**International Journal of Engineering, Science and Mathematics**
Vol. 7,Issue 9,September2018,
ISSN: 2320-0294 Impact Factor: 6.765
Journal Homepage: http://www.ijesm.co.in, Email: ijesmj@gmail.com
Double-Blind Peer Reviewed Refereed Open Access International Journal - Included in the International Serial Directories Indexed & Listed at: Ulrich's Periodicals Directory ©, U.S.A., Open J-Gage as well as in Cabell's Directories of Publishing Opportunities, U.S.A

# THE EFFECTS OF UTILITARIAN AND HEDONIC MOTIVES ON MOBILE APPLICATION MARKETING: COMPARISON OF STUDENTS AND GRADUATES

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**Abstract**

Mobile applications serve in many different areas such as communication, education, entertainment, etc. The purpose of this study is to examine the effects of utilitarian and hedonic motives on the use of mobile applications by graduates and students in the preference of mobile application, the perceived usefulness and perceived ease of use for mobile applications. In this study, firstly the studies researching the effects of hedonic and utilitarian motives on the product / service preference were examined and then the effects of these motives on the application preferences of users within the scope of mobile application marketing were investigated. It is evaluated that this study will be a reference work that can benefit system development decisions with detailed information about consumers' mobile application preferences with a distinction between students and graduates.



***Keywords:***

Hedonic;
Utilitarian;
Motivation;
Mobile;
Application.

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## 1. Introduction

Today, one of the most obvious differences between graduates and students is the use of technology. The students in the current period have grown up with mobile application technologies and are still using those technologies. But a large part of the graduates are people who have never seen or seen technology in their student days. This raises the

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question that there may be differences in the selection / use of mobile deployment between both segments.

The main problem of the work is that the manufacturers (application creators) develop the mobile applications without the sufficient scientific knowledge. It is also a problem that producers often making plan based on popular culture regarding the factors that effect users' use of mobile applications. Therefore the motivation of the consumers towards some applications is insufficient. Some mobile application developers, who do not have enough knowledge about the behavioral and psychological characteristics of users, may see their research about the customer before the production phase as wasted effort. A large number of users are also reluctant to use some applications in the sense that they do not fulfill their needs or not assure. In addition to raising awareness and motivation for users, manufacturers and firms need to attach importance to the identification and analysis of socio-psychological factors and status like students or graduates that influence the decision-making process and the attitudes and intentions of users to use applications.

Mobile applications are available online and offline, and are ready to use at any time. In order to reach more obvious results, applications used for communication and shopping were examined. The purpose of this study is to investigate the effects of utilitarian and hedonic motives, perceived usefulnessand perceived ease of use, intention to use the mobile applications and the demographic characteristics of the users on the use of mobile application.

In the development process of mobile applications, the needs and purpose of users are analyzed and applications are being developed as a result of evaluation of the related issues. It is also known that these applications provide substantial information to firms in terms of obtaining information about consumers' usage characteristics, interests and personal characteristics. It is also possible to use different measures during the investigation of the interests and preferences of mobile applications users. The position in society, perceptions and utilitarian or hedonic approaches to purchasing decisions of individuals can also be examined. In addition, demographic characteristics such as age, gender and occupation of the users are thought to be an important factor in decision making process.

The research for the social and psychological propensities of consumers regarding purchasing decisions and products is of great importance both in defining consumer characteristics and in identifying consumer behavior patterns. From the past to the present, many researchers have conducted research to determine the motivation of consumers in terms of different product groups.[1]Informations on the level of motivation are useful for producers, retailers and advertisers. Researchers agree that motivation is a concept related to the product category. In other words, the level of motivation of consumers in different product groups also varies.[2] The main reason behind exploring product motivation is how consumers can relate the characteristics of certain products to their personal characteristics.

Rapid developments in technology have significantly shortened the lifecycle of products. The state-of-the-art products that attract attention when entering the market are soon outdated. The technological devices like mobile phones, portable computers and tablets which have the voice transmission as a core product benefit, they have gone far beyond being an ordinary communication and information device with the technical

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qualities and mobile applications that it has today. This technologically and rapidly changing market structure is composed of people from all ages, professions and cultures.

Outcome of the increasing demand on the market, consumers make different evaluations on the choice of applicatons that they can profit by reliably and functionally, and the process of use/preference these applications. For this reason, in the study it is aimed to clear up the determination of the motives and socio-psychological factors that affect the preferences of users and to determine the issues that should be addressed on the product development stages of the enterprises.

This study presents a resourse proposal for both the enterprises and the future academic studies to examine factors such as motivation and personal characteristics that influence users' choice of mobile application. It is aimed in this study is creating a model, in which consumers can benefit from system development decisions with detailed information about their mobile application preferences and can be used as a resource in academic studies.

## 2. Literature Review

Motivation can be defined as the relationship between needs, behaviors that need to be exhibited or exhibited in order to address the needs and the elimination of the initial needs of this behaviors.[3]

In the process of motivation, the tension that emerges from the resultant of unfulfilled needs actuates the drive. The drive also enables the consumer to exhibit motivated consumer behavior after the learning process and information gathering process. Finally, the motivation process is completed by fulfilment of needs.[4]

### 2.1. Hedonism and Hedonic Motives

Since hedonism is based on pleasure, consumer purchasing behaviors are influenced not only by rational factors but also by emotional factors.[5] Consumers who exhibit purchasing behavior with hedonic motivation are looking for emotional experience and pleasure for the product or service they purchase and emotional stimulation is seen after purchasing.[6] Consumers are evaluating the feelings they will feel during and after purchasing in buying behavior or decision making prior to purchasing behavior and they are shaping the attitude towards the pleasures they will obtain.

The intangible concepts underlying the hedonic motives and being the frontend are as follows; emotional reactions, emotional pleasures, reaming, aesthetic concerns.[7]

In the study of Özdemir and Yaman (2007)[8], the elements that lead consumers to hedonic shopping; entertainments, being able to receive a lower price than the value of the product / service, sensory stimuli and stimulants, moving away from the present reality, getting rid of or distancing from the burden, the desire to acquire personal pleasure, efforts to gain social experience, communication, being influenced by the leader of the group or community, reference groups.

The most important of the key drivers of hedonic consumption is that consumers/users have to enjoy it rather than have a product or service, and then go on to another search once they have achieved it. This approach brings to the forefront the imaginative and symbolic elements of consumption instead of product functionality.[9] It can be said that the users under the influence of hedonic motivations, have preferred enjoyable and relaxing mobile applications that will fill their free time.

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## 2.2. Utilitarian Concept

The essential feature of utilitarian motives is that consumers are directed to products or services which they need.[10] Consumers who exhibit purchasing behavior with utilitarian motives prefer products or services that they can use in daily life or for a long time and that they can get enough benefit for their value.

There is a will to determine the consumer goals and objectives according to objective criteria at the basis of the utilitarian (rational) motives.[11] When consumers act with utilitarian motives, they generally prefer products or services that provide high quality, functional and highest benefits for the minimum price.

In the study of Spangenberg et al. (1997)[12], the utilitarian factors in consumer / user purchasing or product / service evaluations are as follows;

- Useful/useless, practical/impractical, necesaary/unnecessary,
- Functional/not functional, sensible/not sensible, helpful/unhelpful,
- Efficient/inefficient, effective/ineffective, beneficial/harmful,
- Handy/not handy, unproductive/productive, problem solving/not problem solving.

Utilitarian consumers can be categorized in terms of convenience, information, ease of use for their mobile application preferences. In other words, utilitarian consumers tend to be goal-oriented, rational, and productive.[13] Among the utilitarian reasons for mobile application preference is: easier access to information, ease of use and time savings.

## 3. Research Method

The purpose of this study is to investigate the effects of utilitarian and hedonic motives, ease of use, perceived usefulness and demographic characteristics of users on mobile application use for graduates and students. The main goal of this research is to identify probable relationships between motivations related to mobile applications with consumers' features and use of mobile applications.

This study includes the student and graduate users of IOS and Android operating systems who live and study in Turkey and the applications of these operating systems. All of the consumers in sample were selected from people using IOS and Android operating systems. However, this issue is seen as a constraint of the study because it may not reflect the behavior of all the students and graduates living/studying in Turkey. Moreover, in this study, especially the positive effects of these applications on marketing are emphasized, and sociological and psychological negativities created by technology and mobility is not mentioned. It can be said that this is another constraint of this study. Another constraint of study is that mobile applications are limited by communication and shopping mobile applications. This study may provide a common backdrop for further quantitative research.

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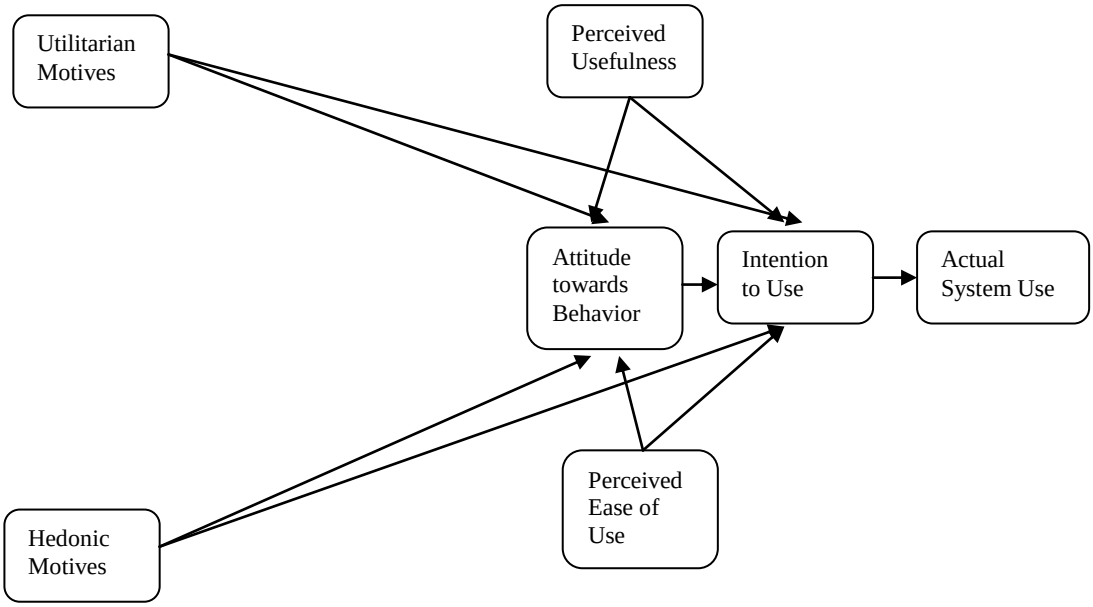


**Figure 1: Conceptual Modal**

**H1:** There is a significant relationship between utilitarian motives and attitudes of individuals towards mobile application use.
**H2:** There is a significant relationship between utilitarian motives and individuals' intentions to use mobile applications.
**H3:** There is a significant relationship between hedonic motives and attitudes of individuals towards mobile application use.
**H4:** There is a significant relationship between hedonic motives and the intentions of individuals to use mobile applications.
**H5:** There is a significant relationship between the perceived usefulness of using mobile applications by individuals and their attitudes towards using this technology.
**H6:** There is a significant relationship between the perceived usefulness of using mobile applications by individuals and their intentions to use this technology.
**H7:** There is a significant relationship between the perceived ease of use of mobile applications by individuals and their attitudes towards this technology.
**H8:** There is a significant relationship between the perceived ease of use of mobile applications by individuals and their intention to use this technology.
**H9:** There is a significant relationship between the attitudes of individuals towards mobile application use and their intention to use this technology.
**H10:** There is a significant relationship between the intentions of individuals to use mobile applications and their actual usage of system.
**H11a:** There is a significant relationship between the gender of individuals and hedonic consumption.
**H11b:** There is a significant relationship between the gender of individuals and utilitarian consumption

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**H12a:** There is a significant relationship between the marital status of individuals and hedonic consumption.
**H12b:** There is a significant relationship between the marital status of individuals and utilitarian consumption.
**H13a:** There is a significant relationship between the student/graduate status of individuals and hedonic consumption.
**H13b:** There is a significant relationship between the student/graduate status of individuals and utilitarian consumption.
**H14a:** There is a significant relationship between the income status of individuals and hedonic consumption.
**H14b:** There is a significant relationship between the income status of individuals and utilitarian consumption.
**H15a:** There is a significant relationship between the education status of individuals and hedonic consumption.
**H15a:** There is a significant relationship between the education status of individuals and utilitarian consumption.

### 3.1. Sample of the Research

Statisticians argue that Structural Equation Modeling (SEM) requires large scales. There are many factors that affect the number of samples, but there is no certain information about the number of samples. No numbers are specified for SEM, although the samples at 100 and below are small, those between 100 and 200 are medium and those above 200 are considered large samples. However, it is estimated that it would be sufficient to have a sample of 10 times the number of expressions observed in the studies.[14]The inclusion of 105 statements in the study indicates that the target of the planned 1050 samples is a sufficient number. 525 of samples were selected from students and 525 of samples were selected from graduates.

### 3.2 Development of Measuring Instrument

It has been decided that the collected data should be primary data in order to test the hypotheses of the research in the aim of the study. The data were collected from "survey" between November 15, 2017 and March 15, 2018. There are 14 questions in the questionnaire, 1 of which is open ended and 13 of which are configured. 105 expressions were searched in 14 questions. This questionnaire was conducted online method.

The data obtained as a result of the preliminary study were analyzed for the purposes of the study. In this framework, multivariate statistical analyzes are used.

After testing the reliability and validity of the scales used in the research, a structural equation modeling study was conducted to investigate the relationship between motives, perceived usefulness and ease of use, attitudes towards use, intention to use, and actual use affecting mobile application use. Both statistical analyzes and the data obtained with the aid of the implementation of the Structural Equation Modeling have been evaluated via the SPSS 23.00 and AMOS 24 package programs.

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### 3.3 Analysis of research data, findings and interpretation

#### 3.3.1 Pilot study

For the pilot study, questionnaire was distributed to 200 students and 200 graduates, and 386 (192/192) questionnaires were deemed suitable for the reliability and factor analysis.

Reliability analysis and exploratory factor analysis were used in the evaluation of the measurement tool. Reliability analysis results are presented in Table 1. and exploratory factor analysis results are presented in Table 2.

**Table 1: Pilot Study Reliability Test Results**

| Scale | Number of | Cronbach's Alpha | Cronbach's |
|---|---|---|---|
| Utilitarian Motives (UM) | 12 | 0.908 | 0.927 |
| Hedonic Motives (HM) | 12 | 0.898 | 0.897 |
| Perceived Usefulness (PU) | 14 | 0.945 | 0.890 |
| Perceived Ease of Use (PEU) | 13 | 0.865 | 0.829 |
| Attitude towards Behavior | 4 | 0.793 | 0.820 |
| Intention to Use (IU) | 6 | 0.751 | 0.646 |
| Actual System Use (ASU) | 4 | 0.621 | 0.661 |

**Table 2: Pilot Study Exploratory Factor Analysis Results**

| Utilitarian Motives (UM) | | Hedonic Motives (HM) | | Perceived Usefulness (PU) | | Perceived Ease of Use (PEU) | | Attitude towards Behavior (AB) | | Intention to Use (IU) | | Actual System Use (ASU) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Students** | | | | | | | | | | | | | |
| UM | **,7** | HM | **,78** | PU1 | **,70** | PEU | **,800** | AB1 | **,71** | IU | **,33** | ASU | **,89** |
| UM | **,7** | HM | **,87** | PU2 | **,71** | PEU | **,832** | AB2 | **,80** | IU | **,80** | ASU | **,68** |
| UM | **,7** | HM | **,62** | PU3 | **,81** | PEU | **,856** | AB3 | **,78** | IU | **,62** | ASU | **,89** |
| UM | **,8** | HM | **,86** | PU4 | **,84** | PEU | **,876** | AB4 | **,84** | IU | **,82** | ASU | - |
| UM | **,8** | HM | **,92** | PU5 | **,85** | PEU | **,831** | | | IU | - | | |
| UM | **,8** | HM | **,90** | PU6 | **,85** | PEU | **,216** | | | IU | **,72** | | |
| UM | **,7** | HM | **,86** | PU7 | **,80** | PEU | **,744** | | | | | | |
| UM | **,6** | HM | **,73** | PU8 | **,71** | PEU | **,481** | | | | | | |
| UM | **,7** | HM | **,69** | PU9 | **,72** | PEU | **,822** | | | | | | |
| UM | **,7** | HM | - | PU1 | **,60** | PEU | **,083** | | | | | | |
| UM | - | HM | - | PU1 | **,61** | PEU | - | | | | | | |
| UM | **,6** | HM | **,15** | PU1 | **,60** | PEU | - | | | | | | |
| | | | | PU1 | **,49** | PEU | - | | | | | | |
| | | | | PU1 | **,53** | | | | | | | | |
| KMO: 0,870 $\chi^2$: 1543,821 df: 66 | | KMO: 0,867 $\chi^2$: 1649,191 df: 66 | | KMO: 0,906 $\chi^2$: 2169,567 df: 91 | | KMO: 0,849 $\chi^2$: 1535,462 df: 78 | | KMO: 0,776 $\chi^2$: 230,110 df: 6 | | KMO: 0,693 $\chi^2$: 315,093 df: 15 | | KMO: 0,611 $\chi^2$: 205,775 df: 6 | |

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| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| p:0,00 EV: 6,550 % V: 54,585 | | p:0,00 EV: 6,081 % V: 50,676 | | p:0,00 EV: 8,228 % V: 58,773 | | p:0,00 EV: 5,343 % V: 41,101 | | p:0,00 EV: 2,490 % V: 62,258 | | p:0,00 EV: 2,780 % V: 46,332 | | p:0,00 EV: 2,096 % V: 52,389 | |
| **Graduates** | | | | | | | | | | | | | |
| UM | **,7** | HM | **,74** | PU1 | **,57** | PEU | **,796** | AB1 | **,83** | IU | **,27** | ASU | **,88** |
| UM | **,7** | HM | **,82** | PU2 | **,61** | PEU | **,881** | AB2 | **,85** | IU | **,70** | ASU | **,81** |
| UM | **,8** | HM | **,62** | PU3 | **,70** | PEU | **,468** | AB3 | **,85** | IU | **,71** | ASU | **,86** |
| UM | **,8** | HM | **,87** | PU4 | **,74** | PEU | **,895** | AB4 | **,68** | IU | **,83** | ASU | - |
| UM | **,8** | HM | **,88** | PU5 | **,74** | PEU | **,831** | | | IU | - | | |
| UM | **,8** | HM | **,85** | PU6 | **,51** | PEU | **,228** | | | IU | **,78** | | |
| UM | **,8** | HM | **,91** | PU7 | **,71** | PEU | **,810** | | | | | | |
| UM | **,6** | HM | **,78** | PU8 | **,70** | PEU | **,518** | | | | | | |
| UM | **,8** | HM | **,63** | PU9 | **,64** | PEU | **,827** | | | | | | |
| UM | **,8** | HM | - | PU1 | **,49** | PEU | **,106** | | | | | | |
| UM | - | HM | - | PU1 | **,82** | PEU | - | | | | | | |
| UM | **,7** | HM | **,05** | PU1 | **,80** | PEU | - | | | | | | |
| | | | | PU1 | **,47** | PEU | - | | | | | | |
| | | | | PU1 | **,63** | | | | | | | | |
| KMO: 0,939 $\chi^2$: 1718,260 df: 66 p:0,00 EV: 7,302 % V: 60,849 | | KMO: 0,851 $\chi^2$: 1614,606 df: 66 p:0,00 EV: 6,009 % V: 50,072 | | KMO: 0,868 $\chi^2$: 1356,963 df: 91 p:0,00 EV: 6,188 % V: 44,203 | | KMO: 0,802 $\chi^2$: 1562,164 df: 78 p:0,00 EV: 5,270 % V: 40,540 | | KMO: 0,738 $\chi^2$: 301,077 df: 6 p:0,00 EV: 2,620 % V: 65,505 | | KMO: 0,692 $\chi^2$: 247,203 df: 15 p:0,00 EV: 2,466 % V: 41,100 | | KMO: 0,694 $\chi^2$: 203,883 df: 6 p:0,00 EV: 2,202 % V: 55,049 | |

As a result of Explanatory Factor Analysis of pilot data, UM11, HM10, HM11, HM12, PEU6, PEU10, PEU11, PEU12, PEU13, IU1, IU5 VE ASU4 items were subtracted from the scale, because these items were placed under different factors and they might effect the scale (both students and graduates) negative.

### 3.3.2 Reliability analysis of research variables

The Cronbach Alpha score is the most commonly used method in the literature to measure the reliability of scales. The Cronbach Alpha value was calculated for each independent and dependent variable and presented in Table 3. below.

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**Table 3: Reliability Test Results**

| Scale | Number of | Cronbach's Alpha | Cronbach's |
|---|---|---|---|
| Utilitarian Motives (UM) | 11 | 0.949 | 0.958 |
| Hedonic Motives (HM) | 9 | 0.930 | 0.938 |
| Perceived Usefulness (PU) | 14 | 0.944 | 0.926 |
| Perceived Ease of Use | 8 | 0.853 | 0.834 |
| Attitude towards Behavior | 4 | 0.813 | 0.712 |
| Intention to Use (IU) | 4 | 0.743 | 0.712 |
| Actual System Use (ASU) | 3 | 0.630 | 0.688 |

According to Hatcher (1994), in social sciences researches, alpha values above 0.50 are considered adequate, 0.70 and above are recommended and 0.80 and above are desirable. As can be seen from Table 3, most of the reliability values (Cronbach Alpha) are higher than 0.70 and one is close to this value.

### 3.3.3. Factor Analysis of Research Variables

#### 3.3.3.1. Exploratory factor analysis

To find out which factor a item is under, we look at the factor loadings that show the correlations of the substances with the factors. Although there is no strict limitation, factor loads over 0.45 are usually sufficient, 0.55 is good, 0.63 is very good and 0.71 is excellent.[15] Exploratory factor analysis results are shown in Table 4 and exploratory factor analysis results for discriminant validity are shown in Table 5.

**Table 4: Exploratory Factor Analysis Results**

| Utilitarian Motives (UM) | | Hedonic Motives (HM) | | Perceived Usefulness (PU) | | Perceived Ease of Use (PEU) | | Attitude towards Behavior (AB) | | Intention to Use (IU) | | Actual System Use (ASU) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Students** | | | | | | | | | | | | | |
| UM | **,82** | H | **,74** | PU1 | **,71** | PEU | **,683** | AB1 | **,79** | IU | **,77** | ASU | **,919** |
| UM | **,84** | H | **,82** | PU2 | **,76** | PEU | **,760** | AB2 | **,77** | IU | **,77** | ASU | **,425** |
| UM | **,86** | H | **,62** | PU3 | **,85** | PEU | **,538** | AB3 | **,80** | IU | **,78** | ASU | **,892** |
| UM | **,85** | H | **,86** | PU4 | **,81** | PEU | **,830** | AB4 | **,83** | IU | **,66** | | |
| UM | **,84** | H | **,89** | PU5 | **,78** | PEU | **,764** | | | | | | |
| UM | **,88** | H | **,88** | PU6 | **,78** | PEU | **,756** | | | | | | |
| UM | **,81** | H | **,84** | PU7 | **,69** | PEU | **,657** | | | | | | |
| UM | **,69** | H | **,78** | PU8 | **,77** | PEU | **,712** | | | | | | |
| UM | **,80** | H | **,73** | PU9 | **,72** | | | | | | | | |
| UM | **,84** | | | PU1 | **,77** | | | | | | | | |
| UM | **,68** | | | PU1 | **,75** | | | | | | | | |
| | | | | PU1 | **,76** | | | | | | | | |
| | | | | PU1 | **,71** | | | | | | | | |
| | | | | PU1 | **,75** | | | | | | | | |

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| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| KMO: 0,939 $\chi^2$: 4870,117 df: 55 p:0,00 EV: 7,334 % V: 66,676 | | KMO: 0,912 $\chi^2$: 3789,430 df: 36 p:0,00 EV: 5,830 % V: 64,783 | | KMO: 0,933 $\chi^2$: 5696,242 df: 91 p:0,00 EV: 8,173 % V: 58,377 | | KMO: 0,879 $\chi^2$: 1718,398 df: 28 p:0,00 EV: 4,099 % V: 51,236 | | KMO: 0,793 $\chi^2$: 686,348 df: 6 p:0,00 EV: 2,570 % V: 64,259 | | KMO: 0,707 $\chi^2$: 481,984 df: 6 p:0,00 EV: 2,266 % V: 56,652 | | KMO: 0,519 $\chi^2$: 429,114 df: 3 p:0,00 EV: 1,820 % V: 60,651 | |
| **Graduates** | | | | | | | | | | | | | |
| UM | **,83** | H | **,79** | PU1 | **,63** | PEU | **,774** | AB1 | **,55** | IU | **,76** | ASU | **,906** |
| UM | **,79** | H | **,81** | PU2 | **,72** | PEU | **,886** | AB2 | **,84** | IU | **,69** | ASU | **,643** |
| UM | **,85** | H | **,59** | PU3 | **,79** | PEU | **,451** | AB3 | **,79** | IU | **,80** | ASU | **,814** |
| UM | **,89** | H | **,88** | PU4 | **,80** | PEU | **,865** | AB4 | **,75** | IU | **,66** | | |
| UM | **,88** | H | **,88** | PU5 | **,67** | PEU | **,839** | | | | | | |
| UM | **,87** | H | **,86** | PU6 | **,68** | PEU | **,793** | | | | | | |
| UM | **,83** | H | **,90** | PU7 | **,74** | PEU | **,535** | | | | | | |
| UM | **,71** | H | **,86** | PU8 | **,73** | PEU | **,838** | | | | | | |
| UM | **,86** | H | **,75** | PU9 | **,69** | | | | | | | | |
| UM | **,88** | | | PU1 | **,58** | | | | | | | | |
| UM | **,79** | | | PU1 | **,83** | | | | | | | | |
| | | | | PU1 | **,80** | | | | | | | | |
| | | | | PU1 | **,68** | | | | | | | | |
| | | | | PU1 | **,76** | | | | | | | | |
| KMO: 0,947 $\chi^2$: 5500,228 df: 55 p:0,00 EV: 7,774 % V: 70,668 | | KMO: 0,897 $\chi^2$: 4221,612 df: 36 p:0,00 EV: 6,089 % V: 67,660 | | KMO: 0,918 $\chi^2$: 4702,932 df: 91 p:0,00 EV: 7,434 % V: 53,101 | | KMO: 0,908 $\chi^2$: 2357,379 df: 28 p:0,00 EV: 4,658 % V: 58,230 | | KMO: 0,722 $\chi^2$: 456,200 df: 6 p:0,00 EV: 2,207 % V: 55,172 | | KMO: 0,705 $\chi^2$: 408,000 df: 6 p:0,00 EV: 2,161 % V: 54,022 | | KMO: 0,604 $\chi^2$: 340,690 df: 3 p:0,00 EV: 1,879 % V: 62,631 | |

**International Journal of Engineering, Science and Mathematics**
Vol. 7,Issue 9,September2018,
ISSN: 2320-0294 Impact Factor: 6.765
Journal Homepage: http://www.ijesm.co.in, Email: ijesmj@gmail.com
Double-Blind Peer Reviewed Refereed Open Access International Journal - Included in the International Serial Directories Indexed & Listed at: Ulrich's Periodicals Directory ©, U.S.A., Open J-Gage as well as in Cabell's Directories of Publishing Opportunities, U.S.A

**Table 5: Exploratory Factor Analysis Results for Discriminant Validity**

| | UM | | HM | | PU | | PEU | | AB | | IU | | ASU | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Stu | Gr | Stu | Gr | Stu | Gr | Stu | Gr | Stu | Gr | Stu | Gr | Stu | Gr |
| UM1 | ,818 | ,869 | | | | | | | | | | | | |
| UM2 | ,842 | ,826 | | | | | | | | | | | | |
| UM3 | ,867 | ,859 | | | | | | | | | | | | |
| UM4 | ,847 | ,896 | | | | | | | | | | | | |
| UM5 | ,832 | ,927 | | | | | | | | | | | | |
| UM6 | ,880 | ,881 | | | | | | | | | | | | |
| UM7 | ,819 | ,805 | | | | | | | | | | | | |
| UM8 | ,705 | ,668 | | | | | | | | | | | | |
| UM9 | ,798 | ,855 | | | | | | | | | | | | |
| UM10 | ,841 | ,870 | | | | | | | | | | | | |
| UM12 | ,686 | ,754 | | | | | | | | | | | | |
| HM1 | | | ,697 | ,718 | | | | | | | | | | |
| HM2 | | | ,791 | ,752 | | | | | | | | | | |
| HM3 | | | ,687 | ,683 | | | | | | | | | | |
| HM4 | | | ,835 | ,890 | | | | | | | | | | |
| HM5 | | | ,855 | ,850 | | | | | | | | | | |
| HM6 | | | ,897 | ,880 | | | | | | | | | | |
| HM7 | | | ,859 | ,924 | | | | | | | | | | |
| HM8 | | | ,897 | ,880 | | | | | | | | | | |
| HM9 | | | ,859 | ,924 | | | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 3 | 6 | | | | | |
| | | | ,80 | ,87 | | | | | |
| | | | 3 | 6 | | | | | |
| | | | ,76 | ,81 | | | | | |
| | | | 9 | 6 | | | | | |
| | | | | | ,75 | ,72 | | | |
| | | | | | 5 | 0 | | | |
| | | | | | ,79 | ,81 | | | |
| | | | | | 8 | 0 | | | |
| | | | | | ,89 | ,81 | | | |
| | | | | | 9 | 7 | | | |
| | | | | | ,88 | ,85 | | | |
| PU1 | | | | | 2 | 2 | | | |
| PU2 | | | | | ,85 | ,65 | | | |
| PU3 | | | | | 6 | 3 | | | |
| PU4 | | | | | ,83 | ,62 | | | |
| PU5 | | | | | 7 | 3 | | | |
| PU6 | | | | | ,78 | ,72 | | | |
| PU7 | | | | | 0 | 5 | | | |
| PU8 | | | | | ,76 | ,73 | | | |
| PU9 | | | | | 2 | 8 | | | |
| PU10 | | | | | ,65 | ,65 | | | |
| PU11 | | | | | 6 | 1 | | | |
| PU12 | | | | | ,69 | ,55 | | | |
| PU13 | | | | | 2 | 9 | | | |
| PU14 | | | | | ,71 | ,81 | | | |
| | | | | | 7 | 3 | | | |
| | | | | | ,70 | ,76 | | | |
| | | | | | 5 | 1 | | | |
| | | | | | ,58 | ,61 | | | |
| | | | | | 4 | 4 | | | |
| | | | | | ,64 | ,70 | | | |
| | | | | | 5 | 0 | | | |
| PEU1 | | | | | | | ,68 | ,80 | |
| PEU2 | | | | | | | 8 | 2 | |
| PEU3 | | | | | | | ,73 | ,86 | |
| PEU4 | | | | | | | 1 | 7 | |
| PEU5 | | | | | | | ,65 | ,53 | |
| PEU7 | | | | | | | 8 | 0 | |

**International Journal of Engineering, Science and Mathematics**
Vol. 7,Issue 9,September2018,
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| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PEU8 | | | | | | | ,834 | ,874 | | | | | | |
| PEU9 | | | | | | | ,761 | ,849 | | | | | | |
| | | | | | | | ,668 | ,787 | | | | | | |
| | | | | | | | ,660 | ,509 | | | | | | |
| | | | | | | | ,759 | ,779 | | | | | | |
| | | | | | | | | | ,780 | ,567 | | | | |
| AB1 | | | | | | | | | ,779 | ,755 | | | | |
| AB2 | | | | | | | | | ,760 | ,716 | | | | |
| AB3 | | | | | | | | | ,846 | ,818 | | | | |
| AB4 | | | | | | | | | | | | | | |
| | | | | | | | | | | | ,752 | ,653 | | |
| IU2 | | | | | | | | | | | ,701 | ,632 | | |
| IU3 | | | | | | | | | | | ,695 | ,669 | | |
| IU4 | | | | | | | | | | | ,719 | ,595 | | |
| IU6 | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | ,627 | ,826 |
| ASU1 | | | | | | | | | | | | | ,450 | ,408 |
| ASU2 | | | | | | | | | | | | | ,609 | ,824 |
| ASU3 | | | | | | | | | | | | | | |
| EV | 7,43 | 10,4 | 5,55 | 5,12 | 9,89 | 7,85 | 5,03 | 4,53 | 1,75 | 1,63 | 2,38 | 2,31 | 1,55 | 1,56 |
| %V | 14,0 | 19,7 | 10,5 | 9,67 | 18,7 | 14,8 | 9,50 | 8,55 | 3,31 | 3,09 | 4,50 | 4,37 | 2,94 | 2,94 |

KMO Value (Students): 0,878
KMO Value (Graduates): 0,884

Bartlett Test of Sphericity (Students) $\chi 2$: 20692,307 df: 1378

| | | |
|---|---|---|
| P: 0,00 | | |
| Bartlett Test of Sphericity (Graduates) | χ2: 20853,247 | df: 1378 |
| P: 0,00 | | |

In order to measure the discriminant validity of the data, all factors were tested together with factor analysis. Firstly Bartlett Test of Sphericity and Kaiser-Meyer-Olkin (KMO) test were applied. The test result ($P \leq 0,05$) and the KMO value should be above 0.60. As a result of the test, $P \leq 0.05$ and KMO was found to be 0,878 for students' data and 0,884 for graduates' data.

As a result of the analysis, it is seen that 53 items are distributed under 7 factors as predicted. Since it is a more rigorous statistical testing process, it has been decided to carry out confirmatory factor analysis.

### 3.3.3.2. Confirmatory Factor Analysis

The model fit indexes reached after the confirmatory factor analysis are shown in Table 6.

**Table 6. Fit Statistics for Second Level Confirmatory Factor Analysis**

| Fit Index | Good Fit | Acceptable Values | Resource | Reached Values |
|---|---|---|---|---|
| χ2 /df | ≤ 2 | ≤ 4-5 | Meydan and Şeşen, | 3,916 |
| RMSEA | >= 0,05 | 0,06-0,08 | Meydan and Şeşen, | 0,053 |
| Goodness of Fit Index | >= 0,90 | 0,85-0,90 | Meydan and Şeşen, | 0,876 |
| Adjusted GFI (AGFI) | >= 0,90 | 0,85-0,90 | Meydan and Şeşen, | 0,853 |
| Normed Fit Index (NFI) | >= 0,95 | >=0,90 | Çokluk et al., 2014[26] | 0,917 |
| Comperative Fıt Index | >= 0,95 | >=0,90 | Çokluk et al., 2014 | 0,935 |
| Incremental Fit Index | >= 0,95 | 0,94-0,90 | Meydan and Şeşen, | 0,935 |

**Resource:** Gök, B. ve Gökçen, H. (2016). Uzaktan Eğitim Hizmet Kalite Ölçeği (UE-SERQUAL) Geliştirme: Geçerlilik ve Güvenilirlik Çalışması, Yönetim Bilişim Sistemleri Dergisi. [24]

The result of the χ2 test, as shown in Table 4, is significant. This shows that there is a significant difference between the predicted and observed covariance matrices used in confirmatory factor analysis. According to the results, RMSEA, GFI, AGFI, NFI, CFI and IFI values are all in acceptable fit value. The results of confirmatory factor analysis are shown in Table 7.

**International Journal of Engineering, Science and Mathematics**
Vol. 7,Issue 9,September2018,
ISSN: 2320-0294 Impact Factor: 6.765
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Double-Blind Peer Reviewed Refereed Open Access International Journal - Included in the International Serial Directories Indexed & Listed at: Ulrich's Periodicals Directory ©, U.S.A., Open J-Gage as well as in Cabell's Directories of Publishing Opportunities, U.S.A

**Table 7.** Confirmatory Factor Analysis Results

| | UM | | HM | | PU | | PEU | | AB | | IU | | ASU | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Stu | Gr | Stu | Gr | Stu | Gr | Stu | Gr | Stu | Gr | Stu | Gr | Stu | Gr |
| UM1 | ,806 | ,813 | | | | | | | | | | | | |
| UM2 | ,820 | ,770 | | | | | | | | | | | | |
| UM3 | ,852 | ,836 | | | | | | | | | | | | |
| UM4 | ,849 | ,900 | | | | | | | | | | | | |
| UM5 | ,844 | ,882 | | | | | | | | | | | | |
| UM6 | ,891 | ,874 | | | | | | | | | | | | |
| UM7 | ,753 | ,780 | | | | | | | | | | | | |
| UM8 | ,632 | ,655 | | | | | | | | | | | | |
| UM9 | ,753 | ,856 | | | | | | | | | | | | |
| UM10 | ,812 | ,865 | | | | | | | | | | | | |
| UM12 | ,629 | ,743 | | | | | | | | | | | | |
| HM1 | | | ,847 | ,907 | | | | | | | | | | |
| HM2 | | | ,856 | ,834 | | | | | | | | | | |
| HM3 | | | ,508 | ,478 | | | | | | | | | | |
| HM4 | | | ,858 | ,892 | | | | | | | | | | |
| HM5 | | | ,858 | ,912 | | | | | | | | | | |
| HM6 | | | ,895 | ,913 | | | | | | | | | | |
| HM7 | | | ,865 | ,803 | | | | | | | | | | |
| HM8 | | | ,791 | ,832 | | | | | | | | | | |
| HM9 | | | | | | | | | | | | | | |

| | | | | |
|---|---|---|---|---|
| | 6 | 3 | | |
| | ,69 | ,78 | | |
| | 7 | 2 | | |
| | ,57 | ,55 | | |
| | 3 | 6 | | |
| | | ,69 | ,55 | |
| | | 2 | 6 | |
| | | ,75 | ,66 | |
| | | 7 | 8 | |
| | | ,84 | ,75 | |
| | | 6 | 4 | |
| | | ,80 | ,77 | |
| PU1 | | 4 | 2 | |
| PU2 | | ,77 | ,64 | |
| PU3 | | 7 | 1 | |
| PU4 | | ,78 | ,67 | |
| PU5 | | 3 | 0 | |
| PU6 | | ,65 | ,72 | |
| PU7 | | 9 | 4 | |
| PU8 | | ,77 | ,71 | |
| PU9 | | 2 | 3 | |
| PU10 | | ,73 | ,69 | |
| PU11 | | 9 | 2 | |
| PU12 | | ,75 | ,58 | |
| PU13 | | 6 | 3 | |
| PU14 | | ,72 | ,82 | |
| | | 3 | 2 | |
| | | ,72 | ,78 | |
| | | 4 | 5 | |
| | | ,66 | ,65 | |
| | | 9 | 6 | |
| | | ,69 | ,73 | |
| | | 2 | 7 | |
| PEU1 | | | ,63 | ,70 |
| PEU2 | | | 5 | 7 |
| PEU3 | | | ,74 | ,85 |
| PEU4 | | | 2 | 3 |
| PEU5 | | | ,45 | ,37 |
| PEU7 | | | 7 | 5 |

**International Journal of Engineering, Science and Mathematics**
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| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PEU8 | | | | | | ,840 | ,864 | | | | | | | |
| PEU9 | | | | | | ,751 | ,825 | | | | | | | |
| | | | | | | ,637 | ,746 | | | | | | | |
| | | | | | | ,498 | ,462 | | | | | | | |
| | | | | | | ,572 | ,799 | | | | | | | |
| | | | | | | | | ,711 | ,375 | | | | | |
| AB1 | | | | | | | | ,666 | ,835 | | | | | |
| AB2 | | | | | | | | ,753 | ,693 | | | | | |
| AB3 | | | | | | | | ,765 | ,611 | | | | | |
| AB4 | | | | | | | | | | ,483 | ,514 | | | |
| IU2 | | | | | | | | | | ,491 | ,465 | | | |
| IU3 | | | | | | | | | | ,690 | ,870 | | | |
| IU4 | | | | | | | | | | ,717 | ,539 | | | |
| IU6 | | | | | | | | | | | | ,895 | ,841 | |
| ASU1 | | | | | | | | | | | | ,246 | ,424 | |
| ASU2 | | | | | | | | | | | | ,814 | ,746 | |
| ASU3 | | | | | | | | | | | | | | |
| AVE | ,624 | ,670 | ,603 | ,629 | ,553 | ,493 | ,427 | ,525 | ,525 | ,423 | ,366 | ,382 | ,508 | ,481 |

All these results show that the factor structure of the model revealed by the research hypotheses is supported by the obtained research data and as a result the model is ready to be tested using Structural Equation Modeling.

International Journal of Engineering, Science and Mathematics
Vol. 7,Issue 9,September2018,
ISSN: 2320-0294 Impact Factor: 6.765
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### 3.3.4 Testing the structural model

Structural model *t* values for students are shown in Figure2 and structural model *t* values for graduates are shown in Figure3.

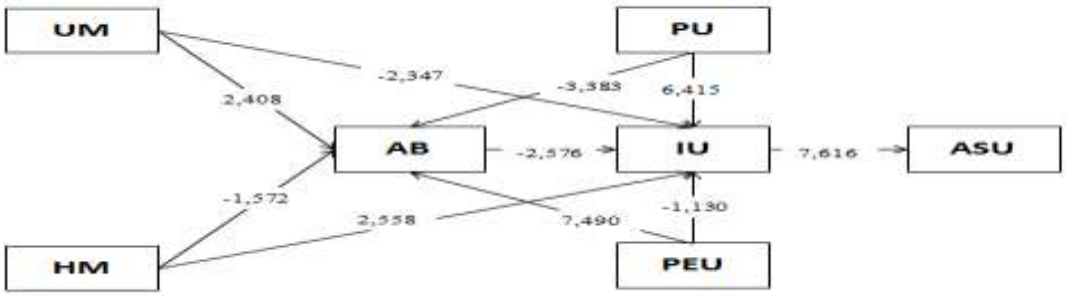


**Figure 2: Structural Model t Values for Students**

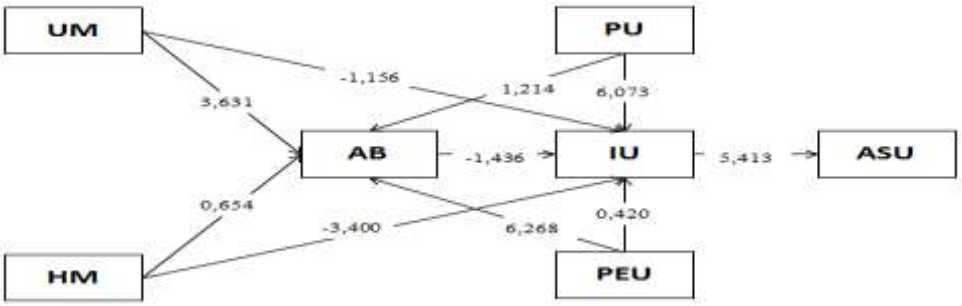


**Figure 3: Structural Model *t* Values for Graduates**

As a result of the analysis, the t value between the variables was determined for each status and shown in Fig.2-3. "t> 1.96 or t <-1.96" that there is a meaningful connection between variables. Structural equation model coefficients are shown in Table 8 and "t" and "mean" values for demographic features and motives are shown in Fig.4.

**Table 8. Structural Equation Model Coefficients**

| Hypothe | | | | β | β | S.D. | S.D. | P | P | A / | A / |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H1 | UM | <-- | AB | ,149 | ,137 | ,075 | ,038 | *** | *** | A | A |
| H2 | UM | <-- | IU | -,115 | - | 0,49 | ,043 | ,019 | ,248 | R | R |
| H3 | HM | <-- | AB | -,076 | ,017 | ,048 | ,026 | ,116 | ,513 | R | R |
| H4 | HM | <-- | IU | ,101 | - | ,039 | ,037 | ,011 | *** | R | A |
| H5 | PU | <-- | AB | -,129 | ,023 | ,038 | ,019 | *** | ,225 | A | R |
| H6 | PU | <-- | IU | ,258 | ,217 | ,040 | ,036 | *** | *** | A | A |

**International Journal of Engineering, Science and Mathematics**
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| **Hypothe** | | | | **β** | **β** | **S.D.** | **S.D.** | **P** | **P** | **A /** | **A /** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H7 | PEU | <-- | AB | ,313 | ,266 | ,042 | ,042 | *** | *** | A | A |
| H8 | PEU | <-- | IU | -,027 | ,013 | ,024 | ,031 | ,258 | ,674 | R | R |
| H9 | AB | <-- | IU | -,086 | - | ,033 | ,019 | ,010 | ,151 | R | R |
| H10 | IU | <-- | AS | ,445 | ,262 | ,058 | ,048 | *** | *** | A | A |
| **RELATIONSHIP BETWEEN DEMOGRAPHIC FEATURES AND MOTIVES** | | | | | | | | | | | |
| **Hypothe** | | | | ***t* value** | ***t*** | **S.D.** | **S.D.** | **P** | **P** | **A /** | **A /** |
| H11a | G | <-- | UM | ,252 | ,814 | 1,40 | 1,48 | ,801 | ,416 | R | R |
| H11b | G | <-- | HM | -1,64 | - | 1,60 | 1,64 | ,101 | ,689 | R | R |
| H12a | MS | <-- | UM | -,096 | ,333 | 1,23 | 1,48 | ,923 | ,739 | R | R |
| H12b | MS | <-- | HM | ,326 | - | 1,34 | 1,59 | ,744 | ,176 | R | R |
| H13a | S/G | <-- | UM | 1,246 | | 1,41 | 1,42 | ,213 | | R | |
| H13b | S/G | <-- | HM | 2,434 | | 1,62 | 1,55 | ,015 | | A | |
| **Hypothe** | | | | **Mean** | **Mea** | **Std.** | **Std.** | **P** | **P** | **A /** | **A /** |
| H14a | IS | <-- | UM | ,5893 | ,458 | ,221 | ,197 | ,006 | ,110 | A | R |
| H14b | IS | <-- | HM | ,0480 | ,875 | ,284 | ,220 | ,385 | ,001 | R | A |
| H15a | ES | <-- | UM | ,3751 | 2,51 | ,155 | ,510 | ,027 | ,935 | A | R |
| H15b | ES | <-- | HM | ,2102 | 1,34 | ,180 | ,236 | ,069 | ,000 | R | A |

A: Age, G: Gender, IS: Income Status, ES: Education Status, MS: Marital Status
S.D.: Standart Deviation, A: Acceptence, R: Rejection

Structural model t values for students are shown in Figure2 and structural model t values for graduates are shown in Figure3.

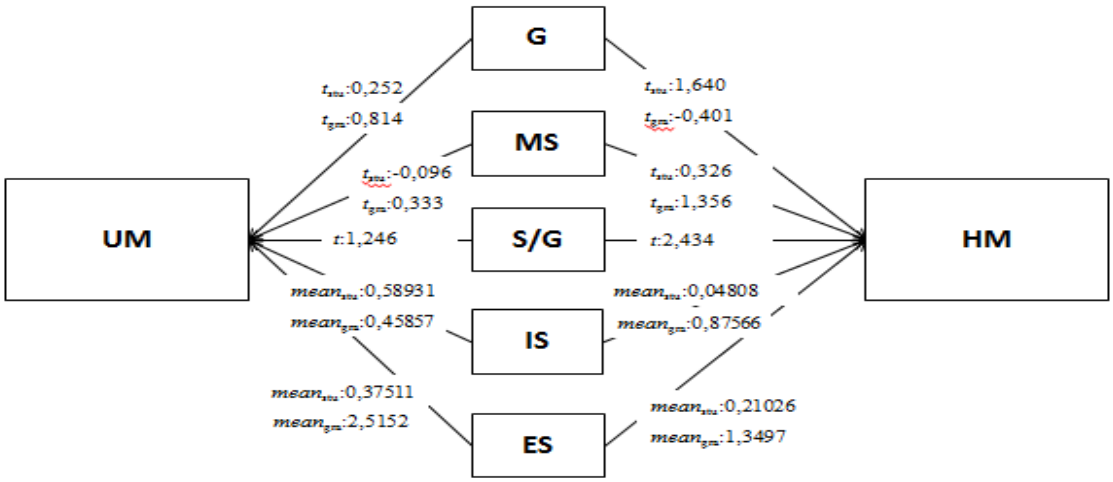


**Figure 4: "*t*" and "mean" Values for Demographic Features and Motives**

**International Journal of Engineering, Science and Mathematics**
Vol. 7,Issue 9,September2018,
ISSN: 2320-0294 Impact Factor: 6.765
Journal Homepage: http://www.ijesm.co.in, Email: ijesmj@gmail.com
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## 4. Findings

Findings from the study reveal the factors that influence student / graduate consumer / users' adoption of innovations in mobile application technologies according to the proposed model and the relationship between these factors. The results obtained from the study can be summarized as follows:

- As a result of the analysis to measure the relationship between utilitarian motives and attitudes; it was found that there was a significiant relationship both students and graduates. Considering this result, it is understood that firms can improve their mobile application usage attitudes by taking into account the utilitarian motives of users.
- As a result of the analysis to measure the relationship between utilitarian motives and intention; hedonic motives and attitudes; it was found that the relation for both students and graduates is not statistically significant.
- As a result of the analysis to measure the relationship between hedonic motives and intention; the relationship between the two factors is not statistically significant in terms of students but it was found that there was a significiant relationship for the graduates. Taking this into account, it is understood that firms should not only develop mobile apps, but young people do not act with pleasure, so that students outside the classroom should also have fun in their spare time or focus on emotional applications.
- As a result of the analysis to measure the relationship between perceived usefulness and attitude; it was found that there is a significiant relationship between the two factors for students, but it was found not to be statistically significant in terms of graduates. Students often use mobile applications for lessons, researching, collect data, and so on. but there are not many mobile applications where graduates can benefit. Mobile application enhancements, which companies or mobile application developers can also benefit for graduates who can be called adults, have emerged as an important factor in increasing usage. Since attitude is difficult to change, it is important that the graduates work in order to increase their benefits from mobile applications.
- As a result of analysis to measure the relationship between perceived usefulness and intention; the relationship between the two factors was found to be significant in terms of both students and graduates. According to both sections, the benefits users perceive from mobile applications and their intentions to use them are directly proportional. Applications that do not benefit or do not think they will benefit are considered unnecessary for both students and graduates and are not used. It is understood that when users effectively evaluate the benefits they perceive from mobile applications, it can lead to an increase in users' intention to use mobile applications.
- As a result of the analysis to measure the relationship between perceived ease of use and attitude toward use; it was found that there was a significiant relationship for both students and graduates. Users think that simple, understandable and practical mobile applications are better suited to their work and leisure time. Considering this result,

**International Journal of Engineering, Science and Mathematics**
Vol. 7,Issue 9,September2018,
ISSN: 2320-0294 Impact Factor: 6.765
Journal Homepage: http://www.ijesm.co.in, Email: ijesmj@gmail.com
Double-Blind Peer Reviewed Refereed Open Access International Journal - Included in the International Serial Directories Indexed & Listed at: Ulrich's Periodicals Directory ©, U.S.A., Open J-Gage as well as in Cabell's Directories of Publishing Opportunities, U.S.A

it is understood that the companies can improve their attitudes towards mobile application usage by using on-site detections in the sense of user's ease of use.

- As a result of the analysis to measure the relationship between ease of use and attitudes; attitudes and intentions; it was found that the relation for both students and graduates is not statistically significant.
- As a result of the analysis to measure the relationship between intention of use and actual use; it was found that there is a significiant relationship for both students and graduates. It was understood that both sections had done the necessary research before they downloaded / used the mobile application, they took informations about the application and started to use it afterwards. Firms or mobile application developers should take into account the feedback and complaints of these users in order to not to lose customers / consumers.
- As a result of the analysis; it has been determined that the utilitarian and hedonic motives of both students and graduates in using mobile applications are not statistically significant by gender and marital status.
- As a result of the analysis; it has been determined that utilitarian motives in using mobile application are not statistically significant according to student or graduation status. However, it was determined that there is a significiant relationship for student and graduate status in the analysis on hedonic motives. Hedonic motives are more effective in using mobile applications in students than in graduates.
- As a result of the analysis; it has been determined that utilitarian motives in the use of mobile application are not statistically significant according to the income status of the graduates but they are significiant relation according to the income status of the students. On the other hand, in hedonic motives, it was determined that there was a significiant relationship with the income status of the graduates, while a significiant relationship could not be determined for the students. Students consider revenue situations when evaluating mobile applications and use monetized applications if they benefit. Graduates, on the basis of their income, use their mobile apps, whether they like it, enjoy it or entertain them, even if it is not free. In addition, there has been an increase in the use of mobile applications with income level surplus hedonic motives.
- As a result of the analysis; it has been found that utilitarian motives in using mobile application are not statistically significant according to the education status of the graduates but it is found that the students have a significiant relation with the education status. On the contrary, in the hedonic motives, it was determined that there was a significiant relation with the graduates' educational status, while a significiant relationship could not be determined for students. It was determined that the students in the graduate and undergraduate degree preferred mobile applications with utilitarian motives while the students with graduate and undergraduate degrees showed behavior with hedonic motives in mobile application preference.

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## 5. Conclusion

When studies related to hedonic and utilitarian motives are examined, it has been seen that studies on the difference of demographic variables in shopping, social motivation motives, mobile shopping behaviors, instant shopping and consumption have been conducted on the network [16, 17,18, 19, 20]

When studies on mobile applications are examined, it has been found that studies on mobile advertisements, social media applications, mobile banking, mobile marketing, e-mail, mobile shopping and mobile education applications have been conducted. [21, 22, 23]

When the studies related to mobile applications and motives are examined, have not encountered any study examining the effect of mobile application technology which counts the fastest change in today, and hedonic and utilitarian motives which are the most popular in today's consumption behavior.

According to the study results;

When looking at the relationship between hedonic and utilitarian motives and use of mobile applications in terms of students and graduates in using mobile applications, it is determined that there is a significiant relationship between them. This shows that while developing mobile applications, companies need to improve their enjoyment, enjoyable, interesting and supportive aspects that they can use in their free time, both in their leisure time and in their daily life or work / school.

It also turns out that the development of mobile applications that users can easily understand / use has had a major impact on their choice of these applications. Because students are younger and more interdependent with technology, mobile applications are easier to use, and easier to understand, less cumbersome, and easier-to-use applications are preferred because they address every aspect of the application.

In light of all these results, marketing strategies are developed by companies that develop / use mobile applications to learn how students and their graduates All users want an application, provide them maximum benefit from it, as well as being entertained. In addition, it is important that the marketing practitioners can correctly reach the right consumer segment.

It is evaluated that this study will be a reference work that can benefit system development decisions with detailed information about consumers' mobile application preferences with a distinction between students and graduates because there are not any study about this subject and in addition it can be used as a resource in academic studies.

Examination of foreign users due to the collection of people who use mobile apps, mobile applications may need about the country the opportunity to make comparisons between both communities. It may be possible to make comparisons between countries and nations with similar work to be done in foreign countries.

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