

Spring 5-19-2016

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## Recommended Citation

Porter, Thomas and Miller, Dr. Robert, "Investigating The Three-Click Rule: A Pilot Study" (2016). *MWAIS 2016 Proceedings*. 2.  
<http://aisel.aisnet.org/mwais2016/2>

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# Investigating The Three-Click Rule: A Pilot Study

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## ABSTRACT

Human-computer interaction is a part of our everyday lives. A component of HCI is usability, often used as a measure of ease-of use. People have been studying usability for a long time and a standard scale, the System Usability Scale, has been created to measure the usability of systems. To increase ease of use in websites, designers have been following the Three-Click Rule. As technology evolves, user expectations can be expected to evolve as well. Therefore, a pilot study was created and conducted to evaluate measures for testing the relevancy of this rule.

## Keywords

Three-Click Rule, HCI, Pilot Study

## INTRODUCTION

Computers are in cars, thermostats, lighting, and even toasters. Computers are everywhere and humans are interacting with them at an increasing rate. Therefore, it is becoming more critical than ever for those in the technology field to study technological trends and come up with ways to implement these trends in an easy-to-use fashion for the general public. Understanding how people use and feel about technology will allow for the creation of better systems for human use. The most obvious form of human interaction with a computer, and therefore the place to start, is the Internet.

## LITERATURE REVIEW

The Internet of things is growing exponentially. This “networked interconnection of everyday devices” allows devices that contain computer components to interact with each other in new ways (Xia). Cars can connect to phones and phones can connect to fridges! It is expected to connect as many as 20 billion devices by 2020 (Gartner). Recently, due to the rapidly expanding number of devices connected to the Internet of things, there has been more attention drawn to human-computer interaction (HCI). As more people interact with new types of devices on an increasing scale, there has been an increased demand to study the ways people interact with these devices. HCI is the foundation of this research project. It revolves around the concept of usability, human activity, and human experience with technology (Carroll).

HCI is becoming increasingly important as computers become more prevalent in our day to day lives. Human-computer interaction is becoming more common than human-human interaction due to the trend of growth in internet connected devices. People are interacting with devices, machines, and computers at an all-time high and these levels are only expected to increase. In his article, Rogers (2012) describes how focusing more on HCI can focus systems analysts’ efforts when designing technologies, leading to new and innovative ways of computer interaction. There is also a push for continued HCI study because, as Grudin (2008) points out, the rapid pace of technological growth and development requires a constant stream of studies on up-to-date technology.

HCI is a very broad category of research and has many subcategories. This study researches the subcategory of usability. In his article, Bevan (2012) explains the uniqueness of usability. Usability has its academic origins in psychology, human factors and ergonomics, but its emphasis on human issues separates it from the rest of design topics. It is this human emphasis that drew me to testing usability. Frequently, people are the end users of a product, and so they have the power to determine the degree of the product’s success. By understanding how people interact with technology, those in the field can create more successful devices for human consumption. Software engineers view usability as the part of the design process that relates to abilities in interface design which complement other design objectives such as functionality, efficiency (i.e. execution speed) and reliability; in this sense, usability is closely related to ease of use, which is probably the most common way the term is used (Bevan, 2012). With the term “ease of use” in mind when thinking of usability, it is easy to believe that usability is highly correlated with user satisfaction. Nielsen shows this correlation of .53 (2012).6+ This high correlation

means that usability has the potential to influence how one spends his or her time, which products one chooses to use, and also one's emotional state.

The average person spends two hours a day on the Internet for leisure (OfCom, 2015). As so much time is spent interacting with the Internet, this study analyzes usability within the context of website design. To maximize user satisfaction, those in the field of technology have traditionally followed the one longstanding rule of website design, referred to as the Three-Click Rule (Thomason, 2003). Current convention suggests that users become frustrated, and thus leave a site, if they have to make more than 3 clicks to find the information they are looking for (Icasiano, 2015). Recently, a debate has sparked about this rule. Some feel the Three-Click Rule should be discarded. Porter (2005) examined data of participants in an experiment which showed some users clicked 25 times while others quit after 2 or 3. Several researchers have written articles suggesting that the rule has become irrelevant due to recent research and usability tests. Icasiano (2015) wrote that the quality of a click is the most important aspect of that click. He continued to explain that "the frustration comes from clicks that lead to wrong paths or dead ends". Porter (2005) determined that the number of clicks is irrelevant and the time spent on a website may actually be more related to the ease of use, or usability. Thomason (2003), inspired by Porter's research, expanded on his ideas. She analyzed websites and determined that website visitors "usually don't mind a few extra clicks to get to their information" but they also hate to "wander aimlessly through a website with no clear destination". Further research is necessary to determine if there is value in sticking with tradition, or if the rapid development of technology has made the Three-Click Rule obsolete.

## **PURPOSE**

My study aims to determine the relevancy of the Three-Click Rule. Specifically, I am interested in whether or not the usability of a website is determined by the number of clicks it takes to find desired information on a website.

## **DESIGN & METHODS**

Before a full study on the Three-Click Rule could be conducted, a pilot study was designed to test whether the proposed tools and methods would be able to generate viable results. The pilot study participants were undergraduate students at a large, Midwest university in the United States, and they participated on a voluntary basis. Subjects were from two sections of an on-campus intro-level business course. Before beginning the study, subjects answered an initial survey to gather demographic data. This survey collects preliminary demographic data, so further analysis can be done after the completion of the full-scale research study. For example, one may choose to analyze whether or not there is a significant difference in number of clicks or time spent on a task between genders. The initial survey does allow free-form text. This is intentional, as it allows participants to fully express themselves. By not pressuring participants to select from a predetermined set of answers, they may feel more relaxed during the study. As this study seeks to measure usability, which can be correlated to emotion, it is important to mitigate emotion from sources beyond the immediate task.

Study participants were divided into two groups based on their order of participation. Each group received a Task Document consisting of five tasks to complete. Even numbered participants were given 5 completable tasks. This group served as the control group. Odd numbered participants received 4 completable tasks and a final task that was impossible to complete. Directions were given to participants in the form of a handout to ensure no discrepancies in direction. Subjects were evaluated one at a time to allow for accurate data collection of time spent on each task and number of clicks made to complete each task. Subjects were given their respective Task Documents. The subject began the task while the researcher started the timer and tallied the number of clicks. When the task was complete, the researcher recorded the total time, number of clicks used, and whether the subject found the correct solution to the task. This was repeated for all 5 tasks.

Upon completion of the fifth task, or upon forfeit, the subject was given the System Usability Scale (SUS) to measure usability. The SUS was created in 1986 by John Brooke, and it is a reliable tool for measuring usability of systems, such as websites or applications. The SUS has references in over 1300 articles and publications (Usability.Gov). It is a very easy scale to administer to participants, and it can be used on small sample sizes with reliable results to determine which systems are usable and which are not (Usability.Gov). For these reasons, the SUS has become an industry standard. Determining if there is a negative relationship between usability and number of clicks (higher usability ratings from the SUS with fewer number of clicks) would be further support for the Three-Click Rule.

The SUS has a somewhat complex scoring system, so it is advised that special attention is given when recording data. The scores are multiplied by 2.5 to convert a score out of 40 into a score out of 100. This is not a percentage, though. These scores are more appropriately viewed as percentiles. Based on past research, a score above 68 on the SUS would be considered above average while anything below 68 is below average (Usability.Gov).

Initially, the SUS was going to be given to the participant after each task. Instead, the SUS was given at the end of the study. This was changed to avoid overwhelming the subject. In addition, completing the SUS after each task could become annoying or frustrating to subjects, which would have influenced the results.

After the initial pilot test, the Task Documents had to be slightly modified. It was discovered that with enough clicking, the impossible task actually did have a solution on the website. Therefore, a new task was created. A pilot study with the same procedures outlined above was then conducted with the new Task Document.

**ANALYSIS**

The pilot study yielded expected results. It is expected that participants with the completeable tasks should give a higher SUS score than participants who had the difficult task, who should also have a higher average completion time. This was indeed the result shown by the pilot study. The average time for completion of the easy tasks was 4 minutes, 10 seconds. The average time before the participants with the difficult task ended was almost 8 minutes. The average SUS score for participants with the easy tasks was 81.25/100 while the average SUS score for participants with the difficult task was 52.5/100. From the SUS ratings, those with the easy task viewed the website as above average (SUS score above 68), while those with the hard task viewed the website as below average (SUS score below 68).

Difficult Tasks											
	Task 1		Task 2		Task 3		Task 4		Task 5		TOTAL
	Subject 1	Subject 3	Subject 1	Subject 3	Subject 1	Subject 3	Subject 1	Subject 3	Subject 1	Subject 3	
Clicks	5	4	14	11	9	8	8	5	16	22	102
Time	0.25.34	0.58.11	2.13.00	1.55.55	0.42.86	0.56.12	0.54.05	0.42.13	2.59.25	4.12.03	15.58.44
Completed	Y	Y	N	Y	Y	Y	Y	Y	-	-	

Easy Tasks											
	Task 1		Task 2		Task 3		Task 4		Task 5		TOTAL
	Subject 2	Subject 4	Subject 2	Subject 4	Subject 2	Subject 4	Subject 2	Subject 4	Subject 2	Subject 4	
Clicks	4	5	10	8	5	8	7	8	6	7	68
Time	0.22.08	0.30.34	2.08.12	1.12.03	0.30.23	0.54.23	1.03.12	0.56.08	0.23.54	0.21.12	8.20.99
Completed	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	

**DISCUSSION & CONCLUSION**

**Limitations**

Small sample size is a characteristic of a pilot study, so the initial results outlined above are not conclusive. A full research study would need to be conducted to test for significant differences between the two groups. Also, the participants in the pilot study were not a representative sample of the general population. The participants all came from intro-level business courses, which narrows the students represented to only business-related majors. Beyond that, all participants were freshmen, all having completed no courses at CMU and all being within a year in age. Finally, only one website (CMU’s) was utilized in this study, which may have biased the results. Students may already be familiar with the website, thus skewing time spent searching for tasks. Students may also already be aware of the answers to the CMU questions posed in the Task Documents. If answers were known, but could not be found, this could impact frustration levels and could bias SUS results.

**Future Research**

The pilot study highlighted a few minor changes that would be necessary before the tools and methods utilized here would be able to provide reliable results in the future. There are a variety of people who use the Internet. If results would like to be

drawn based on this group, it is important that the study's sample be representative of the general public. Also, special attention should be paid to the website selected. Using a variety of websites or, if resources allow, creating a new website would help ensure that no participant has an unfair advantage due to previous exposure to the website layout and design.

To expand on this pilot study for future research, researchers could analyze information that I did not, such as responses from the Initial Survey. Using information provided by participants in the Initial Survey could lead to new findings regarding differences between ages, genders, or majors. Another piece of information that could be used by researchers when drawing conclusions is the accuracy of answers provided by subjects. With this pilot study, the Task Documents have a spot for subjects to provide an answer to the tasks. This information goes unused in this study, but if analyzed, it could shed light on the effectiveness and ease of use of the website; it is important that website visitors not only find information quickly, but that they also find the right information. Finally, a survey other than the SUS, which is designed to measure the usability of a website, could be administered to more directly measure emotions, such as frustration.

### **Conclusion**

This study has shown that the level of perceived usability of a website is not as tied to the Three-click rule as previously thought, with the CMU website scoring above average SUS scores even though participants spent more than three clicks to complete tasks. The results of this pilot study also agree with Icasiano, Porter, and Thomason saying that it is the flow of information that is more important to users than the number of clicks it takes to get there.

This study has several implications for web designers. Focusing on creating a balance between a streamlined path to information and a logical flow of information will lead to the highest usability ratings. These two are often opposite with their intentions though – a streamlined path not always being the most logical path and the logical path often taking many clicks.

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## TASKS

Task 1: What is the 4<sup>th</sup> CMU Honors Core Value?

Task 2: What is the phone number for the Business Information Systems Department?

Task 3: Is the picture on the 6<sup>th</sup> page of the CMU Career Services *Career Guide* a boat, bridge, or lighthouse?

Task 4: CMU will match Annual University Campaign contributions at \$\_\_\_\_ for every \$2 given during the campaign year.

Task 5 (easy): How many residence halls does CMU have?

Task 5 (difficult): What were the Central Michigan University colors before they were maroon and gold?

Please respond to the following statements:

**SYSTEM USABILITY SURVEY**

	Strongly Disagree				Strongly Agree
1. I think that I would like to use this system frequently	1	2	3	4	5
2. I found the system unnecessarily complex	1	2	3	4	5
3. I thought the system was easy to use	1	2	3	4	5
4. I think that I would need the support of a technical person to be able to use this system	1	2	3	4	5
5. I found the various functions in this system were well integrated	1	2	3	4	5
6. I thought there was too much inconsistency in this system	1	2	3	4	5
7. I would imagine that most people would learn to use this system very quickly	1	2	3	4	5
8. I found the system very cumbersome to use	1	2	3	4	5
9. I felt very confident using the system	1	2	3	4	5
10. I needed to learn a lot of things before I could get going with this system	1	2	3	4	5

Comments:

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