to a percent 80% of the time.				

Other Observations or Comments:

Debriefing

Provide a copy of the questionnaire given to volunteer:	Since my volunteers will be Grade 7 students, I will read the questionnaire orally and they will have the choice to respond orally or on paper their thoughts. Since I want to gather as much information as possible, the students will have the choice of questionnaire. Oral responses will be recorded so that answers can be reviewed at a later time. The volunteer questionnaire will be as followed: Name:_____ Code:_____ Date:_____ 1. How easy was it to find the Fractions, Decimals and Percent Lesson on your Google Drive with the instructions given to you? Rate from 1 to 5. 1 being hard to 5 being easy. 2. Where, during the lesson, did you have the most difficulties? Explain why? 3. What did you find easy during the lesson? 4. What was one thing really liked about the lesson? 5. What would you change in this lesson? Why? How would you make it better? 6. Do you feel the videos, games and practice questions helped you better understand how to change Fractions to decimals? 7. Is there anything else you would like to see added? 8. From 1 to 5, 1 being low and 5 being high, how would you rate your level of interest in this lesson? Thank you for your feedback! ☺

Questionnaire for Teachers	The volunteer questionnaire will be as followed: Name:_____ Date:_____ 1. How easy was it to find the Fractions, Decimals and Percent Lesson on your Google Drive with the instructions given to you? Rate from 1 to 5. 1 being hard to 5 being easy. 2. On a scale of 1 to 5 with five being very good to 1 being poor, what do you think of the Fractions, Decimal and Percent's resource? 3. How easy did you find this was to use with your students? 4. What did you like in the resource? 5. Is there anything you did not like in the resource? 6. If there was one thing you would change what would it be? Why? How would you make it better? 7. Do you feel the videos, games and practice questions helped your students better understand how to change Fractions to Decimals? 8. Is there anything else you would like to see added? 9. From 1 to 5, 1 being low and 5 being high, how would you rate your level of interest in this lesson? 10. Do you see yourself utilizing this resource routinely when teaching Fractions, Decimals & Percent in the future? Thank you for your feedback!
Suggestions made for improvement:	Based on the feedback provided by both the student testers and the teacher who instructs them I will compile a list of suggestions for improvement and then take that list to the working group for recommendations as to which ones we should go ahead and adjust. This would be done prior to roll out of the resource to all grade 7 teachers. Sample suggestions could include: • Make the presentations on the Chromebooks synchronous with the Smartbaord lecture (i.e. Nearpod) • Provide more printables for students to practice

	• Interactive games.
Coding of user's number on material:	To protect the identity of the students after the test each tester will be coded the following way. Boys – MFDP-M-01-P Girls – MFDP-F-01-A The MFDP – stands for Math Fraction Decimal Percent To identify their prior level of achievement in Math, the following letters will be placed at the end (M – Mastery. P – Proficiency, A – Approaching)
Written report upon completion:	Once the usability test is complete, and I have gathered all the answers from the volunteer testers and teacher, I would compile all information and recommendations into a comprehensive written report. This report would then be shared with the working group that assisted with the design of the resource and a decision would be made on what improvements need to be made. The changes would then be made and the resource would be shared with the working group for final approval before being rolled out to all school division Grade 7 Math teachers.

Part B: Formative Evaluation

Instructions

My <u>goal</u> for conducting the formative evaluation (what remains to be learned following usability testing):	The small group usability test that was conducted gives me an idea of how user friendly, interactive and engaging the resource it. It also helped to identify where key point of instructions may be unclear or missing. I can observe first hand, as an Instructional Designer, how the lesson would be taught, how students would interact with the resources given to them, and how they would interact with the technology throughout the whole process. What would remain to be learned is how well they understand how to change fractions all the way to decimals, can they design their own percent problems and how and where would they apply this new knowledge in their daily life. The application to real-life, solving real-

	life problems and using these skills outside the classroom would represent a mastery level of understanding of changing fractions to decimals and percent. My goal for the formative evaluation will be to observe how well students learn these outcomes and can apply them to real-life situations.
Describe the <u>method</u> you will conduct formative evaluation:	First off, during the roll out period where Grade 7 Math teachers are using the resource, I would schedule visits to classrooms and pop-in to observe the lessons and how the students were interacting with the resource. I would be there to assist the teacher if needed, answer questions and ask questions of both the teacher and the students about the resource. Secondly, to determine how well students have mastered understanding of fractions, decimals and percent's, I would construct an online field test that can be administered to all grade7 students as they complete the unit. The questions would start from easy calculations and multiple choice answers for figuring out the answers to fraction to decimal questions and then decimal to percent questions. The test questions will get progressively harder and will require them to enter the answers into the computer test. Questions will now be simple calculations where the students will have to show their work (i.e. if the fraction is 1/5 what is the decimal?) and move towards word problems (Chad got 35/45 on his test. What percentage is this to the nearest whole percent?) The final challenging question would be a scenario where two different students are debating who has the better mark in two different science tests with two different totals. The students will have to determine who has the higher percent. Gathering this data would provide a wealth of information on the effectiveness of the students learning immediately following the unit being taught.

	In place of an online test, I can also simply gather data from the Sask. Rivers School Division Grade 7 Math Outcomes Exam that all teachers must have their students complete upon finishing any outcome. This data is then entered electronically and is compiled and shared with teachers and administration. Simply asking or access to the data for the Fractions, Decimals and Percent outcomes from those classes that utilized the resource will help to see how well student performed. It could also be compared against classes that didn't choose to utilize the resource to compare relative success of the program. As well questionnaires will be sent out to all Grade 7 Math teachers to gather their feedback after completing the unit and using the resource. The data gathered will be compiled into a final report to be given to superintendents to determine the future for this technological resource.

Part C: Small Group Work

- 2% towards participation mark

What advice did you receive from your group?	I received great advice from Drea Laj and Kristen Plosz about the format and content
What advice did you incorporate into your project? Why?	Group members provided great support and encouragement. They said it looks well done and I appreciated their time to review it.
What advice did you decline? Why?	I received Kristen comment late and while her idea of breaking down the checklist into slightly smaller steps was a good one, I had run out of time to complete it. If I implement this evaluation that is a adjustment I will make.
Briefly, what advice did you offer to your group mates?	I provided advice to Drea's work and I tried to take the time to review others assignments and provide feedback. This was difficult with end of the year projects and presentations coming due in other courses.
How often did you contribute to your group?	I contributed to my group around 3 times and specifically Drea, and I tried to assist others with their assignments. I feel this is the one area I could have done more in as I was focused on my assignments and other courses and found it hard to make the time to review others work.