

**MICRO INTERACTION DESIGN IN WEBSITE OF INTERNATIONAL
PROGRAM OF UNIVERSITAS ISLAM INDONESIA**

THESIS REPORT

Submitted to International Program Faculty of Industrial Technology
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Universitas Islam Indonesia



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AUTHENTICITY STATEMENT

In the name Allah, I hereby certify that this research is based on my own work except for the citations and summaries in which of those is explicitly knowledge. If in the future this statement is proved not right and violates the legal regulation of papers and intellectual property rights, I agree Universitas Islam Indonesia to revoke my bachelor certificate.

Yogyakarta, Pebruary, 2018



THESIS APPROVAL OF SUPERVISOR

**Micro Interaction Design in Website of International Program of
Universitas Islam Indonesia**

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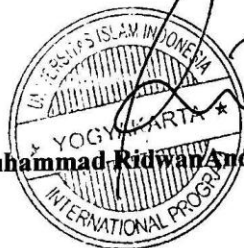
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PREFACE



Assalamualaikum Warrahmatullahi Wabarakatuh.

Alhamdulillahirabbil 'alamin. Praise to Allah SWT the most glorious and the most merciful. Shalawat and Salam toward our adoration Prophet Muhammad SAW along with his family and followers. The guidance of Allah allows the author to finish this thesis. The accomplishment of this thesis is inseparable from the support of all parties. Therefore, the author profusely convey with great and gratitude to:

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Finally, the Author realizes that there are still short comings as well as weaknesses in this report, so the building suggestions and critics are fully expected. The author hopes this paper would bring advantages for everyone who reads this.

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ABSTRACT

Micro interaction design is critical detail to support users to successfully understand a problem, find a solution, and achieve their goals. Critical detail in website provide important information could help user and to make sure user operate the system such as wrong data, not valid data, showing progress uploading and downloading in percentage, sign sub menu. The development of International Program of Universitas Islam Indonesia website using micro interaction design has a great potential, it can be seen by increasing satisfaction of user perspective in accessing the website. Researcher use paired T-Test to calculate the data in SPSS tools to know the difference previous design that exist in website with new design that will propose to web design.

Keywords: Micro interaction design, Paired T-Test, SPSS, Web design.

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CHAPTER I

BACKGROUND

1.1 Introduction

People in technology era use mobile phone and computer to work or study. People can surf around the world by using internet such as to get information, education, and news. According to Tekin, et al, (2013) internet booming could increase the importance of the websites, then user could reach websites quickly and receive information as expected by users. Internet access provides all information required by people to update their knowledge, news, and technology that makes a website as main information source and employed as tools for people to utilize internet connection to obtain helpful information.

The website's quality generally constructed from the aggregate assessments on the website's product information and its non-product-related website attributes, such as, ease of use, entertainment, visual appeal, responsiveness and internet speed, and web security under the construction (Kim et al., 2009). Website could be applied to the organization such as schools, universities, institutes, and non-formal organization to promote and provide information. A Website is useful for university or school to provide information about their profile, program, facilities, and study planning. Tekin et al., (2013) suggested that websites could be built up either to provide information or services. University can promote their profile to attract student as customer by using website. Recently, students have equipped themselves with gadgets that are used to access the Internet anytime and anywhere. Students have their own way to enjoy the various designs of websites.

Pavlou et al., (2007) suggested that an informative website is defined as the degree to which user perceived when a website provides them with resourceful and helpful information. Website of International Program Universitas Islam Indonesia (IP UII) provides information about news, undergraduate program, leadership training, bridging career, outbound

management training, scholarship, joint degree program, student exchanges and student activity.

The term usability has been defined as the usefulness of the website design or the degree of ease for users who use a website (Nielsen, 2000). In satisfying student as user who accesses IP UII website, it could be created relation between human and computer, system with good interface design, hence the users could easily view the screen and identify relevant information. On the other hand, Choet al., (2009) suggested that a poor designed interface can create confusion and misunderstanding. The quality of website design depends on the evaluation of interface design, such as the ease to access the menus, navigation link, tables, and the layout.

The term user experience was first used by Don Norman (2007) academician of cognitive science, design and usability engineering and former vice president of Apple Inc. Simultaneously the initiators of user-centered design it means design approach that focuses on the needs and wishes of the user. User-centered design process is a useful approach to achieve system usability, the usability of web sites, systems, and improve many other products. It also represents a general philosophy towards design that brings the users or consumers into the design process (Huang et al., 2016).

Interaction design can create user experiences that enhance relation between user and computer. Kaipio et al.(2016) found the interactivity that are closely related to the users' experience with devices. The people prefer the technology products work well functionally but also able to provide fun experience, easy to use, therefore it has a high user engagement as measured by the length of time spent by users on accessing website. According to Palmer (2002) perceived interactivity refers to the degree to which a design can provide interaction with the user and positively associated with users' satisfaction.

Interaction design becomes point of interest in world of website design to add new experience of user when accessing website and fast feedback to user. Interaction design provides user with easiness to use or to learn, satisfaction, and usefulness. It is expected to be

able to communicate with user in creating harmonious relationship to satisfy user when accessing website.

Chadgar(2015) stated that there are three scales of interaction design which are macro (global), meso (individual) and micro (momentary). To create relationship user when accessing website, it takes details that could help the process. The research of Norman (2013) explained that Micro interaction is about those critical details that make friendly experience and help traumatic anxiety. Micro interaction could provide the user feedback when accessing the website. Micro interaction occurs almost every time a user uses a digital device. When users turn off the alarm on phone cell or like the status of friends on Facebook, user is involved in micro interactions.

According to Breslav, et al (2014) state micro interactions is in helping users to successfully understand a problem, find a solution, and achieve their goals. Micro interaction can create better interaction for users to enhance their experience on the website. However the digital tools work and serve as a mirror like someone going to do something and it is the secret recipe of a utility that behaves like human interaction and as expected by users. Critical detail in website provide important information could help user and to make sure user operate the system such as information wrong data, not valid data, showing progress uploading and downloading in percentage, sign sub menu (when cursor over the sub menu then feedback from micro interaction is change color), etc. According to Marenko & Allen (2015) state that the micro interactions also meaningful in building important social bonds between user and device. However the digital tools work and serve as a mirror like someone going to do something and it is the secret recipe of a utility that behaves like human interaction and as expected by users. For user the information is considered unimportant, besides that this information shows important thing if the system not running well or something wrong.

Website of international program of Universitas Islam Indonesia has some features or menu that use micro interaction such as on menu, progress, sub menu. For example, when mouse over the content then some interaction done, like expand menu into sub menu, flip the content to know the detail, and etc. There are some content that micro interaction not clear

information or could make user confuse in operate it. In sub menu there is no information to user if that could expand it, large content that appears on interface then make it difficult to user read it. That could make user confuse and difficult to operate the website if the information that appears on interface not clear.

This research concerns to suggest International Program of Universitas Islam Indonesia improving their website using micro interaction to increasing satisfaction of user, ease to use, and help user operating the system and feature. Detail in system could provide clear information to student as user and make them understand then decreasing confusion when accessing website. The researcher will identify which concept of micro interaction will improve website of International Program of Universitas Islam Indonesia and support the system.

1.2 Problem Formulation

Based on the background above, this research will formulate the problems, which are:

- a. How the new micro interaction design different with existing design?
- b. What are the new micro interaction design that will be applied?

1.3 Objective of Research

The objective of this research is to know implementation of concept of micro interaction design will help user in accessing international program of Universitas Islam Indonesia website.

1.4 Benefits of Research

The expected benefits of this research are:

1. For Researcher

To extend the insight and knowledge about critical detail content in a website accord with micro interaction and usability criteria based on observation field.

2. For Institution

This research is expected to be the addition and evaluation for International Program Universitas Islam Indonesia to improve and develop their website through critical detail content according to micro interaction and usability criteria.

1.5 Problem Limitation

Problem limitations of this research are set as follows:

1. The researcher only focuses in analyzing micro interaction on IP UII website.
2. This research did not considering other technology constraints in IP UII website.

1.6 Systematic Research

Systematic writing is made to provide a general overview of the research to be undertaken. In general systematics of writing as follows:

CHAPTER I INTRODUCTION

This chapter explains the background, problem statement, problem question, objective of research, benefit of research, problem limitation, and systematic research.

CHAPTER II LITERATURE REVIEW

The content in this chapter is literature reviews both deductive and inductive that could prove the topic of research meet the requirements and criteria described above.

CHAPTER III RESEARCH METHODOLOGY

This chapter will be steps for conducting the research that are applied as a references in order to keep focusing on the primarily goals, which are going to be achieved. It will explain and resume the phases of the systematic literature review undertaken, the method and tools that are

used to support every stage as well as the section of the article where these are addressed.

CHAPTER IV DATA COLLECTING AND PROCESSING

This section contains data obtained during the study and how to analyze them. Results of data processing will be shown either in tabular or in graphical form.

CHAPTER V DISCUSSION

This chapter contains a discussion of the results obtained in the research, and the suitability of the results with the research objectives.

CHAPTER VI CONCLUSION AND DISCUSSION

This chapter contains the conclusion of the analysis or discussion of the data that have been processed to prove the hypothesis or addresses considerations and provides suggestions that are made based on writer's experience and judgment for further development.

CHAPTER II

LITERATURE REVIEW

2.1 Related Work

2.1.1 Previous Research

Nowadays, organizations or institutions create a website as the source information about their profile and updated information. Website should consider about the user's interface and convenience in searching information. Website design features have been found to be key factors in influencing users responses and experience in interface design (Pengnate & Sarathy, 2017). The consideration is much related to the usability and interactivity criteria of the website.

User difficulty to access content in website could be caused by the problems in design or content. According to Hong, et al(2017) state system that has good interface design is ease for users scanning the screen and identify relevant information easily. Meanwhile based on Cho, et al (2009) has found that poor design in interface can create confusion and misunderstanding on user in scanning the screen.

Content of website should provide effective information to user that could fulfill satisfaction. Information that read by user should provide effective word and design to influence user that doubtful about content or accessing website. Pengnate and Sarathy, (2017) stated that user satisfaction encompassed satisfaction with interface design and also satisfaction with content design. Content that presented to users should be good in words and sentences as proved by Al-Samarraie, et al (2013) stated that presenting content with good structure could influence learner attention, which in turn may cause them to think deeply and help them understand the content.

Effective explanations of user satisfaction purposes interface design and content design to create accurate representation of model design to satisfy the user. Interface design could provide technology that support users to be able to read the content and influence them to create relation between user and computer. Based on Bhattacharjee, (2001a) a cognitive-affective model for explaining satisfaction with or acceptance of reading technologies has been highly influential in interface design.

There are variables relevant to multimedia designs that affect overall effectiveness of accessing website that could provide different experience to user(Hong et al., 2017). User should receive better when accessing website, then interface design could provide them in find user's goals. Designer adds features in interface to make user satisfy when they accessing website then create effectiveness content to make user easy accessing website, such as sign, symbol, notification, thumbnail, and icon.

Relation between computer and human as user build by value that exist or as additional in interface design. Following Kim S. , (2011), the two-way communication is conceptualized as the two-way information flow which enable user to respond back or give feedback that is value that provided by computer to user. Effective communication could build correlation between user and computer because interface design provides interactivity technology and could influence user to fulfill the satisfaction.

Variety model or technology could provide another experience to user such as 3D animation, it should add value to user that accessing website. According to Yu and Kong(2016), animation sensors can potentially provide a richer interaction model, this should give designer space to create creativity in design. Interface design could provide different animation each design to having relationship to user then interface designer could share their experience to user.

According to Steuer (1992), it is stated that “interactivity is the extent to which users can participate in modifying the form and content of a mediated environment in real time”. It should be opportunities for user to interact with device or computer, in interface there are

variety in interface design. Yu and Kong(2016), stated that web designers share the same mindset as users experience regarding the interactivity of a technology interface. Technology nowadays frequently changing in interface design and interactivity could influence user to support them in experience of user when accessing website.

This research tries to continue the previous research conducted by Abdullah et al., (2016) in the extend knowledge on the role of perceived website interactivity in influencing website revisit intention. The differences between this research and previous research are the approach that used, subject and object of research. The previous research used interactivity approach to create conceptual model to know intention user to revisit hotel website. This research uses micro interaction approach to develop university website in increasing detail information to make it easier for user to operate and access it. Previous research was dealt with service field, which is customer while university targeted on students.

2.2 Theoretical Background

2.2.1 Usability

A. Definition

Usability could be defined as the easiness of use. Generally, user feels frustrated when dealing with products that considered as difficult, it includes usability problems. Usability is defined asa specified task in an application could be easily and effectively carried out in the appropriate environmental conditions by the users which defined as target group after the necessary training and technical support (Tekin and Tufekci, 2013).

There are three main problems of usability currently on quality of product, functionality of product, and the easiness of product. Macloed, (1994) stated that usability problem could be fixed based on quality of use, a quality of the interaction between user and system. Usability should be tested on product or design that experiencing problems to ease the user.

Kilic and ve Gungor(2006) stated that usability could be defined as the combination of the factors that affects the interaction of the user with a system or product. User should interact with system that applied usability.Usability could be employed as bridge in operating the system. According to Kilic & ve Gungor, (2006) there are five factors that could be used in the design phase, as follows:

- Easy Learnability
- Effective Usability
- Memorability
- Low Error Rate
- User Satisfaction

In supporting the system, the usability should has component that could help user in effectiveness to operate the system as stated by Kilic & ve Gungor (2006) factors that could support the system. As formulated by Dumas & Redish, (1999) usability could be defined as four usages, which are:

- Usability which means focusing on users.
- People who use the product will be productive.
- Busy people who are trying to complete a task
- Users who decide when the product is easy to use.

In the scope of usability, it could satisfy the user as customer in using the product. Based on Tekin & Tufekci, (2013) the aim of usability is to design products which meet user's demands. Then usability could represent level of satisfaction of user, because design product could help frustrating user to find what they are looking for and to overcome difficulties that emerged by operating system.

Usability cognitive could be effectiveness, communicative, and provide content that could help user. Interface design should be interactive with users to support them in searching content, features that will not cause confusion, and avoid error when they use it. Usability determines functionality sign, symbol, and icon that easy to be used and operated.

2.2.2 User Experience

User experience could help designer to create web design with additional value and functional icon, sign, or symbol. Zha & Wu, (2014) found that the other point of view in the typical web design process, the user experience should be taken into account in order to achieve better functionality and enable the creation of solutions addressed to the need of web users. User experience could improve design usability and easiness to satisfy users.

User experience could influence user to interact by using communication that planted in the system. Jankowski et al., (2016) has found the interface model provides an answer to the question on how to obtain a compromise between the user experiences that is efficiency of advertising represented by a user's willingness to interact. Communication that has been built to grow the relation between user and device should fulfill the user's satisfaction.

Chien, et al (2016) has found user experience towards design visual aesthetics in order to obtain potentially useful information to assist timely decision-making. User experience could provide efficient content to help user in choosing dilemma. User experience should influence designer to create aesthetic web design that easy to be operated. Kim & Lee, (2016) suggested that users' experiences influence the availability and accessibility of heuristics. Designer is helped by user experience in designing website because it could help user to solve the problem that emerged at the screen.

Web design could support user's needs to ease them in searching their goals. User experience makes information could be accessed efficiently by using visual aesthetic that could influence user in decision making to fulfill their satisfaction. User information supports user's experience in accessing website, user reaction depends on information displayed on the screen that contained visual aesthetic. The product visual aesthetic is classified as satisfactory or unsatisfactory in user experience reactions (Chien et al., 2016).

Decision maker could design different cognitive, then user could influence the interface design with their expectation such as social, habit, and advertising. As stated by Kim and Lee (2016), heuristic is caused based on prior experience that experienced by user. Meanwhile, according to Bettman and Park (1980), experienced and inexperienced users process the information in a heuristic, whereas moderately experienced users take a more systematic approach. System that provides information could influence user based on their experience to determine problem.

Designer knows user needs to satisfy them. Designer uses interactive design to add value to user when they accessing website. Rau et al., (2015) has found users that were exploring proper interactive styles and considered user's experience to design it. User experience helps designer to find out user's needs, then it could provide different experience when accessing website.

2.2.3 User Interface

User interface is used to evaluate interface design such as icon, detail notification, and symbol. In website design, user's interface could provide efficiency that could help user to enjoy their journey when accessing website. Based on Islam & Bouwman, (2016), user interface refers to design and evaluate the web interface. It was proven that user's interface could help designer to create interface design to fulfill satisfaction.

User interface evaluates details that are shown in website to make it better by creating detail in interface design. It is investigated by Islam and Bouwman, (2016), that small elements of user interfaces could be defined as Interface signs. They are easy to be used by users and efficient for accessing website, then it could be one of options for helping user when having difficulties in accessing the designated website.

In evaluating the usability of web applications, it is often confusing and combination with other usability aspects considered as alternative option (Triacca, et al 2003). User interface

could determine layout design that will be used by designer, it could reduce user's confusion when they access website.

Troiano and Birtolo, (2014) stated "The menu layout is the hierarchical structure in which the user accesses application functions". User interface should support designer to determine website menu layout then it could help user as reader. As suggested by Troiano and Birtolo (2014) there are three structures that appear in account menu layout, which are:

- Accessibility, which is the ease of reaching desired actions,
- Guidelines, a set of best practices in organizing the menu layout,
- Preferences, a wish list made explicitly or implicitly by the designer.

Menu system helps user's accessibility to operate the system and functionality of menu layout. Menu system functionality helps to avoid confusing when accessing website. Therefore, it could optimize the users in accessing the website. In fact, Troiano and Birtolo (2014) suggested that the menu system aims to quickly activate the functions, it considers accessibility as the optimization driver.

Menu system design should help user to find their needs based on time consumption in accessing website. Good interface design could reduce time for user to solve their problems when accessing website. Walker and Smelcer (1990) investigated that the relationship between the structures made of walking menus with the time required by user to reach the target action.

2.2.4 User Interactivity

Interface design particularly navigation feature reduces the time requirement to access website. Perceived control and enjoyable interface design could influence new user to return to the site. Interface design influences user involvement. An interface design will create a behavior experience positively that affected to the responses toward a website. It may be resulted from control, enjoyment, and involvement elicited by interactivity.

Interactivity in interface could be alternative for obtaining information and communicating with users. Fiore, et al (2005b) stated that interactivity on a website includes better communication, the possibility to adapt with displayed information, image manipulation and entertainment. Interactivity provides sensory information and entertainment to influence user enjoying their activity in accessing the website. Image interactivity offers an innovation to present interface in experiencing virtual world.

User should be excited that interface has applied technology interactivity image, because interactivity image could lead user to find their needs. Image interactivity could manipulate interface in new technology in 2 dimensions or 3 dimensions. Kim, et al (2007) found that image-interactive technologies that are used include zoom in functions, mix and match functions, color swapping and 3D technologies. According to Beuckels and Hudders, (2016) it is stated that the level of interactivity depends on the technology used. A two dimensional pictorial image of a product that can be clicked to enlarge, offers only a low level of interactivity to the user.

Enjoyment arises from the entertaining and creative process involved in developing images of ensembles on the body. According to Celsi and Olson (1988), a high level of involvement that can be obtained by using interactive website features makes sure the consumer pays more attention to a product and provides the consumer with elaborate product information. There is the difference by user that accessing website used interactivity or not it proved by Li, et al (2001), user would spend lots of attention to the virtual product.

The virtual experiences generate active thinking patterns about products and the attributes. A good zoom function is one of the key elements to obtain rich visual information. Interactions in interface design are capable of user analyzing the visual information closely and could evaluate the content that appears in interface. According to Beuckels and Hudders, (2016) it is stated that interactive fun website could increase the perceived information for user.

Interaction website could rise user perception to be mediated through technology as call telepresence. According to Klein, (2003) telepresence is created through interaction with a

website and it is described as the feeling to be transported to another location or the feeling that presents in a mediated space that is different from the one where your physical body is present. Vividness refers to ability of a technology to produce sensory, rich and mediated environments, and interactivity refers to the degree wherein the users of a certain medium can manipulate its shape or contents. Following Fiore, Jin, & Kim, (2005a) Vividness as well as interactivity are essential elements to create a feeling of telepresence that is strong enough to influence consumers' attitudes towards a product.

Interactivity could influence and drive user to new world in website, it should increase the level of satisfaction on user while accessing website. Several factors are involved to drive user while accessing the website, which are: enjoyment, design, and ease to use the website. Empirical evidence supports the importance of incorporating interactivity to affect user's attitude and behavior. Interface design influences new web user to return to the website, and it may be resulted from control, enjoyment, a vivid experience, and involvement elicited by interactivity (Fiore & Jin, 2003).

2.2.5 Micro interaction

Micro interaction is a product for a single user that has one basic task such as user activity in changing settings, inserting data or devices, setting alarms, choosing passwords, logging in, timing messages, or favorite visit settings (Saffer, 2013). Users have been working with a facility on the internet. Many tools and applications are built using this critical detail. Micro interactions are widely used to accomplish following tasks:

1. Connect multiple devices together,
2. Interact in one part of data
3. Control the ongoing process such as music volume,
4. Adjust the settings
5. View or create small content
6. Change the status of the message.

Micro interactions are very small and almost invisible. They can make our lives easier, more fun, and more exciting if only they designed well and properly.

A. Structure of Micro interaction

Things that make micro interaction effective not only the size, but also the beauty in creating the system that should help user. Figure 2.1 shows the four parts of a micro interaction.



Figure 2.1 System in Micro Interaction

Trigger is the initial trigger of micro interaction. Rules determine the action in systems. While Feedback lets user know the action that appears on interface. Loop and Modes define the rules of micro interaction. Each section has its own duties in micro interaction.

2.2.6 Ordinal Data Convert to Interval Data

Ordinal data is data that sorting the respondent by the level from low to high level based on the certain attribute (Singarimbun and Effendi, 1995). Level of ordinal data can divided respondent into rank on the basis of their attitude to a particular object or action. Sorting respondent can into “very agree”, “agree”, “moderate”, “disagree”, and “very disagree”.

According to Sujarweni (2015) state ordinal data is also qualitative data but with different level with nominal data. Qualitative data can simply be called data of category result to fill data in the form of words or can be defined as data not numbers. Data qualitative get from distribute questionnaire to respondent then should testing with reliability test and validity test.

According to Nazir (2015), the technique is how to turn qualitative facts (attributes) into a quantitative sequence (variable). Qualitative facts into quantitative order has become a common practice for most researcher, for various reasons. Enhance data by ordinal data into interval data called successive interval method (MSI) (Al-Rasyid, 2014). The use of interval scales for the purposes of parametric statistics, in addition to a norm, also to change the data to have normal distribution.

The process of converting ordinal scale data into interval scale data, there are several steps that must be done, namely; calculate the proportion, calculate the cumulative proportion, calculate the z value, calculate the density value of z function, calculate the scale value, calculate the scaling (Sarwono, 2013).

2.2.7 Parametric Test

The use of parametric statistics or parametric test has a requirements like data should be normally distributed. According to Sujarweni (2015) state comparative analysis includes in parametric test then before doing comparative analysis should be tested normality and data should be normal distribution. Objectives of different test are used to show a sample having a significantly different with other samples.

Based on Sujarweni (2015) state in different test there are 3 test that analysing different 2 group sample, which are; the independent sample t test, paired sample t test, and one sample t test. T test two sample independent in principle will compare the average of the 2 groups that are not related to each other. Paired t test is used to determine whether there is an average difference between 2 free sample, it meant the 1 sample but have 2 data. One sample t test in principle wants to test whether a particular value significantly different or not by the average of a sample.

CHAPTER III

RESEARCH METHOD

In this research, there are several stages that will be conducted, starting from problem identifying, problem formulation, literature review and data collection. Data collection stage will apply questionnaires to be continued by researcher to data processing. Data processing will employ validity test, reliability test and paired T test. If the test data are insufficient, invalid and unreliable, then the stage will be returned to the questionnaire. If the data have been considered as sufficient, valid and reliable then it will be preceded to the design, analysis, conclusion and suggestions.

3.1 Object of Research

The development of micro interaction is carried out on the website of International Program Universitas Islam Indonesia.

3.2 Problem Identification

In the research, problem identification was formed based on the application of problems that occurred during the observation on the website of International Program Universitas Islam Indonesia. Aspect of observation in this study is micro interaction on the website.

3.3 Problem Formulation

Based on the identification of the above problems, it will be obtained the formulation of the problem on how to build micro interaction on the website of International Program Universitas Islam Indonesia, therefore, users will feel be involved in a system.

3.4 Source of Data

The data source is something that can provide information on the data. Based on the source, the data is divided into two, which are:

- a. Primary data are data created by the researcher for the specific purpose on problem solving that is being addressed. Primary data collected by the researcher directly from website of international program of Universitas Islam Indonesia.
- b. Secondary data are data that have been collected for specific purposes other than problem solving. These data can be found quickly. In this study, secondary data sources are derived from literature, articles, journals and sites on the internet related to micro interaction. In addition to primary data, secondary data obtained through various sources of article literature, as well as sites on the internet related to concept design of micro interaction.

3.5 Type of Data

First, problem identifying will be conducted followed by the flow design of data collection process. It will be resumed with the process of determining the data source for website. Data sources for this study are derived mostly from processed secondary data, by retrieving the data from reports, records and results of previous studies or studies that deal directly with the issues discussed. Sources of data include sources from: literatures' books, observations and websites belong to experts in the field of multimedia.

Data obtained is a variety of micro interaction and also its application on the International Program UII website. Data collected for purposes other than solving the problem being encountered.

3.6 Collecting Data Method

Data in this study, data collected ie data related to micro interaction and data on the website. Methods of data collection are as follows:

- 1) Observation, the method that researcher do to see the condition of website International Program of Universitas Islam Indonesia, whether its design has applied micro interaction or has not.
- 2) The Literature Study is a data collection that is derived by collecting sources from guide books, magazines or website that related to website design. In this study, the researcher provides information sources in a description and data sources in the references.
- 3) The data used to determine the design of micro interaction was obtained from the distribution of questionnaires to respondents who are accustomed in accessing the website of International Program UII. Attributes of the questionnaire in this study were obtained from studies of literature on micro interaction that have been performed in the previous stages. To determine the number of samples required (n), it must be first decided the level of confidence, degree of accuracy and sampling error (sampling error). In this study, the authors use 90% confidence level with the degree of accuracy (α) 10% (Eriyanto, 2007).

$$\frac{Z^2 \cdot p(1-p)}{E^2} \quad \dots(3.1)$$

Which are:

n = Amount of Sample

Z = Level of Confidence

$p(1-p)$ = population variety

E = Sampling Error

Since the sample proportion (p) is not yet known, but the p value is always between 0 and 1 with the max (p) value then:

$$f(p) = p - p^2 \quad \dots(3.2)$$

$$\frac{df(p)}{d(p)} = 1 - 2p \quad \dots(3.3)$$

$$\frac{df(p)}{d(p)} \max \text{ if } \frac{df(p)}{d(p)} = 0 \quad \dots(3.4)$$

$$0 = 1 - 2p \quad \dots(3.5)$$

$$-1 = 2p \quad \dots(3.6)$$

$$p = 0,5 \quad \dots(3.7)$$

Level of Confidence = 90%

Degree of accuracy (α) = 10% = 0,1; $\alpha/2 = 0,05$; $Z_{\alpha/2} = 1,645$

Sampling Error (E) = 10%

3.7 Data Processing

3.7.1 Data Questionnaire

The questionnaires in this study are questions given to the respondents or users to identify what kind of micro interaction design that preferred by the user. The amount of respondents participated in this research are 80 respondents. The criteria used in the selection of respondents are determined according to the age category in which the category are considered as able to take their own decisions. This category is classified into several sections, which are: group of 17-25 years, 26-35 years and 36-45 years. The answer will be categorized as following: A is very agree, B is agree, C is moderate, and D is disagree, E is very disagree.

Table 3.1 Respondent based on gender

Gender	Amount	Percentage (%)
Male	31	38.75%
Female	49	61.25%

The researcher found 10 variable of micro interaction design based on Babich (2016), Svarytsevykh (2015), and Cao (2016) to improve International Program of Universitas Islam Indonesia website, which are:

1. Long Content Button
2. Animation Status System
3. Hover Enlarging
4. Hover Animation
5. Scrolling Progress Bar

6. Emotion Interaction in Search Column
7. Animation Menu Button
8. Call to Action
9. Keep Context
10. Quickly Format Change

The questionnaire design has been made based on the literature study about micro interaction design that already mention on above. Besides, it already discussed with the expert in website design and result of the discussion, and the questionnaire shows in Figure 3.1 in 1 question intended for 2 designs, which are; previous design or initial design that already appears or applies in International Program of Universitas Islam Indonesia website and new design that will purpose to web designer. There are 3 criteria to determine respondent, which are:

- a. User who often access the International Program of Universitas Islam Indonesia website.
- b. User who not often access the International Program of Universitas Islam Indonesia website.
- c. User who can access website but not open International Program of Universitas Islam Indonesia

Nama :

Jenis kelamin :

Umur :

Pekerjaan :

1. Long Content Button

- Apakah link untuk berpindah halaman jika konten yang disajikan melebihi dari tampilan web agar artikel yang ditampilkan tidak terlalu panjang? (Design 1)



- a. Sangat Setuju b. Setuju c. Cukup d. Tidak Setuju e. Sangat Tidak Setuju

- Apakah dengan tombol untuk berpindah halaman jika konten yang disajikan melebihi dari tampilan web agar artikel yang ditampilkan tidak terlalu panjang? (Design 2)



- a. Sangat Setuju b. Setuju c. Cukup d. Tidak Setuju e. Sangat Tidak Setuju

Figure 3.1 Questionnaire design

3.7.2 Convert data from Ordinal to Interval

- a. Calculate the proportion

The proportion is calculated by dividing each frequency by the number of respondents.

- b. Calculate the cumulative proportion

The cumulative proportion is calculated by summing the proportions in sequence for each value

- c. Calculate the z value

The value of z is derived from the standard value of z table. Assuming that the cumulative proportions are normally distribution.

- d. calculate the density value of z function

The value of F (z) is calculated using the following formula:

$$F(z) = \frac{1}{\sqrt{2\pi}} \text{Exp} -\frac{1}{2}Z^2 \quad \dots\dots\dots 3.7$$

- e. calculate the scale value

Calculating the scale value used formula:

$$Sv = \frac{\text{Density at lower limit} - \text{density at opper limit}}{\text{Area under opper limit} - \text{area under lower limit}} \quad \dots\dots 3.8$$

- f. calculate the scaling

Calculates the scaling value used formula:

$$Y = Sv + |Sv \text{ min} | \quad \dots\dots 3.9$$

3.7.3 Validation Test

According to Sugiyono (2010), it is stated that the validity of an instrument means that the instrument can be used for what should be measured:

1. Determining the Hypothesis
2. Specifies the R value of the table

With a significance level of 5% degrees of freedom (df) = $n - 2$ then the value of R table can be seen in table-R

3. Finding the value of R arithmetic

To determine the value of R calculate, the author processed it with SPSS 21.0 software. R arithmetic value can be seen on SPSS 21.0 output on column Cronchbach Alpha If Item Deleted.

4. Comparing the large R table with R arithmetic

If the value of R arithmetic is positive, and $R_{arithmetic} \geq R_{table}$ then H_0 is accepted.

If the value of R arithmetic is positive, as well as $R_{arithmetic} < R_{table}$ then H_0 is rejected.

If the value of R arithmetic is negative, and $R_{arithmetic} \leq R_{table}$ then H_0 is rejected.

3.7.3 Reliability Test

Reliability is an index that indicates the extent to which a measuring device can be trusted or reliable (Singarimbun, 1989). To state the reliability of an instrument, the author analyzed it with the help of SPSS 21.0 software. The results of calculation on reliability test can be seen in Cronbach Alpha column, the consistency value of each Cronbach Alpha is presented in Table 3.1 as follows:

Table 3.1 Cronbach Alpha Clarification

Cronbach alpha	Consistency
$\alpha \geq 0,9$	Great
$0,8 \leq \alpha < 0,9$	Good
$0,7 \leq \alpha < 0,8$	Acceptable
$0,6 \leq \alpha < 0,7$	Questionable
$0,5 \leq \alpha < 0,6$	Less
$\alpha < 0,5$	Not Acceptable

3.7.4 Paired Sample T Test

The T Test for Pair Sample in another term is usually called the Paired T-Test Method, a T Test procedure for a paired sample if the average of a variable is compared with a certain constant value.

The researcher want to know when micro interaction design applied in website of IP UII will give impact or not to user using T test, then the hypothesis which are :

- H_0 : There is no significantly different between initial design (design 1) and new design (design 2).
- H_1 : There is significantly different between initial design (design 1) and new design (design 2).

3.8 Micro Interaction Structure

This section describes the structure of micro interaction ranging from trigger, rule, feedback, and loop and mode.

3.9 Analysis of Result

At this step, an analysis is made on the design of micro interaction with the aim to identify the needs of users. User experience is given in the form of visual aspect. Experience the visual aspects provided by the system to the user in the form of text, images, animation and video.

3.10 Conclusion and Suggestion

In this last section, the conclusion is provided to answers the questions on the problem formulation briefly. Later, the recommendation will be resumed for further research Development.

3.11 Flow of Research

The research diagram is used to solve problem. Research diagram explains the steps of conducting research from the beginning until final result. The research diagram can be seen in figure 3.3, as follows:

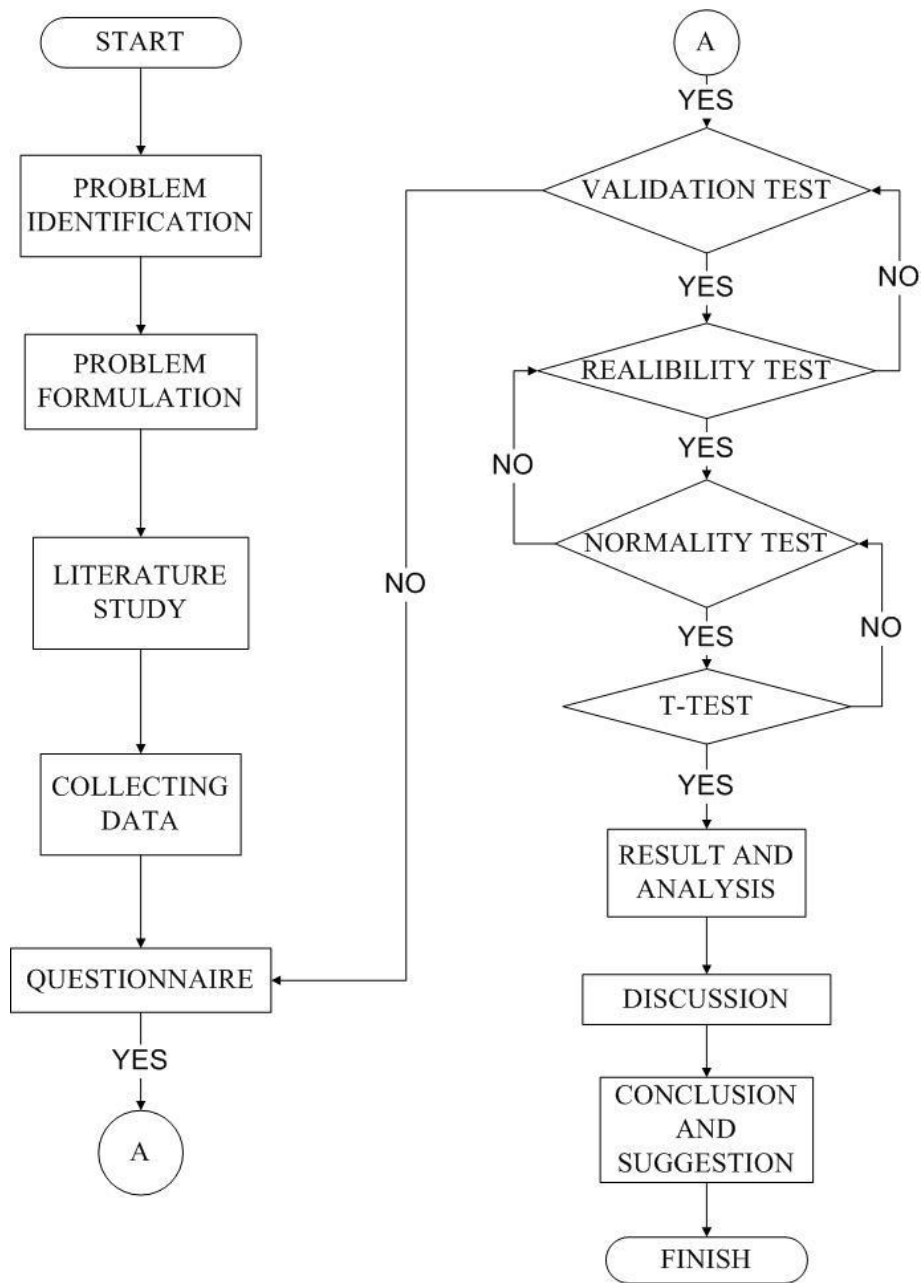


Figure 3.3 Flowchart Process of Research

CHAPTER IV

DATA COLLECTION AND PROCESSING

4.1 Data Collection

4.1.1 Input dan output micro interaction

The micro interaction input process is an action performed by the user when the user operates the application. Micro interaction begins with an event performed by the user. Event occurs because of an action on the software in the form of mouse event or loading page.

While, the process of micro interaction output is defined as the feedback that provided by the system to the user while being interacted with the application system. The form of feedback that provided by the system to the user are:

- a. Text: is the most commonly used as medium for presenting information to users
- b. Image: is a medium that provides more detailed information for users.
- c. Animation: is a medium that provides information in the form of moving images.

4.1.2 Micro Interaction in Website IP UII

The micro interaction in the website of the international program Universitas Islam Indonesia has been established, but there are still found many shortcomings and considered as ineffective. Designer tried to meet the minimal menu standard as guided by the campus and wanted to include additional menus in accordance with the recent conditions. As a result, the placement of the menu on the display looks crowded and even there are sub main menus that can not be clicked. In terms of website accessibility, it is better when the menu is clicking, then the content will appear in seconds but only in a form of page loading as in a website in general.

The use of animation and video on screen has not been used optimally. Although there are several micro interactions that have been included by the website designer, but additional ones are still required to make the website looks more attractive.

4.1.3 Questionnaire Result

The results of questionnaires that have been recapitulated based on questions that have been submitted to the respondent research results are presented as follows:

Table 4.1 Questionnaire Result for Design 1

Design 1						
Question	Answer A	Answer B	Answer C	Answer D	Answer E	Total
1	22.5%	31.25%	11.25%	10%	25%	100%
2	23.75%	16.25%	22.5%	18.75%	18.75%	100%
3	15%	23.75%	27.5%	16.25%	17.5%	100%
4	15%	23.75%	10%	27.5%	23.75%	100%
5	30%	16.25%	21.25%	20%	12.5%	100%
6	18.75%	18.75%	22.5%	23.75%	16.25%	100%
7	23.75%	21.25%	20%	15%	20%	100%
8	17.5%	22.5%	20%	15%	25%	100%
9	22.5%	22.5%	17.5%	11.25%	26.25%	100%
10	21.25%	22.5%	20%	15%	21.25%	100%

Table 4.2 Questionnaire Result for Design 2

Design 2						
Question	Answer A	Answer B	Answer C	Answer D	Answer E	Total
1	22.5%	27.5%	26.25%	23.75%	0%	100%
2	26.25%	26.25%	17.5%	30%	0%	100%
3	23.75%	30%	21.25%	25%	0%	100%
4	13.75%	31.25%	35%	20%	0%	100%
5	23.75%	23.75%	25%	27.5%	0%	100%
6	28.75%	21.25%	25%	25%	0%	100%
7	27.5%	21.25%	27.5%	23.75%	0%	100%
8	18.75%	26.25%	30%	25%	0%	100%
9	30%	21.25%	25%	23.75%	0%	100%
10	30%	25%	20%	25%	0%	100%

The questionnaires are distributed to 80 respondents. Later the results will be used to determine which micro interactions that will eventually designed.. The results of the questionnaire can be seen on table 4.1 and 4.2.

1. Long Content Button

This small choice is basically a button to move pages if the content presented exceeds the web view. This micro interaction can be applied to the website of the International Program Universitas Islam Indonesia. The presentation is a simple button that located at the bottom corner of the context.

Figure 4.1 shows existing micro interaction design using word read more and change color when cursor over the word. Figure 4.2 shows that long content button can be used for any pages that have long content, the action is when cursor click word read more it will change to button. This micro interaction can give clear information to user and decrease vagueness.

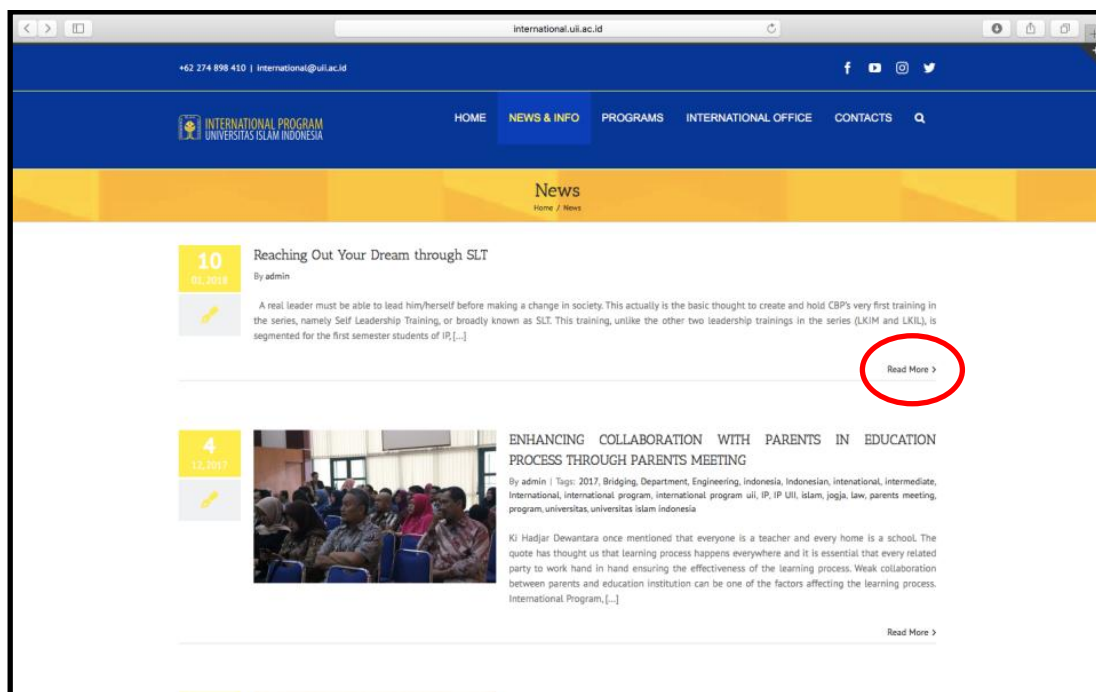


Figure 4.1 Existing design



Figure 4.2 Long contentbutton

2. Animation Status System

The principle of website's usefulness was described by Jakob Nielsen that stated to keep your user information about the things that happen in direct approach. Users expect an immediate response from a system, but there are situations when a site takes a while before the action is completed.

The interface should inform the user clearly with what happens to the system. By displaying graphics in the background, measuring bit rate, or playing sound. The same principle relates to loading while displaying images, it shows the user about what happens with the process even the notification is not so pleasant such as a transfer fails or can not access the image. All the problems should be delivered in an interesting way. Existing design that uses old version animation, do not provide information on loading progress regarding to its system status as shown in figure 4.3. Development can also be done while downloading or uploading data on the website as shown in figure 4.4.

The function of this micro interaction is to indicate to the visitors whether the page has been loaded or has not. The effect on Loading Progress is applied when the process is loaded

at the same time or while it is refreshing the page. This loading progress allows designer to beautify the web loading or loading effect to be more aesthetic and look more captivating.

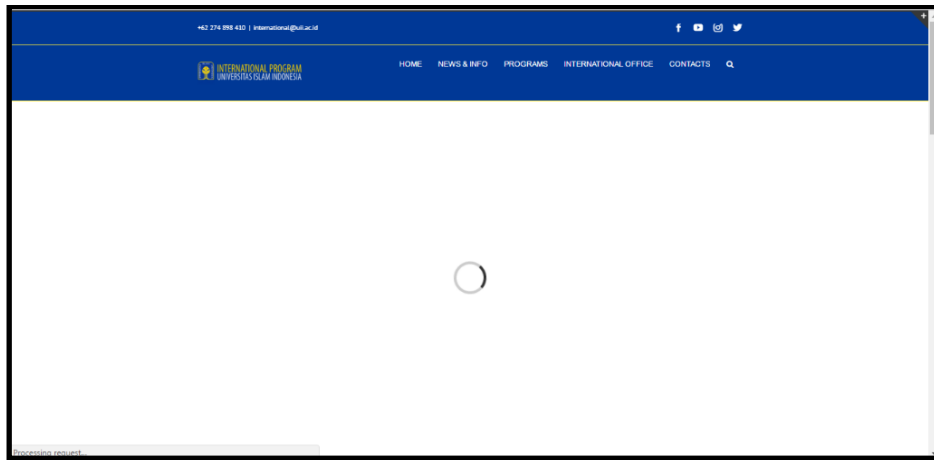


Figure 4.3 Existing Design using old animation status system



Figure 4.4 Animation status system

3. Hover for Enlarging

User hovers over the image to see a larger version. While in the application on this website, it can be used to see the details of an image that presented as shown in figure 4.6. For example, the image of the building of International program Universitas Islam Indonesia, when the image is clicked, it will be shown part of building or content enlarging, then it could be seen the detail of building or content. Figure 4.5 shows that there are some figures that displayed partially that cause users difficult to understand.



Figure 4.5 Existing design without hover enlarging

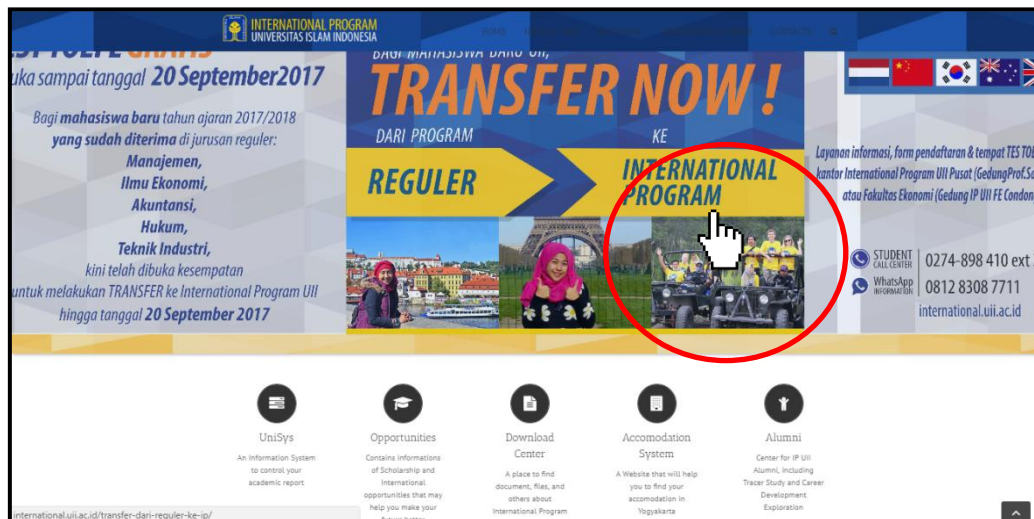


Figure 4.5 Hover enlarging

4. Hover Animations

Technology of micro interactions is likely intended to provide a pleasure. This hover animation could provide another experience for user, for instance when the button is floating or an icon come from behind the hidden object. This section indicates the feedback of the object that being given with the interaction effect. Hover animation is one of the most popular elements in micro interactions. Hover animations are very practical for delivering an interactive element.

When the user clicks on a certain link on the web page and when the cursor is over the link but the user has not clicked, the link color will change, different with the initial color, the text moves, appears, or shifts, the cursor hovers over the link and the link will change.

The sign on button or text can be clicked so that the effect of hovering should be clearly visible. The user will tend to move the mouse over that function, and make the animation hover quite intuitively.

In the website of the International Program Universitas Islam Indonesia hover animation can be applied to several buttons that are located on the bottom of website or on the articles that have that many sub-sections, it is used to group sub menus into one button. In existing design, it only applied as picture that could possibly bored the user as shown in figure 4.7.

At the moment the cursor is located over the button, it will carry out certain action by giving a specific response. This impression provides a great experience for user especially when it is shown with interactively as shown in figure 4.8.

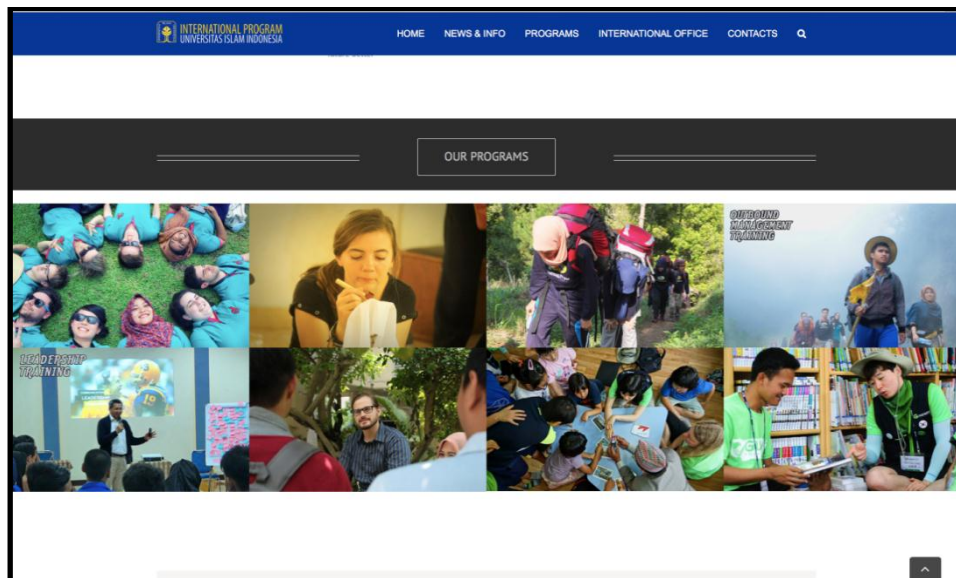


Figure 4.7 Initial design without hover animation

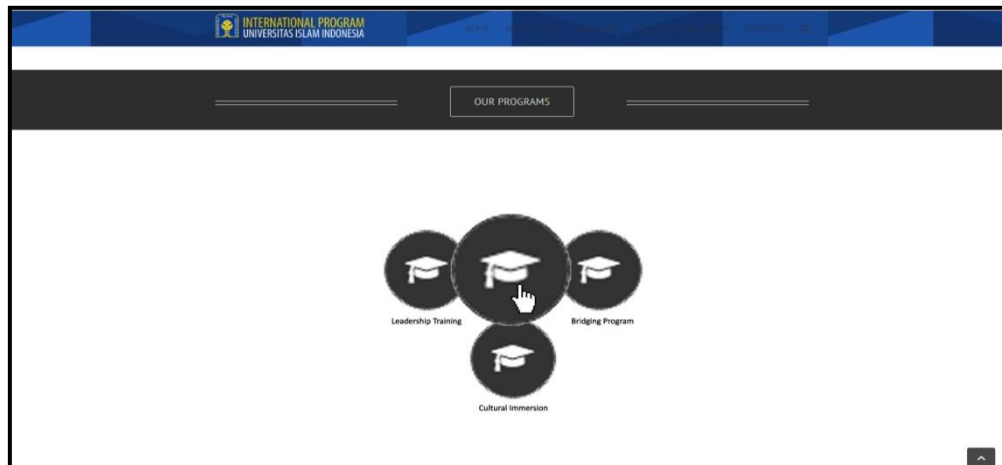


Figure 4.8 Hover Animation

5. Scrolling progress of bar

The critical and essential detail that has to be accomplished is a progress bar that designed to see whether an article has been accomplished and being switched or not. This micro interaction can be applied to the website of the International Program Universitas Islam Indonesia. Progress bar is located near beside the articles, if the article is read, then the progress bar will move to the next article. Figure 4.9 the existing design of micro interaction shows scroll bar that not provide information that about progressing.

Figure 4.10 shows an animation progress bar for the article that already read. It shows how many percent of posts that have been read and how many those that have not been read.



Figure 4.9 Initial design scroll bar



Figure 4.9 Scrolling progress of bar

6. Emotion Interaction in Search Coloumn

A web-based Twitter gives users new ways to explore and use Twitter. This application does a great job with users running through the first app, explaining features in a clear and interesting way. The confirmation button uses phrases like "Makes sense" and "Got it" which creates a sense of personality and confidence with the user, a much better choice than a typical "Next" as shown in figure 4.12. In the existing design of website of International Program, Universitas Islam Indonesia, only inside coloumn prepared with word "search" that make user can't find out the content inside of website as shown in figure 4.11.

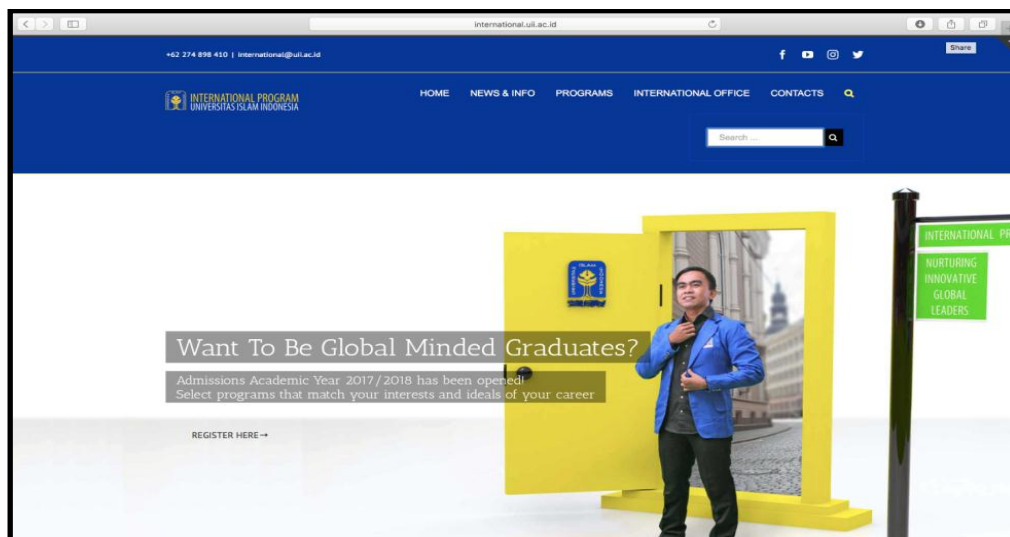


Figure 4.11 Existing design in search coloumn



Figure 4.12 Emotion interaction in Search

7. Menu ButtonAnimation

The use of animation button can make visitors feel appreciated by getting feedback from the sites visited. Since the button is the main element on a website, in the International Program website there is no animation and borderattached in the main menu button as shown in figure 4.13. To save screen space, the website applies the latest trend which is a hidden navigation menu that will unfold or exit when users click a button on the web screen. Hence, animation is important to visually connect those two elements. Human eyes tend to be more interested in movement. This makes animation is the best tool for controlling the user's visual hierarchy, especially with sites with more images or static content.

Animation is a great way to add intrigue to form, call to action, or even menu items. Smart animations attract first time users, while standard navigation is still struggling in the same place and only attracts users who have a more traditional experience. In this case, it is best not to get out of range.

Pop out animation will create a menu that appears as if it is a secret slide that makes the whole interaction run smoothly as shown in figure 4.14. In website International Program Universitas Islam Indonesia there is no animation on the menu button.

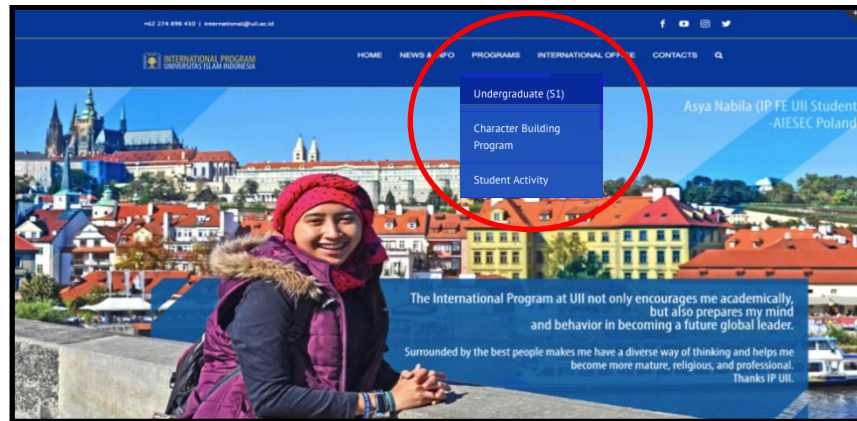


Figure 4.13 Existing design on expand menu

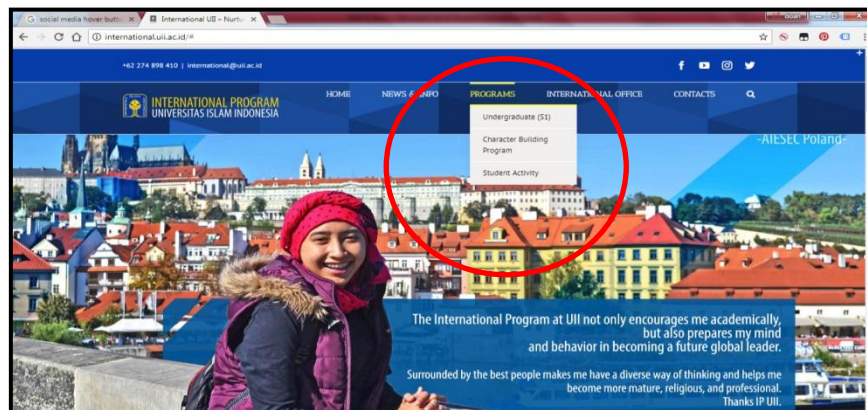


Figure 4.14 Animation menu button

8. Call to action

In most cases there are more page choices than the previous page. Nothing is more frustrating than finding out that a website that provides all of these options for consideration has led you to a dead end. Sometimes it is necessary to show visitors where they should go when they are not finding what they are looking for as shown in figure 4.15.

In the website of International Program Universitas Islam Indonesia, it can be placed the notification everytime the page cannot be found by the user. Small commands are provided by the website to provide reciprocity to users for history. Placements for web pages that are not yet available give users the option to click on an existing button as described in figure 4.16.

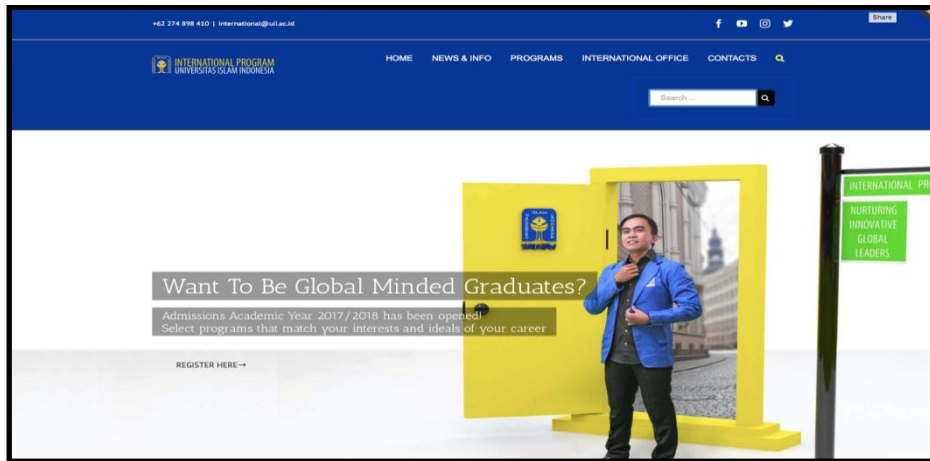


Figure 4.15 Existing design when search word

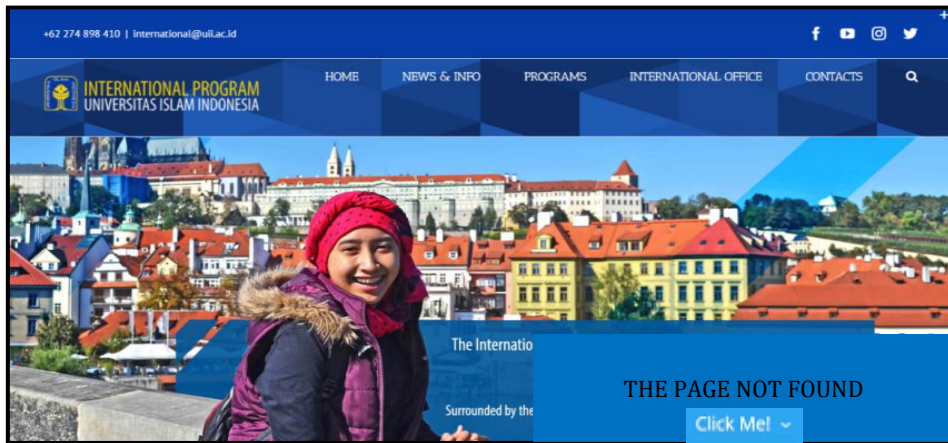


Figure 4.16 Call to action

9. Keep Context

The usage of movements in order to influence users is designated for its navigation contexts and show changes on the elements on the screen. This is applied to mobile devices and smart watches, as it is impossible to include a lot of information on one screen. The initial design does not include the micro interaction to keep context as shown in figure 4.19.

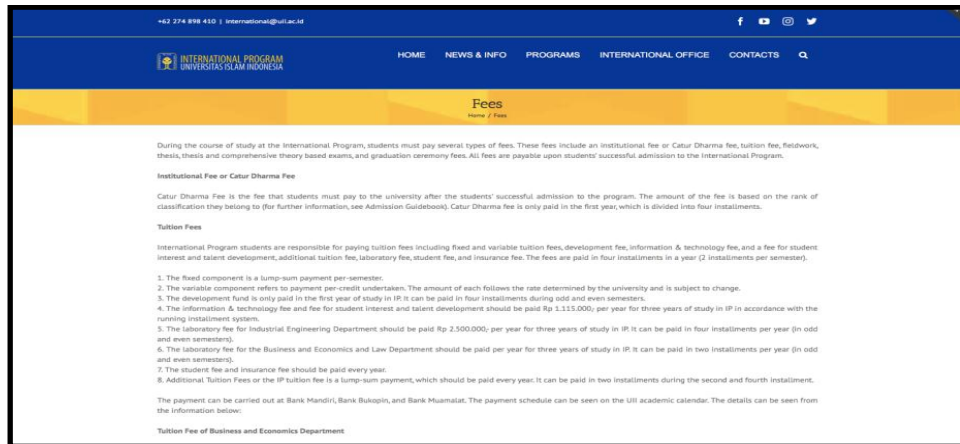


Figure 4.19 initial design

It keeps clear navigation between different pages, so users understand what and where it comes from. The transition between two visual states must be clear, seamless, and easy. It is considered as unite in theme - create a unifying theme to combine all interactions.

In the website of International Program Universitas Islam Indonesia, it can be placed the medium length article, which may not be presented completely in one page as shown in figure 4.17.



Figure 4.17 Before action keep context

The use of microinteraction is effective on devices with small screen dimensions, summarizing something and then displaying it entirely by clicking on a button or slide the screen as shown in figure 4.18.

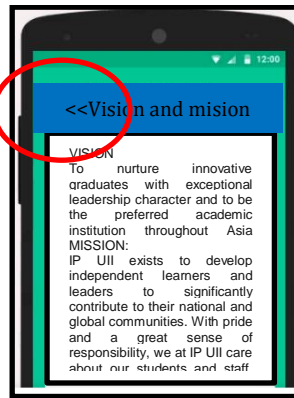


Figure 4.18 After action keep context

10. Quicky Format Changes

Website of International Program Universitas Islam Indonesia applies news module which always being updated every time to get realtime info. The human eye tends to be more interested in things that move and change. This makes realtime changes to be the best tool for controlling the user's visual hierarchy, especially with sites with more images or static content. But in the intial design there is norealtime update info as shown figure 4.21.

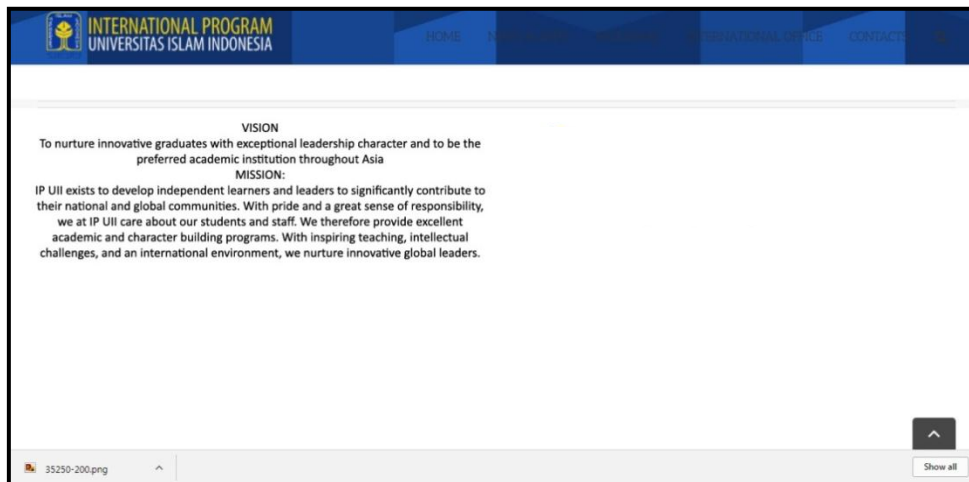


Figure 4.21 Initial Design

Quickly format change is a great way to add intrigue to form, call to action, or even interaction with users. Smart websites attract the first time users, while stand-up display and navigation are still struggling in the same place and only attract users who have a more traditional experience. In this case, it is best not to get out of range, figure 4.20 shows how many visitor online and visitor today.

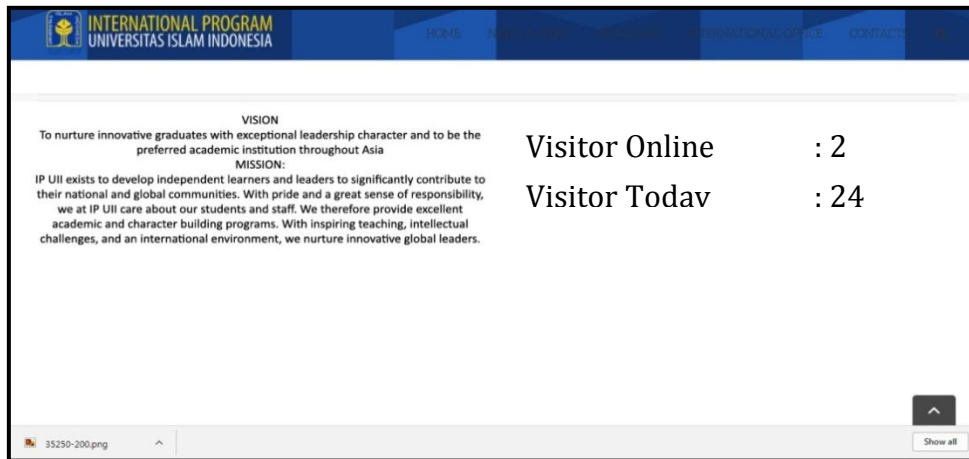


Figure 4.20 Format quicklychange

4.2 Data Processing

4.2.1 Questionnaire

In this research, it is needed to determine the forms of micro interaction design on the website of International Program Universitas Islam Indonesia. In this research, the respondents were asked to fill in the questionnaire in accordance with the users' preferences on the design of micro interaction on the website of International Program of Universitas Islam Indonesia. Questionnaires are distributed to respondents who often interact with the website. In determining the acceptable or sufficient number of samples in this study, the minimum sample size required to determine the micro interaction design as required by respondents, which is:

$$n = \frac{Z^2 \cdot p(1-p)}{E^2} \quad \dots(4.1)$$

$$n = \frac{1,645^2 \cdot 0,5(1-0,5)}{0,1^2} \quad \dots(4.2)$$

$$n = 67,65 \approx 68 \quad \dots(4.3)$$

In this study the researcher distribute questionnaires to 80 respondents. Thus, the data are considered as enough or categorized acceptable.

4.2.2 Determine Attribute

This research required the design attributes in starting the questionnaire. The attributes of the questionnaire in this study were obtained from the literature study. In this questionnaire respondents were asked to fill out the questionnaire according to the design of micro interaction that will be designed. The literature study conducted will result the attributes.

Table 4.3 Attribute Result

No	Needs
1	Long Content ButtonVariable
2	Animation status systemVariable
3	Hover for enlargingVariable
4	Hover AnimationsVariable
5	Scrolling Progress BarVariable
6	Emotional Interaction in search coloumnVariable
7	Animation in Menu ButtonVariable
8	Keep Context Variable
9	Call to Action Variable
10	Quirky Format ChangesVariable

In table 4.2, it can be seen from literature studies based on micro interaction that can be developed on the website of International Program of Universitas Islam Indonesia.

4.2.2 Validation Test

Validity has the meaning of the precision and accuracy of measuring instruments in performing the function (Yamin&Kuriniawan, 2009). The following are the steps taken in testing the validity:

1. Determining the Hypothesis
2. Determining the R Value of the Table

5% significance level.

Degree of freedom (df) = $N - 2 = 80 - 2 = 78$.

When it is viewed from table-R, then the value of R table is 0.2199.

3. Find the value of R calculation

R value is calculated from data processing using SPSS. The R value calculated can be seen in the SPSS output in the Corrected Item_Total Correlation column.

4. Decision Making

The basis of decision making in this validity test is described as follows, if $R_{\text{arithmetic}} \geq R_{\text{table}}$, then item or item questionnaire is valid. If $R_{\text{arithmetic}} \leq R_{\text{table}}$, then item or item questionnaire is invalid.

Tabel 4.4 Attribute of Validation Test Design 1

No	Question	R Calculation	R Table	Information
1	Long Content Button Variable	0,276	0.2199	Valid
2	Animation status system Variable	0,404	0.2199	Valid
3	Hover for enlarging Variable	0,365	0.2199	Valid
4	Hover Animations Variable	0,269	0.2199	Valid
5	Scrolling Progress Bar Variable	0,292	0.2199	Valid
6	Emotional Interaction in search coloumn Variable	0,279	0.2199	Valid
7	Animation in Menu Button Variable	0,535	0.2199	Valid
8	Keep Context Variable	0,354	0.2199	Valid
9	Call to Action Variable	0,423	0.2199	Valid
10	Quirky Format Changes Variable	0,383	0.2199	Valid

Table 4.5 Attribute Validation Test Design 2

No	Question	R Calculation	R Table	Information
1	Long Content Button Variable	0,315	0.2199	Valid
2	Animation status system Variable	0,297	0.2199	Valid
3	Hover for enlarging Variable	0,235	0.2199	Valid
4	Hover Animations Variable	0,229	0.2199	Valid
5	Scrolling Progress Bar Variable	0,326	0.2199	Valid
6	Emotional Interaction in search coloumn Variable	0,382	0.2199	Valid
7	Animation in Menu Button Variable	0,447	0.2199	Valid
8	Keep Context Variable	0,376	0.2199	Valid
9	Call to Action Variable	0,283	0.2199	Valid
10	Quirky Format Changes Variable	0,223	0.2199	Valid

Based on the table 4.5 validity test results that are performed with SPSS software, obtained the results of 10 questions submitted that get the R calculation value greater than R table, then H_0 is accepted. Thus it is disclosed that all research attributes can be used as the basis for designing micro interaction design and can be proceed to research process.

4.2.3 Realibility Test

Reliability can be interpreted as trust, reliability or consistency. The results of a measurement can be trusted if in several times the implementation of measurements on the same subject obtained results are relatively similar, it means having good consistency measurement. Conversely, if it is obtained a different result with the same subject then it can be said as inconsistent. The result of calculation on reliability test can be seen in table Reliability Statistics at column Cronbach's Alpha.

Tabel 4.6 Attribute of Realibility Test Design 1

Cronbach's Alpha	N of items
0.71	10

Reliability test results can be seen in the table 4.6, which is Cronbach's Alpha 0.71 for design 1 and N of items 10 then data reliable.

Tabel 4.7 Attribute of Realibility Test Design 2

Cronbach's Alpha	N of items
0.81	10

Reliability test results can be seen in the table 4.7, which is Cronbach's Alpha 0.81 for design 2 and N of items 10 then data reliable.

4.2.4 Normality Test

Table below is the result of one sample Kolmogorov-smirnov test.

Table 4.8 Tests of Normality

Group	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Score Design 1	.092	80	.092	.988	80	.636
Design 2	.093	80	.087	.983	80	.371

a. Lilliefors Significance Correction

The results of normality test data in table 4.5 show that the value of Kol-Smirnov sig is 0.92 for design 1 and 0.87 for design 2 (> 0.05) and the value of Shapiro-Wilk sig is 0.636 for design 1 and 0.371 for design 2 (> 0.05), so it can be concluded as normal distributed data.

4.2.5 Paired Sample T Test

One sample t test is an analytical technique to compare one independent variable. This technique is used to test whether a particular value differs significantly or not with the average of a sample. The hypothesis of this research which are:

- a. H_0 : There is no significantly different between initial design (design 1) and new design (design 2).
- b. H_a : There is significantly different between initial design (design 1) and new design (design 2).

Table 4.9 Paired Sample Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Design 1	30.54	80	4.693	.525
	Design 2	34.95	80	3.617	.404

Table 4.9 shows paired sample statistic mean 30.54 for design 1 and 34.95 for design 2, standard deviation 4.693 for design 1 and design 2 is 3.617, and standard error mean 0.525 for design 1 and design 2 is 0.404.

Table 4.10 Paired Sample Correlation

		N	Correlation	Sig.
Pair 1	Design 1 & Design 2	80	.071	.532

Table 4.10 shows paired sample correlation between design 1 and design 2 about 0.071 with sig 0.532 with N 80.

Table 4.11 Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Design 1- Design 2	-4.413	5.718	.639	-5.685	-3.140	-6.902	79	.000

The table 4.11 shows sig (2-tailed) 0.000 then $< 0.05.$, then H_0 rejected then H_a accepted, It means that there is significantly difference between initial design (design 1) and new design (design 2) on International Program of Universitas Islam Indonesia website.

CHAPTER V

DISCUSSION

5.1 Discussion

In determining micro interaction after identifying features that exist on the website of International Program of Universitas Islam Indonesia based on literature study that has been done. The literature study based on output and micro interaction, input as user action while output as feedback provided by the system to the user. Some actions applied to the application are click, and hover while the feedback form applied is animated color change and zoom. Determination of micro interaction design form designed in accordance with the wishes of respondents based on questionnaires that have been disseminated.

The results obtained based on the question attributes submitted to the user research respondents want a feedback from the actions performed by the user. Users also want a circular loading bar that has a percentage to know the running process. In addition the user also wants a change of color on the button when the cursor is above the button.

5.2 Micro interaction analysis

Micro-interaction is a small part of the functionality that is around user. Focusing on critical detail is a way to create a superior user experience. Whenever users set status messages, move the cursor, write, clicks and also fill the user form will be involved with micro interaction. They are in and around the feature, in every app, website, and tool.

If micro interaction works very well, it can be a Signature Moment. The features that have micro interactions could be raising to part of the brand such as facebook's Like is a famous example, Microsoft's Start button and Google's "I'm Feeling Lucky."

Micro interaction consists of four parts: trigger, the rule, the feedback, and the loop and mode it creates up to meta-rules. There are three ways to work with micro interaction: search for and focus on each individual, reduce the complex features of core micro interactions, or treat each feature as a set of related micro interactions. There are 4 factors to be considered by user in micro-interaction, which are:

5.2.1 Trigger

Triggers are something that initiates micro-interaction. The manual trigger is an initiated user, and can be a control, icon, form, or sound, touch, or gesture command. The trigger occurs when a certain conditions is met, and perform the same action every time. The triggers are created by something that the user will recognize in context. Show the important information from the micro interaction on the trigger when it possible, such as unread messages or ongoing processes. If the trigger looks like a button, it should be like an icon on menu, or sub menu.

The more a micro interaction is used, the more it appears the trigger. In the menu is the least noticeable place for the trigger. Add labels when there is a need for clarity, when a trigger cannot deliver all the necessary information. Labels should be short and clear language. The trigger system requires rules to determine when and how often it appears.

5.2.2 The Rule

Rules create non-technical models of micro interaction. The system of rules defines what can and cannot be done, and in what order the Rules should reflect obstacles. Business, contextual, and technical constraints should be addressed. Researcher use rules to know about users, platforms, or environments to improve micro interaction. Remove complexity. Reduce control to a minimum. Reduce selection and create smart defaults. More choice means more rules.

5.2.3 Feedback

Information that user needs to know and when should be ease to understood. Feedback is to understand the rules of micro interaction and this depend on understanding. Find out which rules are eligible for feedback, decide what message that convey with feedback, then select the correct channel for that message, look at the context and see if the feedback (or should) be changed by it. Use pre-existing user interface (UI) elements to deliver feedback messages. Add concept micro interactions that already have before adding other elements, do not create random feedback. Connect feedback to control and / or action. If that possible, get visual feedback for each user's actions. Add sound and haptics for emphasis and warnings.

5.2.4 Loops and Mode

Modes happened when there are rare actions that might interfere with micro interactions, If that is accidentally happen, designer should make own modes when it possible. For quick action, consider using spring-loaded or one-off modes instead of traditional modes. Use loop to extend the life of micro interaction. Carefully consider loop parameters to ensure the best user experience. Use long loops to provide micro interaction memory or to progressively reveal or reduce aspects of micro interaction over time.

5.3 User flow analysis

User flow describes several sections in the design of micro interaction design at the website of International Program of Universitas Islam Indonesia which is divided into 2 sections, the action performed by users and feedback from the system. Once the form of action and feedback form is determined then a process flow is created to assist the user in understanding every interaction done and obtained.

The process describes the overall of micro interaction that occurs for the actions can be performed and the feedback is gained. In the user flow folder it provides clear information

about the display of features when the user performs an action on which part of the feature and what action will change the system when the feedback is received by the user.

5.4 Analysis of the use of micro interaction

This research is the concept of development of the website of International Program of University Islam Indonesia which has been implemented through several stages. There are some result that could develop the website International Program of Islamic University of Indonesia which are quirky format changes, customized header background and icon, interaction social media, animation of menu button, emotional interaction in search column, themed captcha, hover animations, hover for detailing picture, Animation of system status and Translate this page. This development is carried out from the identification stage in the use of micro interaction in a website, to produce the concept of micro interaction website worthy of use for the future as the application of the concept further study.

5.4.1 System

Assessment of the feasibility of the International Program of Islamic University of Indonesia as a source of information of candidate students and students who have registered, the website of the international program of University Islam Indonesia has advantages, among others, on software engineering aspects is easy to use and simple, could run in various hardware and software, and could be developed into another media (reusable).

The visual communication aspect of the website of international program website of University Islam Indonesia has the advantages of communicative, creative, and the availability of mobile media so as to facilitate the students to absorb the material displayed in the information provider website. This is evidenced by the presentation of pictures and videos aims to generate motivation and improve user understanding of information about the International Program of University Islam Indonesia. Picture and video could facilitate the delivery of things that are difficult if delivered with words and could make a stimulus for users to connect it with real situations.

5.4.2 Navigation

The reason user accessing website it could be one thing that is the specific information needs. It will frustrate the user and leave the website immediately if they do not get the core information from the website and the company immediately.

Navigation that provides a proper clue in website would make user comfortable to access the website and get a lot of information from each page section of the website. This would be increasing the number of potential user who will affect in visitor's website, which is the main purpose of creating the website.

Website navigation has two main influences namely usability and accessibility, then navigation is an important part that should be a concern. The essence of navigation is the ease of the user to move from one page to another. Do not ever make user confused when accessing website in page and confused accessing website to obtain the information of products or service. On the website of the International Program of University Islam Indonesia there is navigation that could not be accessed on google chrome browser like sub menu that is difficult to be clicked, that is one of reason researcher provide concept micro interaction that could help user in accessing website of International Program of University Islam Indonesia.

5.4.3 Result Analysis

There are 10 concepts of micro interaction design on the International Program of Universitas Islam Indonesia website, which are:

1. Long Content Button
2. Animation Status System
3. Hover Enlarging
4. Hover Animation
5. Scrolling Progress Bar
6. Emotion Interaction in Search Column
7. Animation Menu Button

8. Call to Action
9. Keep Context
10. Quickly Format Change

The results of the data analysis shows there are 10 micro interactions design that can be applied to the International Program of Universitas Islam Indonesia website as mentioned above. This can be seen the calculations from the questionnaires that have been distributed. Where there is different previous design with new design. This is because the micro interaction tested is quite efficient when used on International Program of Universitas Islam Indonesia website.

While the results of the items each question on the questionnaire is valid from the validity test that has been done by comparing the value of R calculate and R table. From the data obtained by the results of 10 questions asked get a R calculate value greater than R table.

The results can be trusted if in several times the implementation of measurements on the same subject obtained results are relatively similar, it means the result is consistent. Meanwhile, if obtained a different result with the same subject then said inconsistent. While in data processing found that the value of Cronbach's Alpha about 0.71 in design 1 and Croncbanch's Alpha in design 2 about 0.81 value is greater than 0.05. From the results of these calculations, the micro interaction design on International Program of Universitas Islam Indonesia website is reliable or consistent.

Furthermore, to test whether the micro interaction offered normal distributed or not, done by normality test data that the value of Kol-Smirnov sig is 0.92 for design 1 and 0.87 for design 2 (> 0.05) and the value of Shapiro-Wilksig is 0.636 for design 1 and 0.371 for design 2 (> 0.05), so it can be concluded as normal distributed data.

Finally, to be able to give interpretation to certain value significantly different or not with result of paired sample statistic mean 30.54 for design 1 and 34.95 for design 2, standard deviation 4.693 for design 1 and design 2 is 3.617, and standard error mean 0.525 for design 1

and design 2 is 0.404, and paired sample correlation between design 1 and design 2 about 0.071 with sig 0.532 with N 80 then paired sample T test is sig (2-tailed) 0.000 then < 0.05 ., then H_0 rejected, it means there is significantly different between initial design (design 1) and new design (design 2)on International Program of Universitas Islam Indonesia website.

CHAPTER VI

CONCLUSION AND SUGGESTION

6.1. Conclusion

From the analysis on the website of International Program Universitas Islam Indonesia, it can be concluded as follows:

- a. There is a different between existing micro interaction design of International Program of Universitas Islam Indonesia website with the new micro interaction that will propose to the web designer. It is because, the Paired Sample T-Test result shown a significantly different with value $0.000 < 0.05$, which means H_1 accepted.
- b. This research has been found 10 micro interaction designs which are; long content button, animation status system, hover for enlarging, hover animation, scrolling progress of bar, emotion interaction in search column, animation menu button, call to action, keep context, and Quickly Format Changes.

6.2 Suggestion

There are several suggestions that could be useful for further research, which are:

- a. Different methods could be applied in obtaining micro interaction design that still absent in this research.
- b. The system that can be designed and built is the concept of micro interaction which can actually be developed further by using usability test on the website of International Program UniversitasIslam Indonesia.

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