Mixed Methods Approach: Measuring User Experience in Higher Education Website

Saharath Noisuwan (Ronnie)

College of Journalism and Communication

University of Florida

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Dr. Jordan Alpert

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Introduction

For years, user experience (UX) has been a buzzword in product development. Everybody wants to use products that are able to solve their problems, convenient to use, and aesthetically pleasing. The demand for a good user experience has spread beyond consumer products to other industries and professional products. However, to improve a product, UX designers need to be able to measure a user's pleasure. Pleasure is a subjective emotion triggered by a positive emotional experience, and it is a requirement that needs to be addressed in the product design process.

Qualitative research methods are typically focused on specific experiences, frequently obtained via personal interviews or narratives, and produce non-numerical results. Contextual analysis, ethnography, structured interviewing, and observation are all common qualitative techniques in UX research.

Quantitative research enables you to draw generalizable conclusions and forecast outcomes from your research. Quantitative research is cost effective, flexible, and can be used to collect data using a large sample size. The types of quantitative methods used in UX research are surveys, polls, Google Analytics, Google Trends, A/B testing or multivariate testing, and eye-tracking testing. Quantitative research is an important tool to measure the success of UX improvement, organizational goals, and key performance indicators.

However, how to quantify individual experience empirically rather than subjectively remains an open question. By combining qualitative and quantitative methods for product evaluation, UX designers gain access to a wealth of insightful UX metrics. UX metrics can help

stakeholders determine a company's position in relation to the competition and help them focus on improvement efforts in the areas where users are most confused, inefficient, or frustrated.

Using mixed methods allows researchers to take advantage of the strengths of each approach in the context of a particular problem. Combining quantitative and qualitative data gives a more complete view and a robust and comprehensive data set that better informs product designers. Integrating and interpreting data from both sources can assist researchers in optimizing websites to meet the unique needs of each visitor.

The purpose of this research is to offer a practical method that could lead to generalized evidence-based suggestions for improving UX for higher education websites. Many website usability issues have arisen because of the increasing size of student bodies at many universities and thus traffic to university websites. The majority of these issues are related to stakeholder misconceptions of the value of user experience. Developing a method to incorporate quantitative data into qualitative analysis can bring valuable insights into the UX design process, to demonstrate and communicate the value of UX to stakeholders.

This research will offer a framework to identify the most common problems for users of higher education websites and offer recommendations for what can be improved. Through this research, the academic community can improve communication and understanding between institutions and their students, decreasing wastage for users due to quality issues. Overall websites experience can improve with greater satisfaction and productivity from their users.

Literature Review

Measures of the quality of user experience on websites help find problems with interactions and set a standard against which a new design or feature can be measured (Sauro, 2016). Measuring user website experience is a website-specific issue because every website

has a different goal. UX measurement must start with identifying the purpose of the website, then determining how the site is designed to achieve those outcomes. Researchers need to quantify each step necessary to achieve those behaviors. To identify user goals, UX researchers commonly start with creating personas.

Personas

A persona is a method of representing a segment of a user, audience, or customer base as a single person. A product design team creates a persona to describe a user story, to be an effective communication tool, and to have direct design influence, with the aim of leading to better design decisions and defining the product's feature set (Cooper, 1999). A persona is a detailed description of a hypothetical user's goals and objectives. Guan et al., (2021) evaluate the processes of persona creation in different domains (UX Design, Healthcare, Market Research and Social Media Strategy) and how they pertain to professional goals. UX designers use personas to satisfy the needs of product users. Market researchers use personas to learn more about identifying new customers. Health professionals focus on understanding a patient and improving their care. Digital content creators can use social media strategy personas to build their online personal brand communities and learn more about the people who belong to them. When collecting and developing personas, different goals naturally lead to different content for personas.

Google Analytics data provides dimensions like demographics data to pull custom landing pages or session reports about users. Google Analytics allows researchers to filter the noise and focus on a specific group of users. For example, a group of users outside of the US or a group of users who click 'Apply'. The researchers can trace along the users flow to learn about their behavior. Information from the reports is combined to create personas that represent the dominant users' demographics, locations, and interests.

Framework for UX measurement

Rodden et al (2010) introduce the H.E.A.R.T. framework for UX measurement at a large scale. H.E.A.R.T. is a method for measuring UX, developed based on Google's user experience research. There are five metrics used in the framework: Happiness, Engagement, Adoption, Retention, and Task Success. The team utilizes a variety of modes of communication to engage their users. They combine email, feedback forms, tooltips, and modals to increase the H.E.A.R.T. of their products and validate the framework. The concept is straightforward: provide a set of user-centered metrics that allow researchers to measure user experience on a large scale. These metrics can then be used to make product development decisions.

Sauro (2016) suggests a new scale for measuring the quality of a website's user experience from the perspective of a website visitor. The Standardized User Experience Percentile Rank Questionnaire (SUPR-Q) was developed by collecting data from more than 4,000 respondents reflecting on their experiences with greater than 100 websites. The SUPR-Q is comprised of four components: usability, trust, appearance, and loyalty. Sauro states that data he used to develop the scale are focused on non-ecommerce websites such as government and nonprofit sites. These examples are most likely the result of a lack of effort to measure and improve the quality of the user experience, which could exaggerate the result.

Peter et al (2018) introduce a model based on self-determination theory (SDT) called the Motivation, Engagement and Thriving in User Experience (METUX) model. The model provides a framework grounded in psychology to increase motivation and engagement. Peter et al (2018) propose five different spheres of analysis based on SDT measurement: at the time of technology *adoption*, during interaction with the *interface,* as a result of engagement with technology-specific *tasks*, as a component of the technology-supported *behavior*, and as a component of an individual's *life* overall. These five spheres of experience sit within a sixth, society. In addition to predicting the impact on wellbeing, motivation, and sustained engagement with technology, research indicates that SDT measures also predict the achievement of domain-

specific outcomes. This research offers a foundation for comprehending and improving other common goals within technology projects. Using this approach, researchers can collaborate toward a future where all technology is designed to support psychological well-being and human potential.

Although usability measurements have been used to evaluate any products, there is still limited effort to evaluate UX in higher education on the large scale. The purposes for this current study are:

(1) to understand user experience while using a higher education main page.

(2) to apply mixed methods, approach in evaluating user experience.

(3) to provide recommendations for improving higher education website.

Methodology

Participants

A total of 20-30 people will participate in the study, aiming for equal gender representation. Participants will range from 18 to 45 years old. Everyone who participates should speak English and use the web regularly. Participants will be selected from 3 user groups identified below.

Prospective students

A person who plans to start undergraduate or graduate studies the following academic year. All prospective students would be researching universities but would not yet have decided where they would apply.

Visitor & Families

The person with at least one child who would be a first-year undergraduate student in the upcoming academic year. Participants would have to be parents of children in the research phase, similar to the student requirement.

Faculty & Staff

Those working in higher education institutions in teaching, research, administration, or postdoctoral positions who would be either currently employed or actively seeking employment at a higher education institution.

The methods are broken down into two phases

1) To identify user goals: Observation from usability test (Qualitative)
2) To evaluate: Google Analytics and survey (SUPR-Q) (Quantitative)

1) Observation from usability test

Usability Testing Procedure

Observation: Identify user goal

We start with activities that the user expresses an interest in doing. Participants are asked if they are looking into any schools, at what level they are studying, and if they have any outstanding questions that they would like to spend some time addressing. This helps us ensure that the user profile and their objectives for using the website match.

Observation: Usability test

We give each participant 60 minutes to complete tasks on university websites. To keep the activities realistic, we ask users to perform their own tasks as if they were using the website at home. If time allows, we would have participants complete tasks on university websites that we select to assess their unique approach or interests.

The majority of the tasks are predetermined, but some are created during the observation in response to a user's comments or behaviors. For example, if a user indicates that their next step would be to determine whether or not they would live off-campus, we would direct them to the related section of the website.

Selected Tasks

Examples of some tasks the participants may be asked to complete are:

Prospective student tasks

- Is there anything else you need to learn about this school? Here we go. Let's start with some of that.
- Imagine that a friend told you about UFL. Make sure there is something you want to study there.
- How would you contact a faculty member for more information?
- What if you had more questions about the application process? How would you try to get the answer?

Visitor & Families

- Find out about the housing options and their costs.
- Find out how much it costs to attend and how you might contact someone if you had more questions.
- Imagine your child is also considering applying to UFL. See if they offer a program, he/she might like to study.

Faculty & Staff

- Visit UFL.edu, See if any job openings catch your eye.
- Try to apply to that position.
- Find out about packages and employee benefits at the University of Florida.

2) Google Analytics and survey (SUPR-Q) (Quantitative)

SUPR-Q (Sauro, 2016)

The Standardized User Experience Percentile Rank Questionnaire (SUPR-Q) is a standardized measure of the quality of a website's user experience and is an established

methodology to gauge users' attitudes. It's based on a rolling database of around 150 websites across dozens of industries, including higher education. Scores are percentile ranks that indicate how a users' experience at a benchmark website compares to the users' experience on other websites. The SUPR-Q provides an overall score in addition to detailed scores for trust, usability, appearance, and loyalty. Participants in the study will answer the 8-item SUPR-Q (including the Net Promoter Score).

Google Analytics

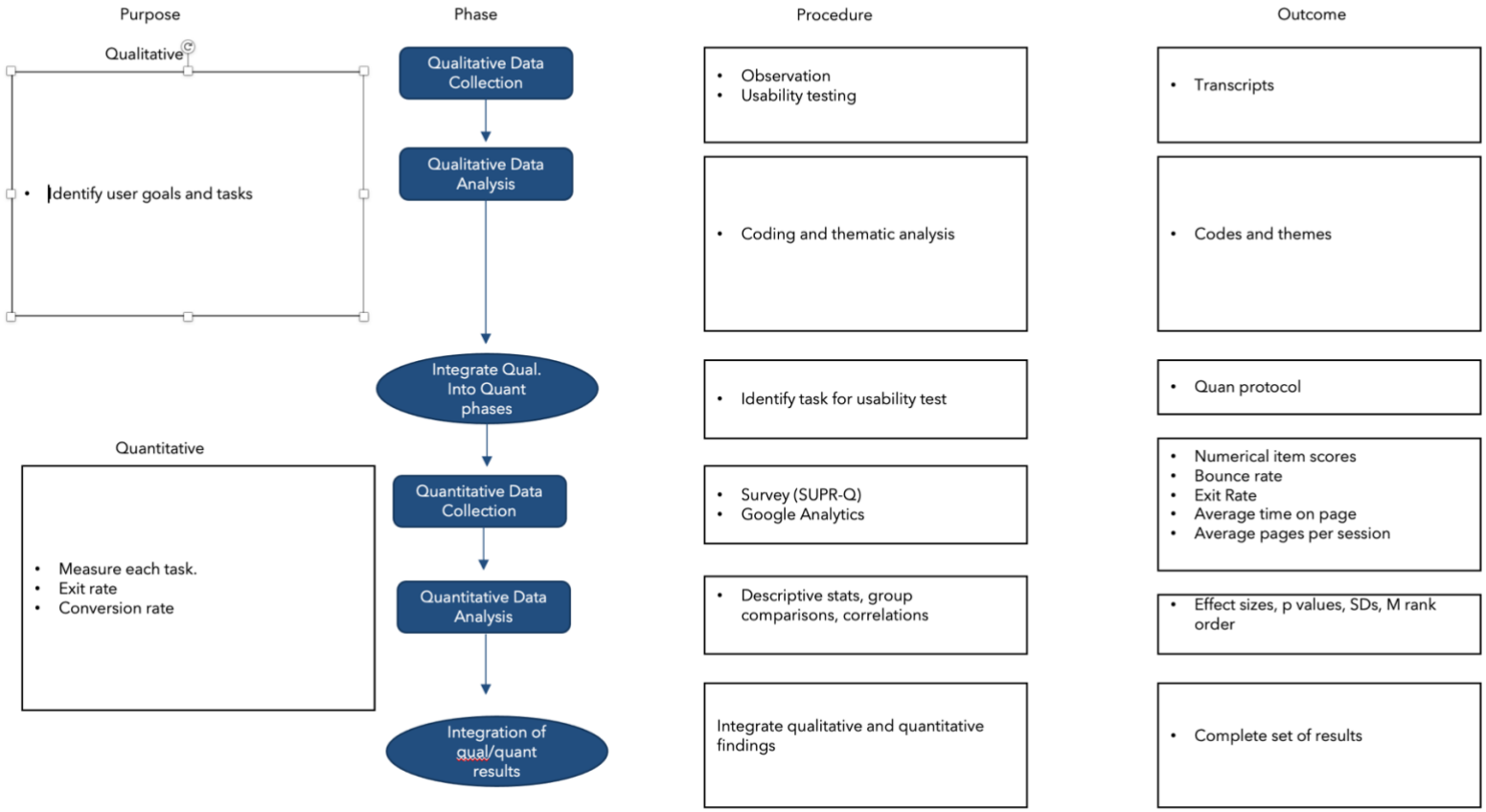
Google Analytics is a good tool to capture users' behavior such as where they click/tap, how far down a page they scroll, how long they remain in an app, and how frequently they visit a website (Clifton,2012). To evaluate user goals, the below metrics will be set in Google Analytics

- Conversions: The number of times a user completes a goal during a session. These are typically product- and context-specific (for example, making a purchase or submitting a lead form)
- Conversion rate: The percentage of users who convert (perform the desired action)
- Churn rate: The rate at which people leave a group (for example, customers canceling a service)
- Bounce rate: The percentage of sessions with a single pageview. In other words, the percentage of people who end their session on the same page they arrived on.
- Revenue per user: Total revenue divided by the number of users. Used to calculate the average amount of revenue generated per person

Research question

What factor led to a better user experience in higher education websites?

Exploratory



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