The Analysis of the Facilities and ICT Applications Usage by the University’s Students

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Abstract. The applications and facilities of ICT in a university are necessary to enhance the performance, and quality of the education. As the main role of the successful use of ICT facilities, students are expecting to obtain the gratification and satisfaction in using these technologies. The study employed the UGT (Uses and Gratification Theory) as the fundamental concept to arrange the research framework and conducted a survey among 386 respondents. The result pointed out that students’ attitude, social support, and locus of control are influencing the gratification and satisfaction with the usage as the intervening variable. Findings also stated that the usage of ICT applications and facilities is influencing both the gratification and satisfaction. However, variables of demographic, community involvement and credibility have no effect on the gratification and satisfaction.

Keywords: ICT, Usage, Student, University, Uses and Gratification Theory.

1. Introduction
Information and Communication Technology (ICT) is a technological tool that has touched many sectors in human life [1]. As the one of the sectors, the use of ICT is very important in helping the sustainability of the education system. The application is able to provide the success of the teaching and learning process and has the competence to expand the teaching and learning activities [2]. The use of ICTs in the education system can have an impact in terms of the speed of information delivery, the breadth of knowledge sources, the preservation of knowledge, and enhance the learning process quality [3].

The quality of the higher education system can be determined based on the dimensions of the interrelated elements. One dimension is input quality, which is related to the quality of human resources, tools and equipment, and information [4]. Therefore, the application of ICT in an education is important, whereas act as a tool and equipment as well as a source of information. There are several ways to implement ICT in a university, namely applies ICT tools in the learning process [2], integrate the information systems in support of higher education management [5], and runs the distance learning (E-learning) [6]. However, to achieve successful integration of ICT facilities, related institutions need to discipline various user groups or the entire community on campus [7], students for instance. There are previous researches which stated that students are the main actor to illustrates the success ICT usage, both equipment or means, applications, and information systems [8]–[13]. Hence, it can be concluded that students are important players in the successful use of ICT facilities and applications in a higher education institution.
Furthermore, students' attitudes and behaviour in using ICT applications is important to be discovered, as well as the adequateness of facilities, the existence of social support, linkages with the surrounding community, gratification, and satisfaction in use should be known and investigated. Then, the intention of continuing to use this ICT application is also expected to be owned by students. Moreover, the benefits in using these ICT applications are also crucial. Therefore, this study formulates a problem, namely how the behaviour of using ICT facilities and applications by students at a university.

2. Literature

2.1. ICT in the University

Over the last decade, ICT has touched every line of education; several instruments such as computers and the Internet are used for educational advancement. The quality of education in today’s society is heavily influenced by the presence of ICT. Various challenges and benefits arise for the incorporation of digital technology in modern society [14]. The emergence of ICTs provides new opportunities, projects, platforms and initiatives related to learning. Furthermore, higher education is a sector that sustains a lot of development related to matters related to ICT [15]. There are several examples of ICT facilities and applications that can be applied in a higher education institution, including: availability of computers and Internet networks, website, social media, student portals, email, mobile applications, blogs, repositories, digital library, and E-learning. The availability of computers and Internet networks is one of the most important indicators to fulfill the goal of creating a digital campus [16]. PC computers and laptops should be available in every corner of the campus such as libraries, laboratories, and classrooms. In line with this, the Internet network must also be available throughout the campus area. The existence of a Wireless-Fidelity (Wi-Fi) network with adequate connections is a supporting factor in student satisfaction with a university [17], [18]. Then, a campus website has a very important role to broadcast the information about campuses and also become an important factor for the success of the university in terms of accessibility and visibility [19]. Besides the website, social media also provides services to the entire academic community in relating and interacting. Facebook, Twitter, Instagram, and YouTube can be used for the purpose of collaboration between students and lecturers, communication and increasing creativity [20]. Student portal is used to communicate, share knowledge, and manage information [21], and email is used to unify the use of email in accordance with the campus formal regulations and regulations for disseminating information. Through official email, the entire campus staff can be integrated and assembled in a system [22]. Furthermore, the mobile application is to provide information about campus and lectures, where it can be run both online and offline. Besides, the mobile application is handy. It can be implemented in various operational systems such as iOS and Android [23]. Then, Blogs are usually used in the context of teaching and learning as a tool to facilitate effective student learning [24]. The campus repository is used to archive scientific papers published by the campus to increase visibility and provide a global network for students. The repository is also applied to managing electronic scientific products such as e-books, journal articles, theses, research reports. Furthermore, the repository also participates in the growing scientific communication process, providing space for easier access to university research results [25], [26]. A digital library provides a broad presentation of reference materials, such as books, journal articles, scientific magazines, and other scientific works in electronic form. Its use can support students’ ability to study and conduct research in real-time or without time limits [27]. Lastly, E-learning provides online-based lectures equipped with features that support the learning process. E-learning consists of services that are supported through websites and Internet networks for the provision of educational processes [28].

2.2. Uses and Gratification Theory

The Uses and Gratification theory (UGT) is used to explain the media exposure in the communication studies. The theory firstly appeared in 1974 by Jay Blumler and Elihu Katz, which is a media study that is modelled to identify the reasons for using media from users, and what they get from the media. UGT aims to test the attractiveness of certain media and why users consume this media [29].

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UGT theory has been applied to various media and mass content, especially in the field of ICT, namely: mobile devices, the Internet, social networking sites, and social media. There are several factors that determine the use of media, namely: attitudes, community involvement, social support, demographics, locus of control, and news credibility as can be seen in Figure 1 [30].

![UGT Diagram](image)

**Figure 1.** The UGT Diagram [30].

The attitude is defined as an evaluation of past experiences, expectations, and self-efficacy by an individual. Then, the community involvement variable describes the strength of the implications of outsiders or the surrounding community in using the media, and the social support variable shows how closely an individual is related to various social levels in his life, including supporting the use of media. Then, demographic factors illustrates the characteristics of an individual such as gender, age, ethnicity (or race), and socioeconomic status. Furthermore, environmental monitoring (locus of control) is how to monitor the media environment internally or externally. The news credibility variable aims to clarify how individuals choose to consume media. The six variables are variables that affect the gratification and satisfaction variables, where there are also intervening variables, namely the use. Gratification is the basic need of an individual for media use, and use is how an individual interacts or consumes a media. Meanwhile, satisfaction is how the individual attitudes in fulfilling their needs obtained from the media. Several studies have been conducted using Uses and Gratification Theory (UGT) to discover how students use ICT. Zinyeredzi and Zinn [31] suggest that gratification and satisfaction in the use of Web 2.0 technology are influenced by factors such as: ability to collaborate and communicate, low costs, ease of use; and their availability outside the classroom. These factors are obtained using the UGT as a measuring instrument design and distributed through a questionnaire to students. Ifinedo [32] conducted a study on the need for students to use social networking sites (SNS) widely. The study reveals that the attitude factor, entertainment value as news credibility, social support, and community involvement variables were found to have a positive impact on the use of SNS by applying UGT as a framework. The results of this study also explain that the factors as demographic variables (demographic) have a positive impact on the adoption of social networking sites. Alhabash and Ma [33] examined how the students’ behavior in using social media through UGT. The study reveals that social media use is influenced by several factors such as self-documentation as a demographic variable (demographic), convenience, and self-expression as an attitude and network breadth as a community involvement.
A research conducted by Purnawarman, Susilawati, and Sundayana [34] aims to explore the use of Edmodo applications for learning purposes. The results of indicates that the use of the Edmodo application is influenced by bandwidth problems as part of environmental monitoring (locus of control), a lack of understanding of the Edmodo application which is part of the credibility of the news, and feels the mismatch of learning as part of the attitude. In line with this, Nurhayati [35] revealed that there are several factors that influence students in using Edmodo as virtual learning. These factors are motivation as part of the attitude, learning environment, previous learning background, and Internet network quality as a variable of environmental monitoring (locus of control), and entertainment as news credibility.

2.3. Framework

The development of ICT produces new media in the process of interaction and communication, which are used by humans in various fields. The emergence of new media led to significant changes in the process of interaction and communication as well as dissemination of information. Uses and Gratification theory (UGT) is used to see how the need for individual use and satisfaction with a media. In addition, this theory also explains how the gratification felt by consumers from the media. The conceptual framework of the study is shown in Figure 2.

![Figure 2. Research Framework.](image)

According to Figure 2, it can be seen that UGT has several variables. The Satisfaction (SF) variable and Gratification variable are influenced by several factors, namely Attitude (AT), Community Involvement (CI), Social Support (SS), Demographic (DM), Locus of Control (LC), and News Credibility (NC). Furthermore, there is an intermediate variable that connects the six variables and variables SF and Gratification (GR), namely the variable of Use (US). Moreover, the DM variable is consisted of age, gender, and faculty which are describe the respondents’ demographic. Furthermore, the hypothesis is used to test and test the correctness of each relationship between variables that will determines the student behaviour in using ICT facilities and applications.
The hypotheses are formulated by specifying the factors that have a significant effect that are used in the research framework. Based on Figure 2, there are 8 hypotheses that will be tested in this study. The summary of the formulation of the hypotheses are listed in Table 1.

Table 1. Hypotheses of the Study

| No. | Hypothesis | Statement |
|-----|------------|-----------|
| 1.  | Hypothesis 1 (H1) | Attitude (AT) is influencing the Satisfaction (SF) and Gratification (GR) with the Use (US) as an intervening variable. |
| 2.  | Hypothesis 2 (H2) | Community Involvement (CI) is influencing the Satisfaction (SF) and Gratification (GR) with the Use (US) as an intervening variable. |
| 3.  | Hypothesis 3 (H3) | Social Support (SS) is influencing the Satisfaction (SF) and Gratification (GR) with the Use (US) as an intervening variable. |
| 4.  | Hypothesis 4 (H4) | Demographic (DM) is influencing the Satisfaction (SF) and Gratification (GR) with the Use (US) as an intervening variable. |
| 5.  | Hypothesis 5 (H5) | Locus of Control (LC) is influencing the Satisfaction (SF) and Gratification (GR) with the Use (US) as an intervening variable. |
| 6.  | Hypothesis 6 (H6) | News Credibility (NC) is influencing the Satisfaction (SF) and Gratification (GR) with the Use (US) as an intervening variable. |
| 7.  | Hypothesis 7 (H7) | Usage (US) is influencing Satisfaction (SF). |
| 8.  | Hypothesis 8 (H8) | Usage (US) is influencing Gratification (GR). |

3. Methodology

3.1. Population and Sample
Medan as the capital city of North Sumatra province is the fourth largest city in Indonesia, as well as the largest city outside Java. Based on data from the Indonesian Coordination of Private Higher Education, North Sumatra has a total of 180 universities. Thus, the study selected one of the largest universities in Medan, Indonesia, namely Universitas Medan Area (UMA). Then, the research determined all students who are actively studying at UMA as the population of the study. However, this study was only limited to students who were carrying out lectures at the undergraduate level, which considering to that the number was more dominant than the post-graduate level. This study used the population data from the Forlap Dikti website (https://forlap.ristekdikti.go.id), which is the source of information on national tertiary data sets from the Higher Education Database. The total number of UMA students is as much as 11037. Thus, the study determines the total population as the entire students of the undergraduate education level with the total of 11037 students. Furthermore, this study uses the Probability Sampling method, which is carried out randomly, where members of the population get the same opportunity to be selected as the research sample [36]. In addition, the number of samples used was determined by employing the Slovin Formula, which is a calculation of the number of samples with a large population [37] with the formula as follows:

$$n = \frac{N}{1 + Ne^2}$$  \hspace{1cm} (1)

Where: $n$: total of sample  
$N$: total of population  
$e$: error tolerance

$$n = \frac{11037}{1 + 11037(0.05)^2}$$

$$n = 386.010317391 \approx 386$$

The population in this study is as much as 11037 with the error tolerance of 5% (95% accuracy rate), then the number of samples in this study is as much as 386 respondents.
3.2. Instrument Development

This study applies the questionnaire adopted from several previous studies related to Uses and Gratification Theory (UGT). The questionnaire is divided into four sections. Part I consists of questions related to the demographics (DM) of the respondents, namely: gender, age, faculty, and duration of experience using ICT. Then, Part II consists of questions related to Attitude (AT), Community Involvement (CI), Social Support (SS), Locus of Control (LC), and News Credibility (NC). All items in this section were adopted from previous studies [31]–[35]. Part II contains 20 questions, namely the AT with total of 5 questions, the CI variable has 4 questions, the LC variable has 4 questions, the SS variable has 4 questions, and the NC variable has 3 questions. The answers given by respondents in this section are in the form of a Likert scale (1 to 5) with answer choices: Disagree, Disagree, Disagree, Neutral, Agree, and Strongly Agree. Furthermore, Part III consists of questions related to Usage (US), namely the intensity of use of ICT facilities and applications of UMA, including availability of computers and Internet networks, website, social media, student portals, email, mobile applications, blogs, repositories, digital library, and E-learning. This section also applies a Likert scale (1 to 5), with a choice of responses, namely: Never, Rarely, Sometimes, Often and Always with total of 12 questions posed in Part III. Lastly, Part IV contains the questions related to the Gratification variable (GR) and Satisfaction (SF). There are 8 questions for GR variable and 4 questions for SF variable. The answer options that can be selected by respondents using a Likert scale (1 to 5) with answer choices: Disagree, Disagree, Neutral, Agree, and Strongly Agree. The list of items is shown in Table 2.

| Variable | Total Item |
|----------|------------|
| DM       | 4          |
| AT       | 5          |
| CI       | 4          |
| SS       | 4          |
| LC       | 4          |
| NC       | 3          |
| US       | 13         |
| GR       | 8          |
| SF       | 4          |

3.3. Measurement Model

The study uses the Structure Equation Model (SEM) to test the hypothesized relationship between the variables in the proposed conceptual model. The first step is analyzing the measurement model using Confirmatory Factor Analysis (CFA) to assess the goodness-of-fit model along with the validity and reliability of instrument. Then, the research model and the proposed hypothesis will be evaluated using path coefficients in the second step as a tool for analyzing the structural model.

3.3.1. Confirmatory Factor Analysis or CFA is a tool used to measure model fit and it uses several criteria to measure the fit between the hypothesized model and the observed covariance matrix. The criteria include Chi-Square ($\chi^2$), Probability (p), CMIN / DF (Normed Chi Square), GFI (Goodness Fit Index), AGFI (Adjusted Goodness Fit Of Index), RMSEA (Root Mean Square Error of Approximation), RMR (Root Mean Square Residual), NFI (Normed Fit Index), NNFI (Non-Normed Fit Index), IFI (Incremental Fit Index), and CFI (Comparative Fit Index) [38].

3.3.2. Validity and Reliability. The reliability of the instrument was tested by using the Construct Reliability (CR), which uses CFA to get the value of Standardized Loading. The cut-off value for CR is greater than or equal to 0.70.
Then, Construct validity was employed to test the validity of instrument, namely the discriminant validity is calculated by comparing the square root value of Average Variance Extracted (AVE) with the cut-off value is higher than the correlation value between latent variables, which is greater than 0.5 [38].

3.4. Structural Model

The modeling process in the study was carried out by evaluating the statistical significance of each structural parameter value. The path coefficients obtained from SEM were used to verify the hypothesis, after passing the suitability of the model with CFA. Path coefficients are standardized regression coefficients that show the direct effect of an exogenous variable on the endogenous variable in the path model. Furthermore, the value of significance (p value) is used to accept or reject the hypothesis [38]. In addition, this study also looks at the value of R-squared ($R^2$) to assess how much influence exogenous latent variables have on endogenous latent variables, with a cut-off value of 0.67 indicating that the model is categorized as good model [39].

4. Result and Findings

4.1. Overview of Data Gathered

The data were gathered from total of 386 respondents. Majority of the respondents are male with total of 213 students and total of 173 respondents for the female. Then, most of the respondents are at 18 years old, followed by 19 years old and 20 years old. In term of the faculty, most of them are come from Engineering with total of 127 students. In contrast, there are only 9 respondents come from Social Science department. Moreover, majority of the respondents have been used ICT for more than 3 years. Table 3 shows the overviewed of respondents’ demographic.

| Variable            | Category | Frequency | Percentage |
|---------------------|----------|-----------|------------|
| Gender              | Male     | 213       | 55.2       |
|                     | Female   | 173       | 44.8       |
| Age                 | 17       | 5         | 1.3        |
|                     | 18       | 169       | 43.9       |
|                     | 19       | 99        | 25.7       |
|                     | 20       | 62        | 16.1       |
|                     | 21       | 35        | 9.1        |
|                     | 22       | 15        | 3.9        |
| Faculty             | Law      | 98        | 25.4       |
|                     | Engineering | 127     | 32.9       |
|                     | Economy and Business | 26     | 6.7        |
|                     | Psychology | 44        | 11.4       |
|                     | Social Science | 8    | 2.1        |
|                     | Agriculture | 83      | 21.5       |
| Experience in using ICT | 1-3 year | 32       | 8.3        |
|                     | 3-6 year | 119       | 30.8       |
|                     | 6-9 year | 137       | 35.5       |
|                     | > 9 year | 98        | 25.4       |

4.2. Descriptive Statistic

The mean score from all variables were computed in order to measure the level of variable. However, the Use (US) variable is narrated per item to obtain the level of ICT applications usage and Demographic is excluded. The illustration of the findings is shown in Table 4.
Table 4. Descriptive Statistics of the Study

| Variable | Mean Score |
|----------|------------|
| AT       | 3.55       |
| CI       | 4.02       |
| SS       | 3.50       |
| LC       | 3.65       |
| NC       | 3.34       |
| GR       | 3.80       |
| SF       | 2.64       |

The range score for the mean of each variable is from 1.00 as the minimum value to 5.00 as the maximum value. The variable of CI has the mean score as much as 4.02. Thus, it is apparent that respondents claimed that their community is involved in the ICT applications usage. Then, the GR value has the second highest mean score as much as 3.80. Students claimed that they obtained many benefits with the usage of ICT applications. Variable of AT, SS, LC, and NC has a moderate mean score. However, variable of SF has the lowest mean score among the variables. It indicates that respondents are unsatisfied with the facility and applications of ICT. Furthermore, a surprising result is found in the level of ICT usage among students. A poor level of ICT usage is obtained from the survey. The mean score was determined to express the high or low use of ICT application. According to the survey, student portal is the frequently used by the students with the mean score as 2.92. Then, students often visit the university’s social media (e.g. Facebook, Instagram, and YouTube) rather than the website. In contrast, the lowest mean score was found in the V-Learning usage, followed by the E-Learning and Email usage. Table 5 shows the review of the ICT application usage level.

Table 5. Tabulation of the ICT Application Usage among Students

| ICT Application          | Mean |
|--------------------------|------|
| Computers                | 2.51 |
| Internet networks        | 2.39 |
| Website                  | 2.67 |
| Social media             | 2.83 |
| Student portals          | 2.92 |
| Email                    | 1.85 |
| Mobile applications      | 2.00 |
| Blogs                    | 2.64 |
| Repository               | 2.20 |
| Digital library          | 1.88 |
| E-learning               | 1.82 |
| V-learning               | 1.60 |

4.3. Measurement Model

The study uses several criteria for the CFA analysis including Chi-Square ($\chi^2$), CMIN / DF (Normed Chi Square), GFI (Goodness Fit Index), AGFI (Adjusted Goodness Fit of Index), RMSEA (Root Mean Square Error of Approximation), NFI (Normed Fit Index), IFI (Incremental Fit Index), and CFI (Comparative Fit Index). The result of the fit model criteria illustrates in Table 6.
Table 6. Summary of Goodness of Fit Indices

| Goodness of Fit Indices | Cut Off Value | Result |
|-------------------------|---------------|--------|
| DF                      | > 0           | 1119   |
| Chi-Square              | < $\alpha \cdot$ DF | 989.075 |
| CMIN/DF                 | < 2           | 1.896  |
| GFI                     | $\geq$ 0.90   | 0.929  |
| AGFI                    | $\geq$ 0.90   | 0.903  |
| CFI                     | $\geq$ 0.90   | 0.990  |
| RMSEA                   | $\leq$ 0.08   | 0.070  |
| NFI                     | $\geq$ 0.90   | 0.965  |
| IFI                     | $\geq$ 0.90   | 0.901  |

4.4. Validity and Reliability

The discriminant validity is employed to determine the validity of instruments, which is calculated by comparing the square root value of Average Variance Extracted (AVE). A good value of discriminant validity is has a score of AVE more than 0.5 \[38\]. Moreover, the study used the Construct Reliability (CR) to testing the reliability of instruments, which uses CFA to get the Standardized Loading value, with the cut-off value greater or equal to 0.70 \[49\]. Cronbach’s alpha test also arranged for the each variable and resulting a good level of reliability ($\alpha$ $>$ 0.80) ranged from 0.906 to 0.955. The model assessment is shown in Table 7.

Table 7. Validity and Reliability of the Instrument

| Variables and Items | Standardized Loading | Construct Reliability (CR) | Average Variance Extracted (AVE) |
|---------------------|-----------------------|-----------------------------|----------------------------------|
| **Attitude (\(\alpha=0.804\))** |                       |                             |                                  |
| AT1                 | 0.692                 |                             |                                  |
| AT2                 | 0.981                 |                             |                                  |
| AT3                 | 0.9                   | 0.9015732                   | 0.978152401                      |
| AT4                 | 1.121                 |                             |                                  |
| AT5                 | 1                     |                             |                                  |
| **Community Involvement (\(\alpha=0.814\))** |                       |                             |                                  |
| CI1                 | 1.906                 |                             |                                  |
| CI2                 | 1.581                 |                             |                                  |
| CI3                 | 0.475                 | 1.8395055                   | 1.157924816                      |
| CI4                 | 1                     |                             |                                  |
| **Social Support (\(\alpha=0.816\))** |                       |                             |                                  |
| SS1                 | 1.714                 |                             |                                  |
| SS2                 | 2.343                 |                             |                                  |
| SS3                 | 1.711                 | 3.0887415                   | 1.223091444                      |
| SS4                 | 1                     |                             |                                  |
| **Locus of Control (\(\alpha=0.804\))** |                       |                             |                                  |
| LC1                 | 2.121                 |                             |                                  |
| LC2                 | 3.213                 |                             |                                  |
| LC3                 | 1.963                 | 4.91884475                  | 1.2948449                        |
| LC4                 | 1                     |                             |                                  |
| **News Credibility (\(\alpha=0.926\))** |                       |                             |                                  |
| NC1                 | 0.999                 |                             |                                  |
| NC2                 | 1                     | 1.001336667                 | 1.00044516                       |
| NC3                 | 1.003                 |                             |                                  |
As shown in Table 7, all of the factor loadings for every items are more than 0.5 and indicates a good value [40]. Moreover, each variable has the CR value greater than 0.5 and expresses a good reliability of the instrument as well as the AVE values. Additionally, a good discriminant validity should have the coefficient correlation value among variables should lower than 0.90 [41]. Table 8 illustrates the correlation scores among constructs and expresses a good validity (< 0.90).

### Table 8. Correlation among Constructs

| Construct | AT   | CI    | SS    | LC    | NC    | US    | GR    | ST    |
|-----------|------|-------|-------|-------|-------|-------|-------|-------|
| AT        | 1    | 0.387* | 0.367* | 0.191* | 0.224* | 0.252* | 0.395* | 0.333* |
| CI        | 1    | 0.164** | 0.310** | 0.229** | 0.251** | 0.369** | 0.112* |
| SS        | 1    | 0.453*** | 0.417*** | 0.314** | 0.272** | 0.272** | 0.486** |
| LC        | 1    | 0.208* | 0.402** | 0.393** | 0.273** |
| NC        | 1    | 0.275** | 0.229** | 0.245** |
| US        | 1    | 0.408** | 0.402** |
| GR        | 1    | 0.372** |
| ST        | 1    |       |       |       |       |       |       |
4.5. Structural Model

The study examines the statistical significance of each structural parameter value to process the model. Then, the result used to verify the hypothesis by using Path coefficient which is a standardized regression coefficient to elaborate the direct effect of an exogenous variable on endogenous variables in the path model. Furthermore, the value of significance (p value) is used to accept or reject the hypotheses [38]. The result of structural model analysis is illustrated in Table 9.

| Hypothesis | Beta (β) | p value  | Decision |
|------------|---------|----------|----------|
| H1         | 3.753   | 0.000    | Accepted |
| H2         | 0.570   | 0.569    | Rejected |
| H3         | 2.921   | 0.003    | Accepted |
| H4         | 1.560   | 0.119    | Rejected |
| H5         | 3.729   | 0.000    | Accepted |
| H6         | 1.017   | 0.309    | Rejected |
| H7         | 2.100   | 0.036    | Accepted |
| H8         | 7.412   | 0.000    | Accepted |

Based on the Table 9 student’s attitude is positively influencing satisfaction and gratification with the usage of ICT applications as an intervening variable (β=3.753 and p=0.000<0.05). Thus, Hypothesis 1 (H1) is accepted. Then, the social support has a tolerable level of significance (β=2.921 and p=0.003<0.05) and indicates that students’ satisfaction and gratification are influenced by their social support intervened by the usage of ICT application. Hence, Hypothesis 3 (H3) is accepted. The locus of control variable has the β value as much as 3.729 and p value = 0.000 and expresses that Hypothesis 5 (H5) is supported. Thus, the students’ satisfaction and gratification are depended on the hardware and software control (maintenance) intervened by the usage of ICT application. Furthermore, Table 9 also stated the Hypothesis 7 is accepted with the β value as much as 2.100 and p value = 0.036 and indicates that the more students use the ICT applications, the more gratification they obtained. Similarly, Hypothesis 8 is also accepted with the β value as much as 7.412 and p value = 0.000. The high use of ICT applications and facilities by students can influence the satisfaction.

However, the result also pointed out that a few of hypotheses are rejected. Hypothesis 2 (H2) has the β value as much as 0.570 and p value = 0.569 and cause this hypothesis is declined. The involvement of community was not driven the student to satisfy and obtained the gratification through the employment the ICT applications as the intervening variable. In the same way, Hypothesis 4 (H4) is also rejected with the β value gained from the result is at 1.6 and p value = 0.119. Thus, it indicates that respondents’ demographic is not influencing the satisfaction and gratification with usage of ICT applications as the intervening variable. Similarly, Hypothesis 6 (H6) has a low of the β value (1.017) and the p value is greater than 0.05. Thus, the credibility of the ICT applications is not affecting the satisfaction and the gratification with the ICT applications as the intervening variable.

5. Discussion and Conclusion

The study uses the SEM approach to obtain the result and pointed out surprising findings. There are 5 hypotheses (H1, H3, H5, H7, H8) accepted and 3 hypotheses (H2, H4, H6) are rejected. Students’ attitude is positively affecting the satisfaction and gratification intervened by the usage of ICT application. Meanwhile, the involvement of community is not influencing the satisfaction and gratification whereas their support plays an important role for the usage of ICT applications. Similarly, students’ demographic (e.g. age, gender, faculty, and ICT experience) is not affecting the satisfaction and gratification with the usage of ICT applications as an intervening variable. Hence, it can be said that the diversity of students’ demographic is not has any different in the usage of ICT applications.
Furthermore, the control of ICT applications and facilities drives the students’ satisfaction and gratification in using these technologies. University should regard the hardware and software maintenance as the important issue. Lastly, the usage of ICT applications is influencing both the students’ satisfaction and gratification.

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