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**A MULTI - GROUP ANALYSIS OF LMS SYSTEM: A CASE
STUDY OF GOOGLE CLASS AND MOODLE**

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This Thesis report has been submitted in fulfillment of the requirements for the Degree of
Bachelor of Science in Software Engineering.

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APPROVAL

This Thesis “**A multi- group analysis of LMS (Learning Management System) system: A case study of Google class and Moodle**”, submitted by **Debabrata Mallick, 151-35-854** to the Department of Software Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Software Engineering and approved as to its style and contents.

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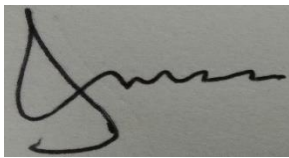
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LIST OF ABBREVIATIONS

Cases

AVE: Average Variable Extracted.....	26, 28, 33
CAI : computer assisted instruction.....	1
CAL: computer assisted teach	1
CBI: Computer-Based Instruction	1
CBT : Computer-based training.....	8
CD: compact disc.....	8
CGPA: Cumulative Grade Point Average	12
CR: Composite Reliability	26, 33
DV: Discriminant Validity.....	33
DVD: digital video disc	8
GPA: grade point average.....	12
IBM: International Business Machines.....	24, 32
ICT: Information & Communication Thchonology.....	1, 2, 8, 12
iOS: iPhone Operating System (Apple).....	8
IT: Information Techonology	12
LMS: Learning Management System	passim
PLS: Partial Least Squares.....	2, 24, 25, 32
ROM: read-only memory.....	8
SDL: self-directed learning.....	1, 4
SEM: Structural Equation Modeling	24, 25, 26
SPSS: The Statistical Package for the Social Sciences.....	2, 24, 32
STEM: science, technology, engineering and math.....	12
TAM: technology acceptance model	14

ABSTRACT

This study will investigate and compares between multi group and the outcome of learning management system adoption for their education. For comparing between multiple groups study decided to go with Google class and Moodle those are used by conceptualizing five e-learning systems adoption outcome constructs namely perceived learning assistance, perceived community building assistance, perceived academic performance, perceived positive impact and perceived user satisfaction. For utilizing these constructs in hypotheses, the study proposes a research model for assessing the possible outcomes of e-learning systems adoption and use for education. Proposed same model are used for popular learning management system, Moodle and Google class. For the paper organized a survey and collected data from 238 university students those students are using Google class and Moodle in real life for their education purpose. IBM SPSS (Statistical Package for the Social Sciences) Statistics are used for finding missing data for both LMS. Then Smart PLS-3 (Partial least squares) is used for test the research model for both. From test result identify that both LMS system are helping student to get better academic it. But they are not satisfying with Moodle and don't have positive impact on it because of their complex used interface and few limitations.

KEYWORDS:

Learning management systems, E-learning use, Digital literacy, Learning assistance, Community building, Academic performance, Positive impact, Satisfaction.

Software Engineering Contribution:

We see in many websites there are some university says google class room is good and some university says Moodle is good but those are different response but our university we are using both systems. That's why we trying to figure out what are the factors that influence their satisfaction for Google Classroom and for the Moodle. We developed two model and we collect the data and try to fit in these two models. From the model I found that digital literacy got different action on Google Classroom and Moodle. The other variable result is same. We see that Moodle digital knowledge have no effect on positive impact and satisfaction but for Google Class digital literacy have effect on positive impact and satisfaction. So, if we can improve digital literacy for Moodle then it will throw positive effect on positive impact and satisfaction. For this, students must train Moodle.

CHAPTER 1 INTRODUCTION

eLearning that eLearning ought to be viewed as a continuum of chances for utilizing ICT in instruction. Development of eLearning from early correspondence courses to the present PC interceded ways to deal with dispersed learning. Current stage advancements in eLearning and diagrams the qualities and shortcomings of learning the executive's frameworks, for example, Blackboard (Sleator, R. D. 2010). A computerized gadget it more than the capacity to it incorporates a vast assortment of complex subjective, engine, sociological, and enthusiastic aptitudes, which clients require so as to work successfully in advanced situations in different distinctive way (Eshet, 2004). The performance depends expectation on continuance intention, and continuance intention on performance. The effect on learning both straightforwardly and by implication through dimension of use, affects apparent effect of the LMS (J.McGill & Jane E.Klobas, 2009). Learning student need to understand the system of LMS. But now a day's lot of LMS system are available. The thought process of Google Classroom is to understudies' self-coordinated learning (SDL) for aptitudes have been relied upon to be improved for each understudy. Moodle learning the executive's framework (LMS) quality attributes and contrasts in understudy fulfillment with respect to such qualities. After using Google class or Moodle its help student to gain better academic performance that's why most of have positive impact about this learning management system.

1.1 Background

As indicated by Sleator of eLearning can be separated into three areas: the principal diagrams the advancement of eLearning from early correspondence courses to the present PC intervened ways to deal with circulated learning. The second area manages the idea of mixed picking up; joining best practice in vis-à-vis and web based learning. The last area centers on current stage innovations in eLearning and layouts the qualities and shortcomings of learning the board frameworks, for example, Blackboard (Sleator, R. D. 2010). The real legitimate significance of eLearning that eLearning ought to be viewed as a continuum of chances for utilizing ICT in instruction. This can include supporting and improving conventional eye to eye instructing, utilizing ICT to classroom choices and conveying completely online separation training programs (Bullen, 2014). The historical backdrop of the use of PCs to training is loaded up with conventional terms, for example, PC based guidance (CBI), PC helped guidance (CAI), and PC helped educate (CAL) (Watson, 2007).

Digital literacy education isn't simply utilizing programming or work an advanced gadget it more than the capacity to it incorporates a vast assortment of complex psychological, engine, sociological, and passionate aptitudes, which clients require so as to work successfully in advanced conditions in different distinctive way (Eshet, 2004). The connections were huge when the outcomes show advanced education on clients' execution and exertion desires. The execution depends desire on continuation aim, and duration aim on execution. These discoveries results recommend that individual computerized education encourages the utilization of e-learning, and ought to be viewed as while looking at their effect on execution (Mohammadyari, 2015).

1.2 Motivation of the Research

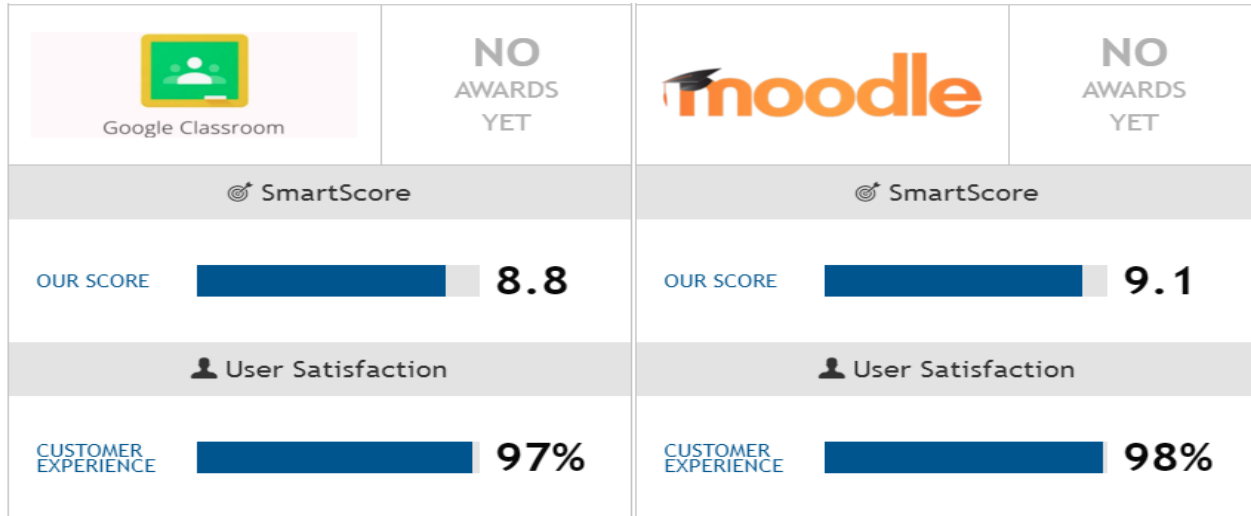
Now a days learning is not limited in books. The biggest learning media is the internet. Internet make world small. Anyone can read any of their necessary book or article. For academic purpose internet helps us. LMS (Learning Management System) is one of the academic helping tools on internet. It does so much help in our academic life during study. Lot of task can be done by using LMS system. The aftereffects of LMS give solid help to the significance of task– innovation fit, which affected apparent effect on learning both straightforwardly and by implication by means of dimension of use, affects apparent effect of the LMS (J.McGill & Jane E.Klobas, 2009). Quickly progresses in instructive and data correspondences innovation (ICT) have urged a few teachers to move past customary up close and personal and separation training innovation interceded e-learning condition (Birch & Bruce Burnett, 2009). Here's the thinking come to researching in this field.

1.3 Problem Statement

For better understanding the conceptual systems adoption of eLearning and its outcome of construct perceived learning assistance which help our learning and provide better community building which assist our eLearning and help to perform well in academic performance (Islam A. N., 2013). After using Google class or Moodle its help student to gain better academic performance that's why most of have positive impact about this learning management system. Positive impact depends on learning management system user satisfaction (Ifinedo, 2017). Because if the user has positive impact on LMS system they are satisfy with Google class or Moodle. They might need more upgrade or they are satisfied with some feature of classroom else some feature of Moodle (Ifinedo, 2017). For finding the student opinion in real life uses for their academic purpose calculate the collected data using SPSS and find number of missing values for each of the eLearning system. With no missing data from SPSS, the data set are import in PLS and draw before proposed model in PLS and calculate. Following the writing audit on our investigation, we layout our exploration techniques, and portray our strategies for examination and consequent

outcomes, following which we embrace a discourse of our discoveries. We finish up this investigation by distinguishing a portion of the ramifications of this present examination's discoveries, layout the constraints of the ebb and flow study, and offer various recommendations for future research.

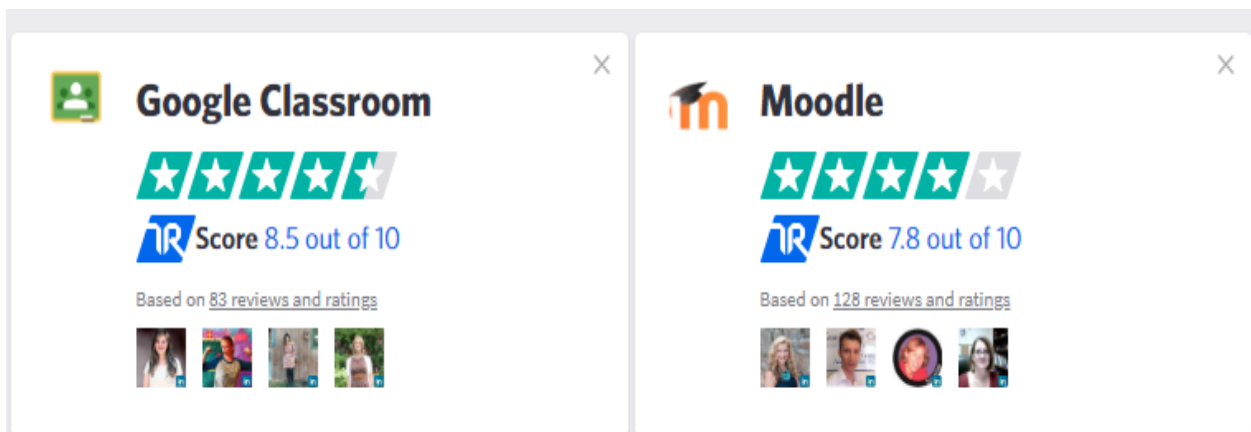
We see in many websites there are some university says google class room is good and some university says Moodle is good but those are different response. [Financesonline.com](https://www.financesonline.com) says about Google class and Moodle.



<https://comparisons.financesonline.com/google-classroom-vs-moodle>

Figure 1.1 Research Problem

[Trustradius.com](https://www.trustradius.com) says that



Source: <https://www.trustradius.com/compare-products/google-classroom-vs-moodle>

Figure 1.2 Research Problem

g2crowd.com also says that

Compare Google Classroom vs Moodle

See this comparison of Google Classroom vs. Moodle based on data from user reviews. Google Classroom rates 4.5/5 stars with 440 reviews. Moodle rates 3.9/5 stars with 187 reviews. Each product's score is calculated by real-time data from verified user reviews.



Source: <https://www.g2crowd.com/compare/google-classroom-vs-moodle>

Figure 1.3 Research Problem

A troublesome mission is to instruct college undergraduates to increase educated, understanding dependable and socially talented. For better learning undergraduate need to comprehend the arrangement of LMS. Be that as it may, presently multi day's parcel of LMS framework is accessible. Thus, the mission is supporting the developing number of University-based e learning and youth advancement programs (Greenberg, 2003).

1.4 Research Questions

So as to take care of the issue of a colossal number of undergraduates enlisting throughout Introduction to Information Technology at Mae Fah Luang University, Chiang Rai, Thailand was created a self e-learning framework and that are utilized on that scholastic years. This issue on study assets has encountered, for models, the set number of educators, classrooms, PCs, and so on. This factor accompanies difficulties for enhancements to be made in educating and learning nature of this course. This examination paper report means to send the Google Classroom in 2015, rather than the executed framework referenced previously. The thought process of Google Classroom is to undergraduates' self-coordinated learning (SDL) for abilities have been required to be upgraded for each undergraduate. The from Google shape surveys as far as client fulfillment and self-assessment were utilized as research instruments, alongside the evaluation in term of reviewing (Hemrungrote, Prasara Jakkaew, & Somphong Assawaboonmee, 2017).

Moodle learning the executive's framework (LMS) quality attributes and contrasts in undergraduate fulfillment as to such qualities. It has been demonstrated in this investigation that male and female undergraduate are similarly happy with Moodle LMS quality attributes and that there is a

distinction in the centrality that understudy provide for these attributes. At the point when understudies were seen as to their age and year of study, it was discovered that these gatherings doled out various centrality levels to quality attributes and were not similarly happy with them. It was additionally discovered that there is a generous factual contrast in the criticalness understudies provided for quality attributes and in understudy fulfillment itself, as per how much time they spent utilizing the Moodle application, which is likewise noted as a standout amongst the most imperative parts of the examination directed (Horvat, 2015).

So, here's come the question which LMS system is better and which have better used friendly behavior, better facility. Beside lot of web site saying google class have higher rating where some saying Moodle is more feature. Lots of question came in this point.

For this investigation, we are trying to find out answer of two questions given below

RQ1. What are the factors that influence students' academic performance, learning and satisfaction in terms of google classroom and Moodle usage?

RQ2. Is there any impact of digital literacy on students' academic performance, learning and satisfaction?

1.5 Research Objectives

To answer the exploration questions, this examination will research relationship of a proposed structure and connection between two gatherings. Therefore, the targets of this examination are

- To investigate the effects of student's perceptions on LMS use, assistance on learning, community building on positive impact and student's satisfaction?
- To compare these effects between Google classroom and Moodle users?

1.6 Research Scope

The PC based e-learning in Moodle or google class condition and other PC applications in the instructing of are researched. The social constructivist learning hypothesis is powerful strategy for instructing and learning ergonomics issues in now daily's college training (Siirak, V., Tint, P., & Traumann, A. 2014). This field student has lot's scope to do like finding more efficient ways to use LMS system for student. studding their thought about LMS. Make it more user friendly, adding new feature, increase student to use it etc.

1.7 Thesis Organization

In chapter one, we discussed introduction, background, problem statements, research objectives, and research scope. In chapter two, we discussed literacy review, detailed Hypothesis. In chapter three we discussed about related works. In chapter four we discussed research process, and study sample, and measures. In chapter five we discussed experimental setup, and results. In chapter six we discussed conclusion, discussion, and future works.

CHAPTER 2 LITERATURE REVIEW

2.1 Description of Google class and Moodle:

Google Classroom is a free web benefit created by Google for schools that expect to rearrange making, disseminating and evaluating assignments paperless. The basic role of Google Classroom is to streamline the way toward sharing records among instructors and understudies (Robinson, T., Watts, D., Noll, C., Garcia, A., & Garcia, J, 2004). Google Classroom was declared on May 6, 2014, with a see accessible for a few individuals from Google's G Suite for Education program (Magid, L, 2014). It was discharged freely on August 12, 2014 (Etherington, Darrell, 2014).

Google Classroom ties Google Drive, Google Docs, Sheets and Slides, and Gmail together to enable instructive foundations to go to a paperless framework (Kerr, Dara, 2014). Google Calendar was later coordinated to help with task due dates, field treks, and class speakers (Hockenson, Lauren, 2015). Understudies can be welcome to classrooms through the foundation's database, through a private code that would then be able to be included the understudy's UI or consequently imported from a school area. Each class made with Google Classroom makes a different organizer in the individual client's Google Drive, where the understudy can submit work to be evaluated by an educator (Steele, Billy, 2014).

Coursework done so easily using google class. Teacher can assign assignment and set due date. Student need to submit the assign before due time. After given time it will show late done ("Submit an Assignment", 2015). Grading can be done by various way. After assigning assignment with file student can view, edit, copy. When evaluating is done it just can be change by the instructor except if the educator turns the task back in. Classroom can be gotten to on the web or by means of the Android and iOS Classroom portable applications. Google dispatch portable applications for Classroom, in January 2015, and the application is accessible for iOS and Android gadgets. The applications permit clients take photographs and join them to their assignments, share records from different applications, and support disconnected access (Wright, Mic, 2015). Google Classroom does not demonstrate any commercials in its interface for understudies, staff, and educators, and client information isn't filtered or utilized for publicizing purposes ("Privacy & Security Information", 2017).

Moodle is a free and open-source learning the executives framework which is utilized for mixed learning, remove instruction, flipped classroom and other e-learning ventures in schools, colleges, working environments and different divisions (Horvat, Ana; Dobrota, M.; Krsmanovic, M.; & Cudanov, M, 2015). Moodle was initially produced for help instructors to make online courses with an emphasis on collaboration and it is in ceaseless development. The principal adaptation of

Moodle was discharged on 20 August 2002. Moodle's advancement has likewise been helped by crafted by open-source software engineers (Jordan, Sally, 2013).

As a learning stage Moodle can improve existing learning conditions. As an E-learning apparatus, Moodle has an extensive variety of standard and creative highlights. Moodle can be utilized in numerous kinds of situations, for example, instruction, preparing and advancement and in business settings (E-learning". <http://www.cpce-polyu.edu.hk/itu/new/>). Moodle additionally can be utilized on cell phones. Moodle versatile application is accessible in Google Play, App Store (iOS), and the Windows Phone Store.

The inquiries and relates the history and traps of computer-based preparing and first-generation eLearning. It follows the foundations of CBT Systems, Smart Force, Internet Time Group, and the University of Phoenix. It takes an individual to five years of Tech Learn, the chief eLearning meeting, from dot-com happiness to the present real-time substances. The subject-matter here is corporate learning, specifically acing specialized and social aptitudes, and item information. The emphasis is on realizing what is required to meet the guarantee made to the client. While there are parallels to university training, the creator does not have the experience to draw them (Cross, 2004). Dr. Stamp Bullen says that eLearning ought to be viewed as a continuum of chances for utilizing ICT in instruction. This can include supporting and upgrading conventional eye to eye instructing, utilizing ICT to give mixed learning or flipped classroom choices and conveying completely online separation training programs (Bullen, 2014).

2.2 E-learning

Understanding eLearning is straightforward. eLearning is getting the hang of using electronic innovations to get to instructive educational programs outside of a conventional classroom. By and large, it alludes to a course, program or degree conveyed totally on the web.

There are numerous terms used to portray discovering that is conveyed on the web, by means of the web, extending from Distance Education, to mechanized electronic learning, web based learning, web learning and numerous others. We characterize eLearning as courses that are explicitly conveyed by means of the web to some place other than the classroom where the teacher is instructing. It's anything but a course conveyed by means of a DVD or CD-ROM, video tape or over a TV station. It is intelligent in that you can likewise speak with your instructors, teachers or different understudies in your class. Now and then it is conveyed live, where you can

"electronically" raise your hand and cooperate continuously and in some cases it is an address that has been prerecorded (Mohammadyari, 2015).

2.3 E-learning Acceptance

As indicated by Almarahdeh learning the board framework (LMS) is an electronic device used to oversee execute, and survey web based learning and instructing which is appropriate for separation condition. The finding of the review has indicated high acknowledgment level on LMS among separation students and teachers (Almarashdeh, I. A., Sahari, N., Zin, N. A. M., and Alsmadi, M. (011).

Eshet portray about computerized proficiency, he says advanced education isn't simply utilizing programming or work a computerized gadget it more than the capacity to it incorporates a substantial assortment of complex intellectual, engine, sociological, and enthusiastic abilities, which clients require so as to work successfully in computerized situations in different diverse way. On the off chance that understudy know about computerized proficiency it causes understudy to find out about eLearning (Eshet, 2004). Use of eLearning for study help as assistant. It assists student to learn, for learning from community is also help that's why community building is necessary. Communities and learning assistant help student and influence the students' perceived better academic performance (Islam A. N., 2013) . After using LMS its help student to gain better academic performance that's why most of have positive impact about this learning management system. Because if the user has positive impact on LMS system they are satisfy with learning management system. They might need more upgrade or they are satisfied with some feature of learning management system (Ifinedo, 2017). Approaching isn't sufficient to guarantee that innovation will empower people to accomplish looked for after financial objectives, since certain essential abilities are required for IT to be adequately utilized. These advanced capabilities include the "basic and sure utilization of IS (data frameworks), including: a capacity to partake in long range informal communication applications and in communitarian conditions, a consciousness of security dangers and dangers, and furthermore a capacity to utilize IS for inventive and imaginative purposes, regardless of the unique circumstance (Mohammadyari, 2015).

2.4 Limitation of LMS

Web and electronic advances have been incorporated into instructive frameworks around the world. Learning Management Systems (LMS) or Moodle, are the electronic frameworks that are most quickly being embraced by an expansive number of schools and colleges. These frameworks give an assortment of devices to help understudies and educators in instructing and learning forms

so as to be progressively compelling and adaptable. In any case, since utilizing this innovation, numerous investigations have appeared abnormal state of analysis guided at the disappointment of LMS to make an intelligent learning condition and to enhance learning results. Numerous investigations were directed to assess the adequacy of this innovation in connection to upgrading understudy learning, to distinguish the issues and disappointment parts of these frameworks (Alhazmi, 2012).

2.5 Digital Literacy

Advanced proficiency is a part of media education. It alludes to a person's capacity to discover, assess, deliver and impart clear data through composition and different types of correspondence on different advanced stages (Livingstone, S., and Van der Graaf, S, 2008).

Cornell University characterizes advanced proficiency as "the capacity to discover, assess, use, share, and make content utilizing data advances and the Internet." Digital education, by this definition, incorporates an extensive variety of abilities, which are all important to prevail in an undeniably computerized world. Computerized education is required so as to define the principles and limits for this sort of separation. Carefully educated instructors additionally comprehend that it is less about the innovation itself than it is about the custom-made experience the innovation can give to every understood. Media used to be straightforward. People produced things like magazines, newspapers, radio and television, then distributed them to the masses. You were the last link in the chain. Today, we have the Internet -- not a chain but a network of digital connections with no beginning and no end. But there's one thing about media that hasn't changed over the years: Media are constructions (Knobel, M, 2008).

2.6 Hypotheses

Conceptualizing five eLearning frameworks reception result develops in particular apparent learning help, saw network building help, saw scholastic execution, positive effect and fulfillment. Using these builds, the paper proposes an exploration demonstrate for evaluating the conceivable results of e-learning frameworks selection and use (Islam A. N., 2013). Following the reasonable system introduced in Fig. 1, we have created and exactly tried an exploration show in this paper for assessing how the utilization of an e-learning framework impacts e-learning results. The exploration demonstrate is appeared in Fig. 1. The meanings of the builds are appeared Table 2.1.

E Learning Use:

E Learning is available to people everything considered and experiences. E learning empowers individuals of all ages to learn new aptitudes without the controls of a traditional classroom. Young

and old alike are using on the web courses to help upgrade their calling, gain a progression, or just to take in another mastery (Islam A. N., 2014).

Digital Literacy:

Academic capability suggests an individual's ability to find, evaluate, and clarify information through creation and diverse mediums on various automated stages. Electronic capability is evaluated by an individual's dialect structure, union, making aptitudes and ability to convey pieces, pictures, sound and plans using development. While automated capability at first based on cutting edge aptitudes and stay single PCs, the presence of the Internet and usage of web based systems administration, has made a part of its inside move to PDAs. Propelled training does not supersede standard kinds of capability, rather developing the capacities that shape the foundation of traditional sorts of instruction (Mohammadyari, 2015).

Learning Assistant:

The Learning collaborator is a model for enhancing the enrollment and instruction of STEM educators. It was built up in 2003 at the University of Colorado Boulder to accomplish three related objectives to enlist and enhance the readiness of future arithmetic and science educators, to enhance the training of all understudies selected in our math and science courses, and to draw in science personnel all the more completely in the planning of future instructors (Islam A. N., 2013).

Community Building:

e learning framework is utilized impact understudies' apparent learning help and saw network building help. Thusly, saw learning help and saw network building help impact the understudies' apparent scholarly execution. This suggests two components with respect to people's learning forms, to be specific seen learning help and saw network building help are critical. Seen learning help alludes to the degree to which the e-learning framework helps a person's learning while saw network building help alludes to the degree to which the e learning framework helps people in building a social network (Islam A. N., 2013).

Academic Performance:

Academic achievement or (educational) execution is how much an understudy, instructor or foundation has achieved their short or whole deal enlightening goals. Add up to GPA and satisfaction of enlightening benchmarks, for instance, helper school declarations and four-year affirmations address educational achievement. It is possible to expect that the use of an e learning system offers understudies such help. We fight that the assistance given by the e-learning structure will positively affect understudies' obvious insightful execution. Henceforth, we put learning help, network building help, and scholarly execution under the classification of e-learning selection results (Islam A. N., 2013).

Positive Impact:

Enhancing academic performance, learning help, and positive impact on discovering that understudies get from utilizing the innovation in their learning condition. For example, inquire about has demonstrated the presence of a positive connection between understudies' fit and expected results in learning conditions demonstrated that understudies' fulfillment with a LMS device impacts their impression of the impact of the innovation on their learning (Ifinedo, 2017).

Satisfaction:

Understudies on online courses fulfillment prompts better scholastic execution. Fulfillment is anticipated by apparent helpfulness, benefit quality, and data portrayal quality (Islam A. N., 2013).

Scholastic execution is estimated by the last grade earned in the course. Take in more in: The Relationship between Individual Student Attributes and Online Course Completion. The scholastic execution is characterized by understudies' revealing of past semester CGPA/GPA and their normal GPA for the present semester (Pintrich, P. R., and De Groot, E. V, 1990).

The Learning right hand display is a model for enhancing the enrollment and training of STEM educators. It was set up in 2003 at the University of Colorado Boulder to accomplish three related objectives: (1) to select and enhance the planning of future arithmetic and science educators, (2) to enhance the instruction of all understudies enlisted in our arithmetic and science courses, and (3) to draw in science personnel all the more completely in the arrangement of future instructors (Otero, V., Pollock, S., & Finkelstein, N, 2010).

***H1a:** Google class usage has positive impact on learning assistant*

***H1b:** Moodle E-learning system has positive impact learning assistant*

Google class or Moodle LMS helps students organize assignments, boost. With simplified workflows of Google class or Moodle, more vitality can be centered around giving understudies and building network. Network building give extra learning advantages to understudies past the utilization of dynamic figuring out how to better E-learning use. Building better community helps to solve the of their user (Sellami, N., Shaked, S., Laski, F. A., Eagan, K. M., & Sanders, E. R, 2017).

H2a: Google class has positive impact on community building

H2b: Moodle E-learning system has positive impact on community building

Google class or Moodle LMS helps students and teachers organize assignments, boost. Instructors can follow understudy advancement to know where and when to give additional input. With improved work processes, more vitality can be centered around giving understudies. IT/ICT Director, IT/ICT Manager, Office Manager, Principal/Assistant Principal. In the present investigation, it was outlined that a decent instructing technique helps the understudies. Quick changes of current world have made the Higher Education System the customary methodology,

the utilization of foreordained classes is maintained a strategic distance from. Try not to utilization of instructive colleagues, Associated with the teacher, Barriers (Groves, M. M., and Zemel, P. C, 2000). Learning collaborator give extra learning advantages to understudies past the utilization of dynamic figuring out how to better scholarly execution (Sellami, N., Shaked, S., Laski, F. An., Eagan, K. M., and Sanders, E. R, 2017).

***H3a:** As a learning assistant, Google class has positive impact on academic performance*

***H3b:** As a learning assistant, Moodle has positive impact on academic performance*

A simple to utilization of Google class or Moodle LMS framework may help understudies' learning and they have positive effect on it. Understudies require negligible exertion for overseeing and taking in the required functionalities of a simple to utilize e-learning framework. Accordingly, they can stress more on the learning substance and exercises as opposed to the functionalities of the framework. Thusly, we propose the accompanying theories for both Google class and Moodle.

***H4a:** Google class has positive impact on learning assistance*

***H4b:** Moodle has positive impact on learning assistance*

This exploration ponder addresses contrasts in understudy impression of the hugeness of Google class or Moodle learning the board framework (LMS) contrasts in understudy fulfillment with respect to such attributes. In that, it has been demonstrated in this examination that male and female understudy are similarly happy with Google class or Moodle LMS quality attributes and that there is a distinction in the noteworthiness that understudies provide for these qualities. At the point when understudies were seen as to their age and year of study, it was discovered that these gatherings relegated diverse importance levels to quality attributes and were not similarly happy with them (Horvat, A., Dobrota, M., Krsmanovic, M., and Cudanov, M, 2015).

***H5a:** Google class has positive impact on satisfaction.*

***H5b:** Moodle has positive impact on satisfaction*

Google class or Moodle LMS enables understudies to sort out assignments, support. With disentangled work processes of Google class or Moodle, more vitality can be centered around giving understudies and building network. Fast changes of present day world have made the Higher Education System the ordinary methodology that is the reason network building have impact on scholarly execution. (Forests, M. M., and Zemel, P. C, 2000). Network building give extra learning advantages to understudies past the utilization of dynamic figuring out how to better scholastic execution (Sellami, N., Shaked, S., Laski, F. An., Eagan, K. M., and Sanders, E. R, 2017).

***H6a:** Google Community Building has positive impact on academic performance*

***H6b:** Moodle Community Building has positive impact on academic performance*

At the end of the day, a simple to utilization of Google class or Moodle LMS framework may help understudies' learning and network building. Understudies require negligible exertion for overseeing and taking in the required functionalities of a simple to utilize Google class or Moodle LMS framework. So they can underline more on the learning substance and exercises as opposed to the more functionalities of the framework. Thusly, we propose the accompanying speculations for both Google class and Moodle LMS framework.

H7a: Google class has positive impact on Community Building

H7b: Moodle has positive impact on Community Building

Google class or Moodle learning the executive's framework (LMS) both have contrasts in understudy fulfillment as to such qualities among in network. There in, it has been demonstrated in this investigation that male and female understudy are similarly happy with Google class or Moodle LMS quality attributes from network. Understudy can without much of a stretch get assistance from network and fulfill the understudy surveys (Horvat, A., Dobrota, M., Krsmanovic, M., and Cudanov, M, 2015). That is the reason following theories proposed.

H8a: Google class has satisfaction on Community Building

H8b: Moodle has satisfaction on Community Building

Building on digital literacy framework and technology acceptance model (TAM), we student technology competency positively effect on student attitude, in recent years, there has been much debate about the concept of digital natives, satisfaction for a microeconomic course using the Google class or Moodle platform. This took various forms, from using the blog feature on Google class or Moodle as an intensive reading course focusing on full-length books rather than journal articles. The project was also intended to cultivate students' digital literacy, Overall, results indicate a positive impact on student learning (Mohammadyari, 2015). Therefore, it is hypothesized:

H9a: Digital literacy has a positive effect on Google class

H9b: Digital literacy has a positive effect on Moodle

This rundown of educators was gotten from the Moodle bolster group. I am happy with the execution of the e-learning framework. The investigation likewise discovered that educator fulfillment of LMS in mixed learning is a key determinant of their expectation to simply utilize LMS for separation (Al-Busaidi, K. An., and Al-Shihi, H, 2012). Thurmond (2003) found that understudy fulfillment depends more on the quality and viability of Already, charitable associations are building networks of Moodle schools and preparing associations. Considered effective and worth the speculation will to a great extent rely upon the. (Appana, S, 2008). According to the exploratory idea of the examination, the preliminary instructing was intended to incorporate all the four classes of understudies as a were requested to share their perspectives on the exchange inquiries with gathering individuals and different colleagues in the class-explicit Google Docs account. (Kong, S. C, 2014). The investigation guarantees that albeit youngsters exhibit a clear straightforwardness and commonality with PCs, they depend intensely on pursuit

93 percent are fulfilled or extremely happy with their general involvement of utilizing a web index contrasted and 84 percent. (Rowlands, I., Nicholas, D., Williams, P., Huntington, P., Fieldhouse, M., Gunter, B., and Tenopir, C, 2008, July).

H10a: Digital literacy of google class has positive impact on google class satisfaction

H10b: Digital literacy of moodle has positive impact on Moodle satisfaction

In the event that understudies trust that the e-learning framework they use upgrades their learning, they are bound to utilize the framework as a component of their courses for perusing and downloading learning materials and associating with different members (taking an interest in talks, visiting, messaging, and so on.). The relationship between saw value and e-learning framework use is bolstered by numerous individuals' earlier investigations. Thus, we hypothesize the following (Islam A. N., 2013).

2.6.1 Hypothesis list:

Table 2.1 Hypothesis List

Serial	Name of Hypothesis
H1a	Google class usage has positive impact on learning assistant
H1b	Moodle E-learning system has positive impact learning assistant
H2a	Google class has positive impact on community building
H2b	Moodle E-learning system has positive impact on community building
H3a	As a learning assistant, Google class has positive impact on academic performance
H3b	As a learning assistant, Moodle has positive impact on academic performance
H4a	Google class has positive impact on learning assistance
H4b	Moodle has positive impact on learning assistance
H5a	Google class has positive impact on satisfaction
H5b	Moodle has positive impact on satisfaction
H6a	Google Community Building has positive impact on academic performance
H6b	Moodle Community Building has positive impact on academic performance
H7a	Google class has positive impact on Community Building
H7b	Moodle has positive impact on Community Building
H8a	Google class has positive on Community Building
H8b	Moodle has satisfaction on Community Building
H9a	Digital literacy has a positive effect on Google class
H9b	Digital literacy has a positive effect on Moodle
H10a	Digital literacy of google class has positive impact on google class satisfaction
H10b	Digital literacy of Moodle has positive impact on Moodle satisfaction

Here, our proposed research model from based on above hypothesis. This model will used for both LMS system.

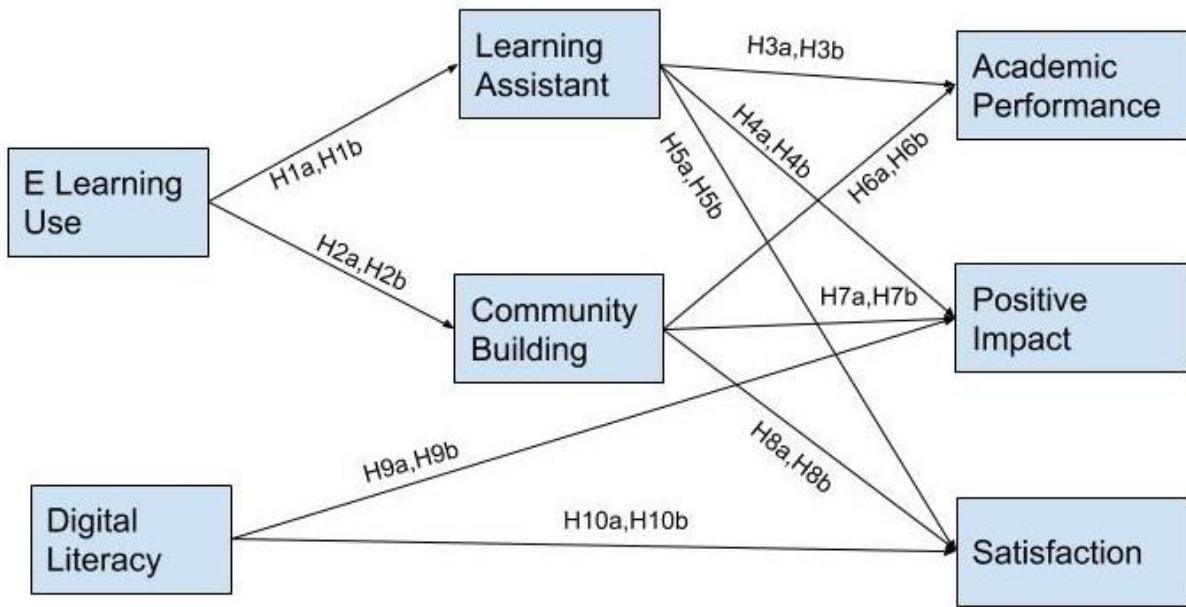


Figure 2.1 : Proposed Hypothesis Model

2.7 Summary

In this Literature review chapter discuss about E-learning. E-learning basic definition. Then discuss about of E-learning acceptance at now a days and the impact of E-learning on modern days. In limitation of LMS (Learning Management System) tell about the available LMS system and their limitation. Then digital literacy point discuss about how digital literacy have impact on modern LMS system. Without digital literacy knowledge using LMS is difficult. Before discussing Hypotheses comes proposed model variable. In Hypothesis part discuss each and every related variable with each other.

CHAPTER 3 RESEARCH METHODOLOGY

3.1 Study area

In the beginning select our area of our study is E-learning. At that moment we just have idea of working interest. Then started reading few E-learning leaned paper such as, Wellsprings of fulfillment and disappointment with a learning the executives framework in post-appropriation organize: A basic episode strategy approach, Business students' apparent use results of Moodle in a mixed learning condition: the jobs of ease of use components and outside help, Investigating e-learning framework utilization results in the college setting, Understanding the impact of e-learning on individual execution: The job of computerized education and so on. This paper gives clear concept of E-learning and digital literacy. After reading those papers I find out that E-learning is mostly used in LMS (Learning Management System), that I previously used so much for my academic curriculum. Then LMS system was very helpful for my study. Then I found out lot of LMS system is available now a day. All LMS system have lot of facilities. Then a question rises on my mind. Which LMS system have most facility, user friendly or high rating and start searching which on Google and Article. But I was disappointed because some website gives Google class room high reading and some showing high rating on Moodle. Same thing for article that kind of result. A question also come on mind that those websites are showing different kind of result is their data collection was correct because normally very few University or Organization are using Google classroom and Moodle at a time. There was not any kind of verification that the all of data collected candidate are using Google class and Moodle. So their result cannot be acceptable. Beside there was not any publication for this topic. Then I memories that in my university have both LMS system and most of all student and faculty member are using Google class and Moodle. Then I think that if I work on this topic, I can easily find valid data from my university. So, then I talk to my supervisor about this. He said I can go for it. Then I decided to do my thesis on this topic.

3.2 Data collection procedure

After reading all related paper find all variable for the method. From the proposed method see that all finding variable have dependency to each other. So, checking their dependency did hypotheses for each variable. Then finalized the proposed method. After finalized method collect all question from those paper (Wellsprings of fulfillment and disappointment with a learning the executives framework in post-reception arrange: A basic occurrence strategy approach; Business students' apparent use results of Moodle in a mixed learning condition: the jobs of ease of use variables and outside help; Investigating e-learning framework utilization results in the college setting; Understanding the impact of e-learning on individual execution: The job of computerized proficiency and so forth. Where the strategy variable comes. For my proposed strategy I have to gather information utilizing G*Power. G*Power is an allowed to utilize programming used to compute factual power. The program offers the capacity to figure control for a wide assortment of

factual tests including t-tests, F-tests, and chi-square-tests. After using G*Power software I found that I have to collect at least 119 data from student for one Model. But I am comparing between two LMS system that's why I have same model for both Google class and Moodle. So, my sample data size increase twice. So, my collected data size at least 238. So, from collected question from those papers and I set up a survey form along with their profile. Then I printed that paper 255 copy. Next day I go to my University. My University is Daffodil International University. Which perceived as one of best reviewed colleges in Bangladesh. The college has been established by Daffodil Group with the endorsement of the Ministry of Education under the Private University Act of 1992 and its alteration in 1998 and Daffodil International University appeared on 24th January 2002. Situated in Sobhanbag, Mirpur Road, Dhanmondi, Dhaka-1207. It has more than 19990 students.

Describing the survey paper question form to each and every student and collect all required data after one week.

3.3 Profile of respondents

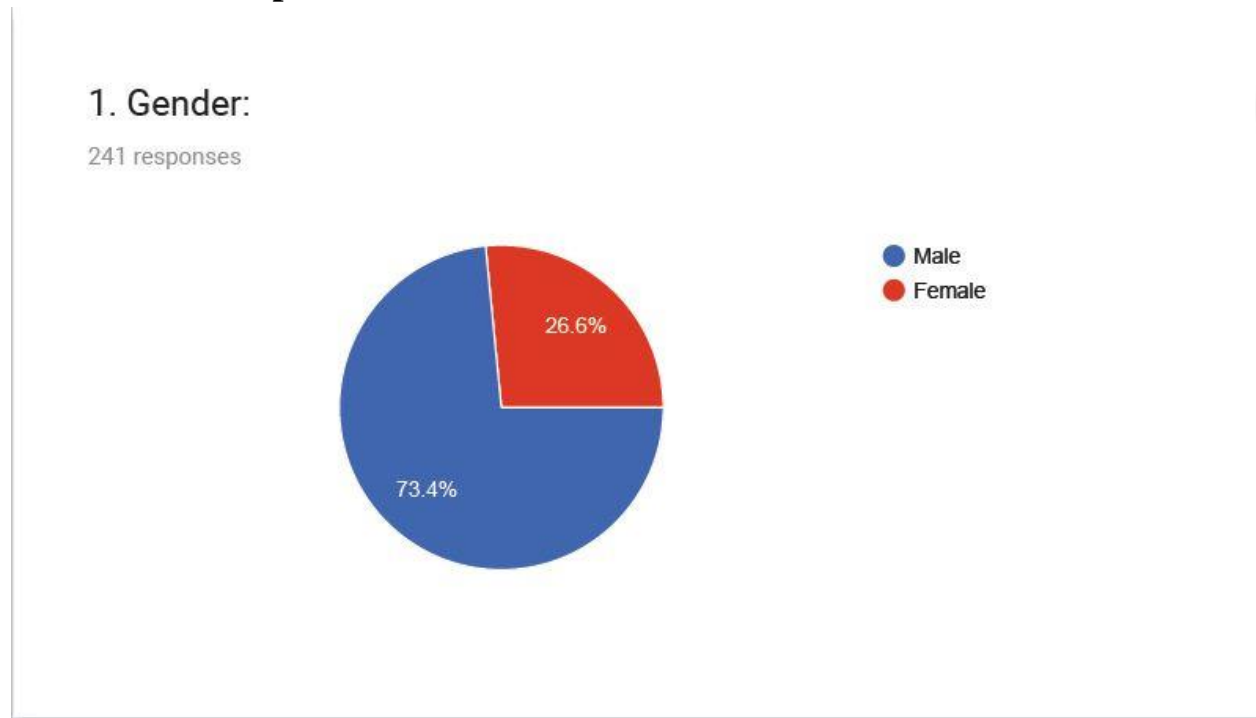


Figure 3.2: Gender

Age

241 responses

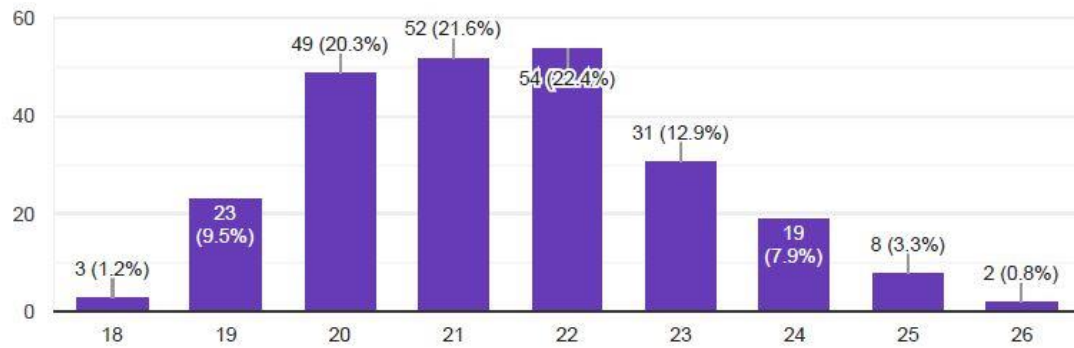


Figure 3.2: Student age variation

3. What stream of Study

241 responses

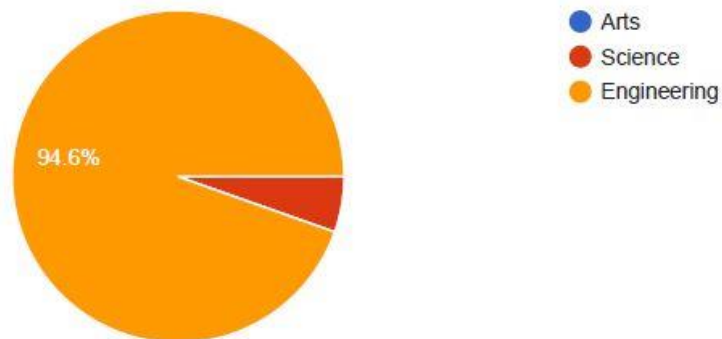


Figure 3.3: Area of student study

4. Nationality

241 responses

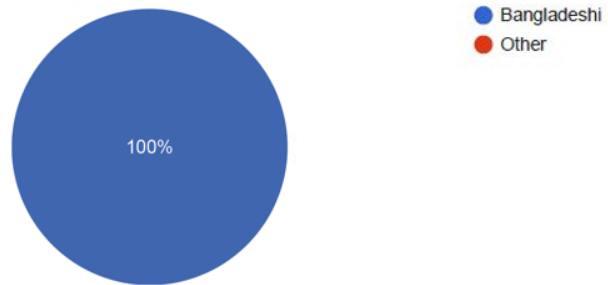


Figure 3.4: Student Nationality

5. Living Arrangement

241 responses

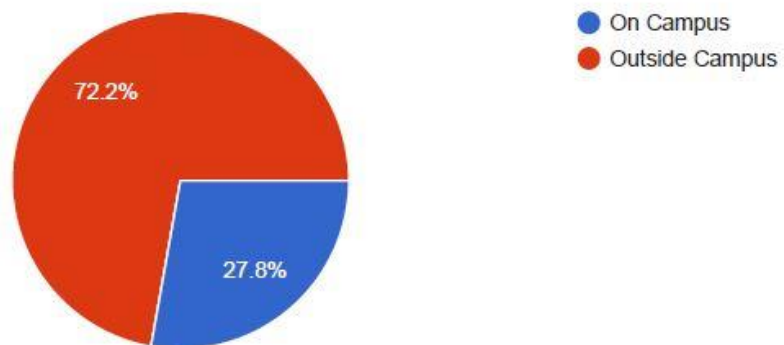


Figure 3.5: Student living area

6. Current CGPA:

241 responses

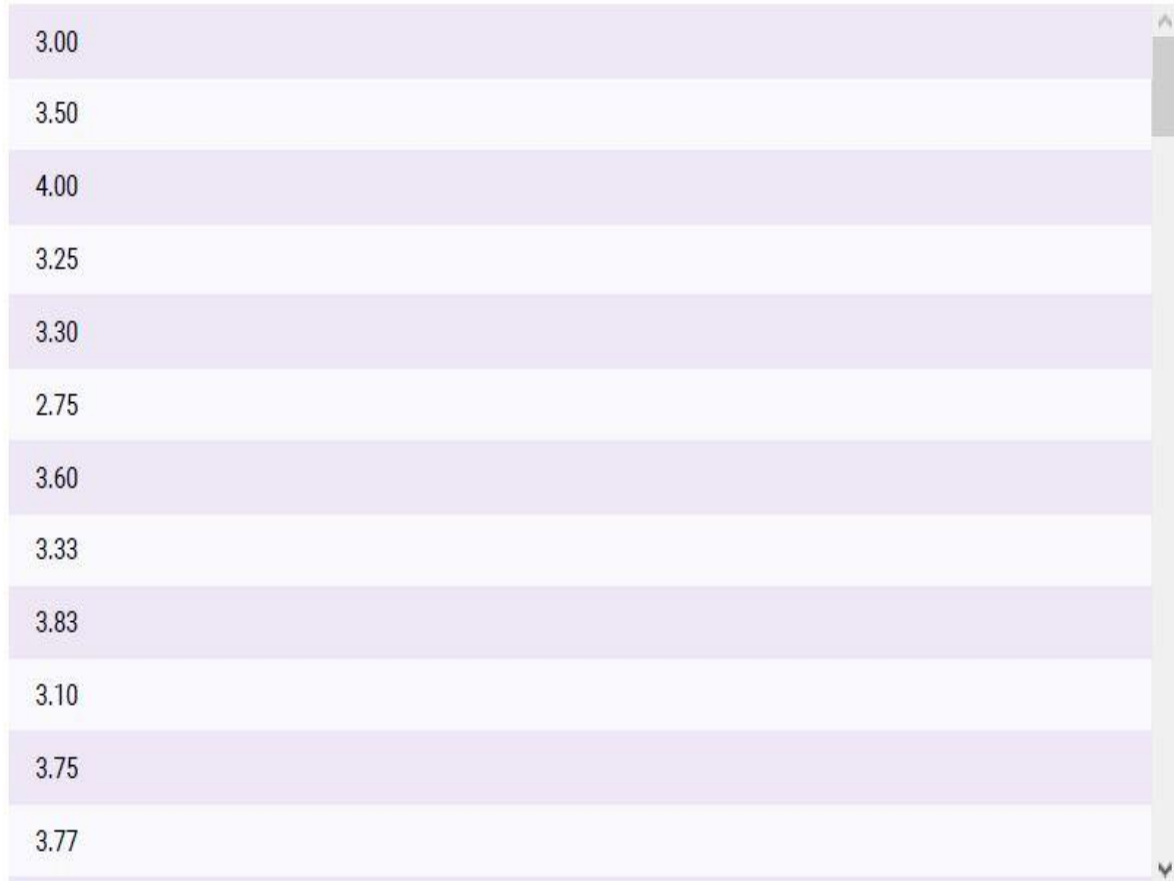


Figure 3.6: Student CGPA

7. What is your religion?

241 responses

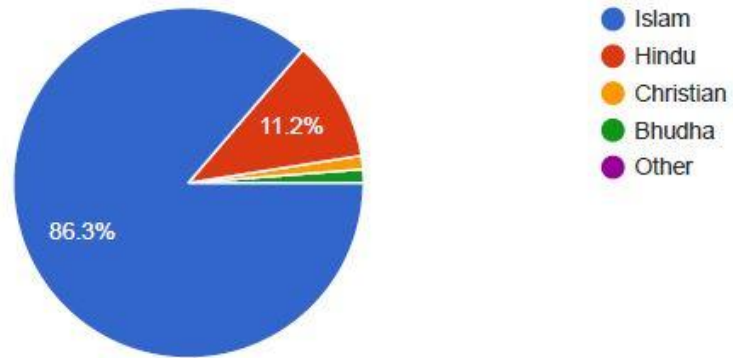


Figure 3.7: Student Religion

8. Currently, what year of study are you in?

241 responses

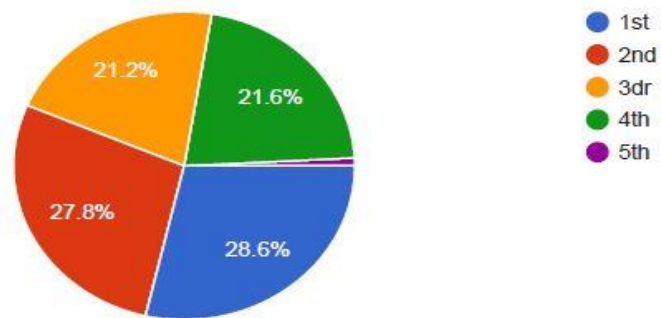


Figure 3.8: Student study year

11. How long you spent per day with IT/IS

241 responses

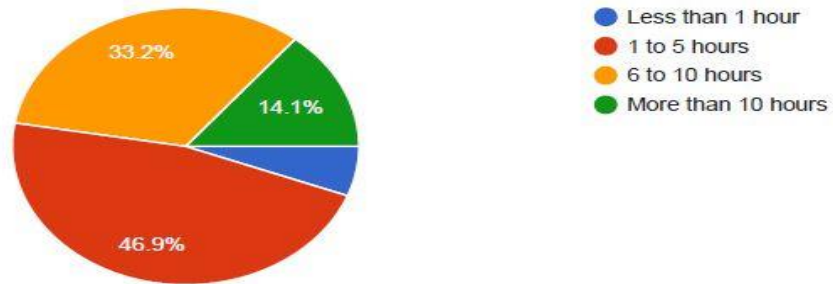


Figure 3.9: Spend time per day in IT/IS

Student Detail Profile:

	Number of Student	Percentage of Student above 100
Gender		
Male	177	73.4%
Female	64	26.6%
Student Age		
18	3	1.2%
19	23	9.5%
20	49	20.3%
21	52	21.6%
22	54	22.4%
23	31	12.9%
24	19	7.9%
25	8	3.3%
26	2	0.8%
Stream of Study		
Science	13	5.4%
Engineering	228	94.6%

Nationality		
Bangladesh	241	100%
Living Arrangement		
On Campus	174	72.2%
Outside Campus	67	27.8%
Current Study Year		
1st	69	28.6%
2nd	67	27.8%
3rd	51	21.2%
4th	52	21.6%
5th	2	2.8%
Faculty		
FSIT	241	100%
Academic programmed		
SWE	241	100%
Spent per day with IT/IS		
Less than 1 hour	14	5.8%
1 to 5 hours	113	46.9%
6 to 10 hours	80	33.2%
More than 10 hours	34	14.1%
Religion		
Islam	208	86.3%
Hindu	27	11.2%
Christian	3	1.2%
Buddha	3	1.2%

Table 3. 2 Student Detail Profile

3.4 Data analysis process

Collected all data insert into excel shit. Then from main excel list separate Google class and Moodle data because some user data are not fill up. For discovering this missing information this exceed expectations document keep running in IBM SPSS Statistics. (SPSS programming stage offers progressed measurable examination is a product bundle utilized for intuitive, or clumped, factual investigation. Since quite a while ago delivered by SPSS Inc.) IBM SPSS Statistics programming full that clear with a few qualities that will figure the in Smart PLS.

In this examination, we utilized the PLS-SEM strategy and the measurable programming SmartPLS 3 (Ringle, Wende, and Becker, 2015) to gauge the model and to direct multigraph

investigation (MGA). PLS-SEM is a multivariate investigation approach used to evaluate way models with idle factors (for point by point reasons of when to utilize PLS-SEM see, for instance, Richter et al., 2016; Rigdon, 2016), and bolsters completing multi assemble examinations (Hair et al., 2017; Henseler, Ringle, and Sarstedt, 2016; Sarstedt, Henseler, and Ringle, 2011). With past investigations having distinguished an inspecting limit for PLS-SEM in the request of 100 examples, the present example sizes of 221 and 410 would for the most part be viewed as sufficient for PLS-SEM (Reinartz, Haenlein, and Henseler, 2009). Likewise, a PLS-SEM testing dependable guideline is the "multiple times rule" (Chin, 2010; Hair, Ringle, and Sarstedt, 2011). Then again, one can return to the more prohibitive least example measure proposals dependent on factual power (Hair et al., 2017). In the two cases, we can securely infer that 238 essentials are satisfactory example sizes for the two gatherings inspected in this examination.

CHAPTER 4 RESULTS AND DISCUSSION

4.1 Data Analysis Technique

Information examination has two noticeable techniques: subjective research and quantitative research. Every strategy has their very own systems. Meetings and perceptions are types of subjective research, while tests and studies are quantitative research (Bryman, 2006)

Auxiliary condition demonstrating (SEM) is a type of causal displaying that incorporates an assorted arrangement of numerical models, PC calculations, and factual techniques that fit systems of develops to information. SEM incorporates corroborative factor examination, way investigation, fractional minimum squares way displaying, and dormant development demonstrating (Savalei & Peter M. Bentler, 2006). Looking into our paper model that, structural equation modeling using the partial least squares approach are shifted (F. Hair Jr, 2014) and used SmartPLS3 software to calculating our collected data. Our model was measured with reflective indicators in every contract.

4.2 Measurement Model

Hair Jr, 2014 recommended after the research model was formed, researchers need to check the outmodel. For construct of the outer model, we measured average variable extracted (AVE) and composite reliability (CR) and discriminate validity.

4.2.1 Average variance extracted:

Average variance extracted extricated (AVE) is usually used to survey joined legitimacy. In insights, normal difference removed is a proportion of the measure of fluctuation that is caught develop by in connection to the measure of change because of estimation blunder ((Hulland, 1999).

Table 4. 1: Average variance extracted

	Google	Moodle
DL	0.561	0.853
AP	0.729	0.792
CB	0.705	0.545
LA	0.561	0.786
PI	0.627	0.817

S	0.820	0.609
Use	0.646	0.860

4.2.2 Composite reliability

Composite reliability can be referred as coefficient. Which appraises the degree to which a lot of inactive develop markers share in their estimation of a build, while the normal change extricated is the measure of basic difference among inert develop pointers (Andreasen, 198).

Table 4. 2: Composite Reliability

	Google	Moodle
DL	0.864	0.946
AP	0.889	0.920
CB	0.877	0.824
LA	0.836	0.936
PI	0.834	0.930
S	0.901	0.771
Use	0.784	0.925

4.2.3 Discriminant Validity

Table 4. 3: Latent Variable Correlation on Google Class (Discriminant Validity)

	DL	G_AP	G_CB	G_LA	G_PI	G_S	G_Use
DL	0.749						
G_AP	0.286	0.854					
G_CB	0.073	0.425	0.840				
G_LA	0.187	0.446	0.347	0.749			
G_PI	0.292	0.555	0.429	0.532	0.792		
G_S	0.355	0.461	0.305	0.495	0.608	0.905	
G_Use	0.196	0.317	0.173	0.460	0.419	0.460	0.804

Table 4. 4: Latent Variable Correlation on Moodle (Discriminant Validity)

	M_AP	M_CB	M_DL_	M_LA	M_PI	M_S	M_USE
M_AP	0.923						
M_CB	0.604	0.890					
M_DL	0.058	0.030	0.738				
M_LA	0.622	0.628	0.019	0.886			
M_PI	0.721	0.625	0.054	0.652	0.904		
M_S	0.668	0.629	0.018	0.673	0.756	0.780	
M_USE	0.534	0.549	-0.025	0.731	0.573	0.620	0.928

Note: Diagonal Represent the square root of average variance extracted (AVE) while the other entries represent squared correlations

From table 4.1, by focusing on the quality criteria where AVE must be greater than 0.5 which will reflect at least 50% of items explain the construct and from table 4.2 composite reliability must be greater than 0.7 (F. Hair Jr, 2014), we can state that both criteria is fulfilled for our variables. Table show that the square root of AVE is greater than the corresponding construct (Hair, Christian M. Ringle, & Marko Sarstedt, 2011)

4.3 Structural Model

Structural Equation Modeling is a multivariate factual investigation strategy that is utilized to break down basic connections type of causal demonstrating that incorporates a different arrangement of scientific models, PC calculations, and measurable techniques that fit systems of builds to information.

4.3.1 Path Coefficient

Break down the significance of Google class each path

Hypothesis Serial	Path	Original Sample (O)	T Statistics (O/STDEV)	P Values	Remark
H9a	dl -> gpi	0.193	2.596	0.010	Supported
H10a	dl -> gs	0.266	5.532	0.000	Supported
H6a	gcb -> gap	0.307	4.309	0.000	Supported
H7a	gcb -> gpi	0.271	3.999	0.000	Supported
H8a	gcb -> gs	0.143	2.753	0.006	Supported
H3a	gla -> gap	0.340	4.817	0.000	Supported
H4a	gla -> gpi	0.399	6.395	0.000	Supported
H5a	gla -> gs	0.393	6.291	0.000	Supported
H2a	guse -> gcb	0.173	2.245	0.025	Supported
H1a	guse -> gla	0.460	5.465	0.000	Supported

Table 4. 5: google class path break down

s

Hypothesis Serial	Path	Original Sample (O)	T Statistics (O/STDEV)	P Values	Remark
H9a	DL -> M_PI	0.036	0.556	0.578	Not Supported
H10a	DL -> M_S	-0.001	0.011	0.991	Not Supported
H6a	M_CB -> M_AP	0.353	5.126	0.000	Supported
H7a	M_CB -> M_PI	0.355	4.841	0.000	Supported
H8a	M_CB -> M_S	0.341	4.886	0.000	Supported
H3a	M_LA -> M_AP	0.401	6.104	0.000	Supported
H4a	M_LA -> M_PI	0.428	6.316	0.000	Supported
H5a	M_LA -> M_S	0.460	6.601	0.000	Supported
H2a	M_Use -> M_CB	0.549	10.884	0.578	Supported
H1a	M_Use -> M_LA	0.731	19.833	0.991	Supported

Table 4. 6: Moodle path break down

In above table 4.5 and 4.6 table show structural the path of hypothesis and their calculated result from SmartPLS3. Table show the Original sample statistic, T Statistic and P Value. P value represent the hypothesis supported or not supported. If P value is less than 0.05 that's mean the hypothesis are supported. If the P value is greater than 0.05 that's mean the hypothesis are not supported (Cheung, Ip, P. L., Lam, S. T. , & Bibby, H., 2007).

Google class and Moodle combine table of path coefficient and remarks

Hypothesis Serial No.	Relation	Google		Moodle		Remarks
		Path Co-efficient	P-value	Path Co-efficient	P-value	
H1	use->la	0.460	0.000	0.731	0.000	Similar
H2	use->cb	0.173	0.025	0.549	0.000	Similar
H3	la->ap	0.340	0.000	0.401	0.000	Similar
H4	la->pi	0.399	0.000	0.428	0.000	Similar
H5	la->s	0.393	0.000	0.460	0.000	Similar
H6	cb->ap	0.307	0.000	0.353	0.000	Similar
H7	cb->pi	0.271	0.000	0.355	0.000	Similar
H8	cb->s	0.143	0.006	0.341	0.000	Similar
H9	dl->pi	0.193	0.010	0.036	0.578	Different
H10	dl->s	0.266	0.000	-0.001	0.991	Different

Table 4. 7: Path coefficient

In this combine table show that the Google class and Moodle hypothesis similarity and differences. From SmartPLS3 calculation Google class and Moodle have similar value in one to eight hypotheses because those all hypothesis P value have less than 0.05. But in hypothesis 9 and 10 they have different value. Google class 9 and 10 hypothesis P value have less than 0.05 those are acceptable and Moodle 9 and 10 hypothesis P value have greater than 0.05 so, those value are not acceptable. That's why hypothesis 9 and 10 are different. That's mean the student have lack of digital literacy so they don't have positive impact on it and they are not satisfy with it.

4.3.2 SmartPLS3 Tested Model

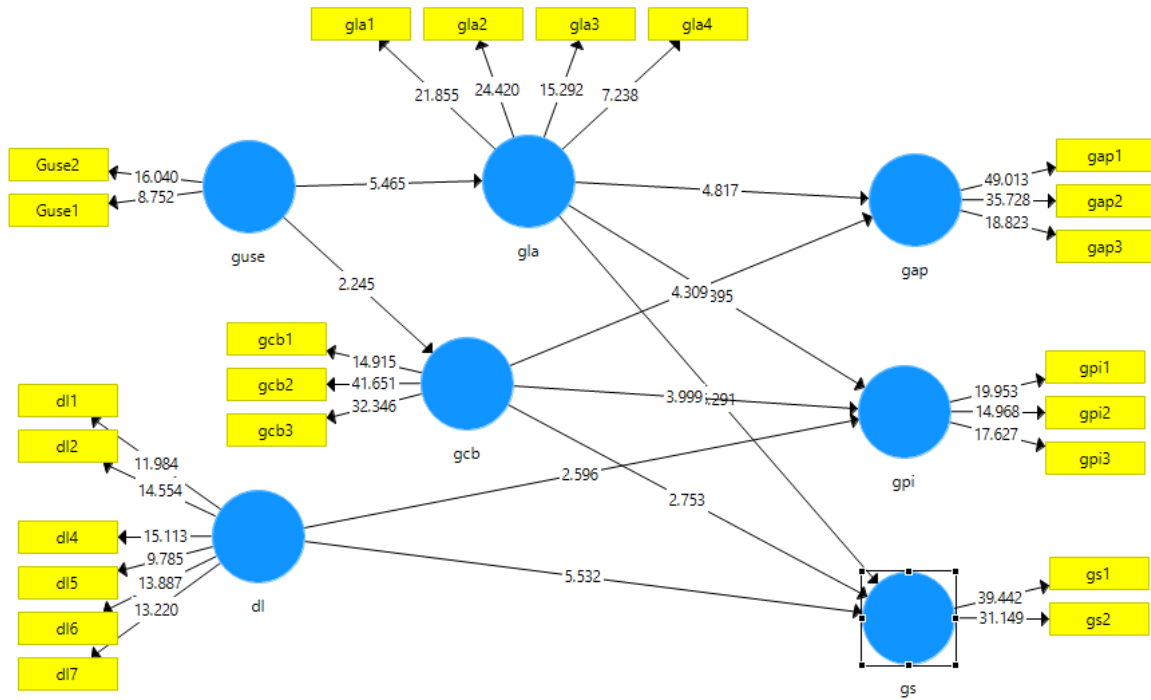


Figure 4.1 Google class SmartPLS3 Tested Model with Result

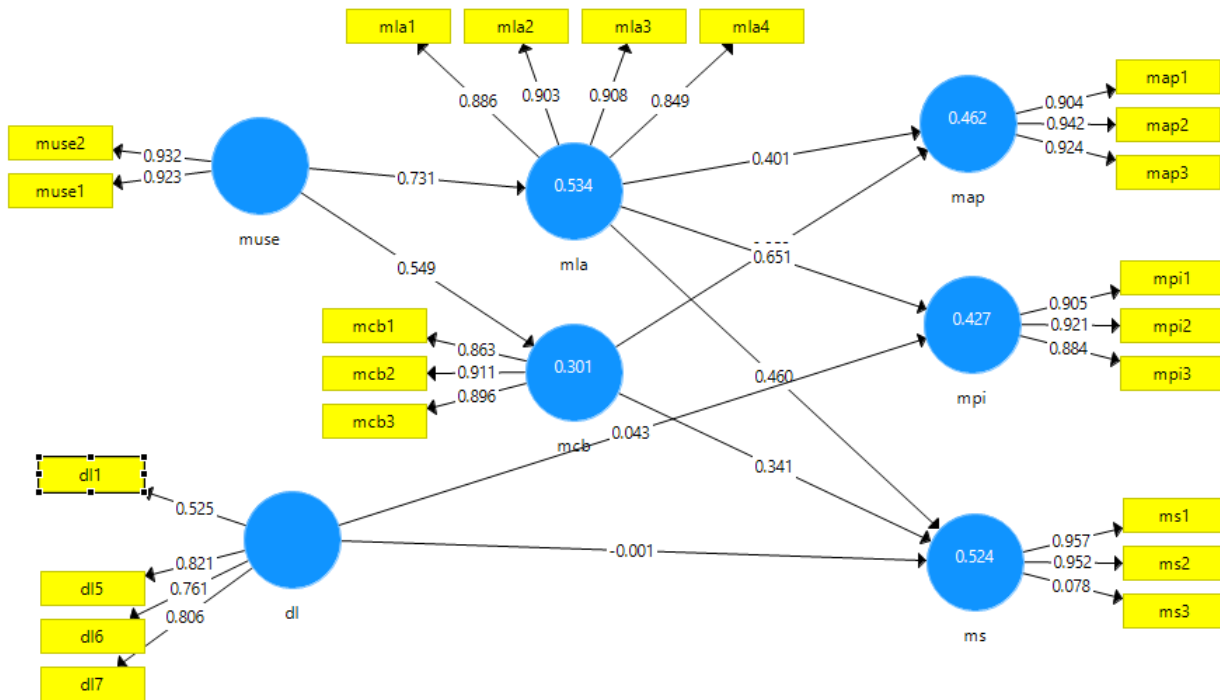


Figure 4.2 Moodle SmartPLS3 Tested Model with Result

4.4 Discussion

Google class and Moodle LMS system provides such as benefits and access to a wide network that gives us so much up-to-date learning resources and facility do lot of activity by through them. This both LMS system has been changing rapidly especially in the last few years because in terms of the technologies being developed so much. It provides users to more advance technology and rather than boring traditional classroom-type training. For in the beginning after reading few related research papers, and gathering knowledge about both eLearning system search on internet for finding which LMS system have better rating and user opinion. But some web site has better google class rating and some have better rating on Moodle. But there is not any prove for that the data was collected from both LMS system user. And few papers have on Moodle and few have one Google class but any of paper don't have comparison between google class And Moodle where data are collected real life both LMS system user. This study examined the effect of individuals student opinion on Google class and Moodle and their intention to continue using e-learning on their academic study, and how their level of digital literacy knowledge affected their motive to use this LMS system. A research model proposed from reading various eLearning and digital literacy related research paper. Where their research model has some feature of my proposed research model (Mohammadyari, 2015)

Then from proposed research model we use G*power calculator for finding how much data I need to collect from student. Using G*power find that 119 data should be collected for proposed model. But it was a multi group analysis and comparing between Google Class and Moodle both LMS system. So, for proposed research model data will be collected so that's why data sample will increase twice. So, 238 sample data were collected by survey from student where they are using both LMS system in real life. For that survey set a survey question form where the question was collected from published paper where the author used the question for their survey question form for same variable our model.

After printing survey form for 255 copies data were collected form Daffodil International University student because Daffodil International University student use Google class and their self-developed Moodle LMS system for their day to day academic curriculum. Then collected were inserted into excel shit because some of data field were missing because some data field are not fill up by student. Using IBM SPSS Statistic software missing filled are calculated for Google class and Moodle. And exported two excel file for both of them with no missing value. Using that two excel file further calculation was done.

By using SmartPLS3 draw test model for both LMS system from SPSS excel file and run in SamrtPLS3 as PLS Algorithm for finding AVE (average Variance extracted) and CR

(Composite Reliability) and Discriminate Validity. All value of PLS Algorithm came good because AVE result greater the 0.5 and CR all value came greater than 0.7

Then calculate Bootstrapping by SmartPLS3 and break down the significance of each path for Google Class and Moodle. For Google class all hypothesis P Value was supported because P value is less than 0.05 but for Moodle two P value hypothesis ware become greater than 0.05 that's why they are not supported and rest of all ware supported because P value is less than 0.05.

4.5 Summery

At last PLS Algorithm for finding AVE (average Variance extracted) and CR (Composite Reliability) and Discriminate Validity (DV). All value of PLS Algorithm came good because AVE result greater the 0.5 and CR all value came greater than 0.7. For Google class all hypothesis P Value was supported because P value is less than 0.05 but for Moodle two P value hypothesis ware become greater than 0.05 that's why they are not supported and rest of all ware supported because P value is less than 0.05. So, the result is the student have lack of digital literacy so they don't have positive impact on it and they are not satisfying with it.

CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Findings and Contributions

In this study, we investigated the differences between Google class and Moodle LMS system among student those are using this both LMS system for their academic curriculum depend on their Digital Literacy knowledge. After preparing research model collect all question from previous research model variable what they are used for their paper. Then calculate how much data sample need to collect using G*power and collect all data from student whom are suing both LMS system for their academic curriculum. All collected data from student inserted into excel sheet. But find that some student is did not answer some of question. For finding those missing filled answer use IBM SPSS Statistic and find the missing question answer those are did not answer by student. Then using that no missing data excel file draw test model for both LMS system and calculate average variance extract (AVE), Composite reliability (CR), Discriminant Validity (DV) and their path coefficient. Find that all proposed hypothesis is excepted except H9 and H10 because the student has lack of digital literacy so they don't have positive impact on it and they are not satisfying with it.

In beginning, after reading few research papers and clear the concept of thesis. After fixing topic then read this four thesis paper: Examining e-learning framework utilization results in the college setting; Business students' apparent use results of Moodle in a mixed learning condition: the jobs of ease of use components and outside help; Understanding the impact of e-learning on individual execution: The job of advanced education; Sources of fulfillment and disappointment with a learning the executives framework in post-appropriation arrange: A basic episode system approach. This paper is so helpful for my research. Based on this paper knowledge proposed research model and hypothesis. Proving proposed model hypothesis collect all question of survey form from these papers. Then print survey question form for 255 student start collecting data. After one-week data collection process collect 238 student data those are using Google class and Moodle both LMS system for their academic curriculum. Then all collected survey data form data are inserted into excel file. Finding missing data used IBM SPSS Statistic. Then using that no missing data excel file draw test model for both 1 LMS system and calculate average variance extract (AVE), Composite reliability (CR), Discriminant Validity (DV) and their path coefficient. Prove proposed model and all hypothesis are excepted except H9 and H10 because the student has lack of digital literacy so they don't have positive impact on it and they are not satisfying with it.

5.2 Limitation

The study has several limitations that need to be acknowledged. First, we only collect data from University student but it should also for other University, Organization staff and any both LMS system user. Then it will be much better and result will be more accurate. Second, we only collect data only for University student but we should also collect data for University teacher because they used both LMS system for their teaching purpose or some other work. So, we can know their opinion too. And a major limitation is we collect data form a particular department but data should be collected from university all department. Then the collected data will be more correct and result will be more accurate.

5.3 Recommendations for Future Works

Limitation disclosure the door of future work. That's mean our limitation should be our future works. So, in future we will collect data from several university, organization or any people those are using both LMS system for their day to day work or study. In future we will also collect data for teachers also and several departments of university or Organization different department. Then result will be more accurate. In future we will collect for city and village wise comparison LMS system user.

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Appendix A: Survey instrument

For Google Class

Perceived ease of use (Islam A. N., 2013)

USE-1: I use Google Class frequently in this academic period

USE-2: I use Google Class heavily during my study

Learning Assistant (Islam A. N., 2013)

LA-1: Google Class provides flexibility of learning with regard to time and place

LA-2: Google Class assists learning performance

LA-3: Google Class assists learning efficiency

LA-4: Google Class assists learning motivation

Perceived community building assistance: (Islam A. N., 2013)

CB-1: Google Class provides opportunities to establish personal contact with teachers

CB-2: Google Class makes it easy to do group work

CB-3: Google Class provides opportunities to establish new contacts with other students

Academic performance (Ifinedo, 2017)

ACA3: I anticipate better grades in classes where Google Class is used heavily compared to where they are not used.

ACA2: I anticipate better grades in classes where Google Class is used heavily.

ACA1: I anticipate good grades in courses where Google Class is used heavily.

Positive Impact (Ifinedo, 2017)

1: Google Class use has positive impacts on my learning.

2: The use of Google Class in my course is an important aid to me.

3: I gained a clearer understanding of some concepts from Google Class.

Satisfaction (Ifinedo, 2017)

SAT1: I am satisfied with the performance of Google Class.

SAT2: I am really happy with Google Class after using it.

SAT3: I am not pleased with the experience of using Google Class.

Digital Literacy (DL) (sum of 7 items) - (Mohammadyari, 2015)

1. Do you know how to download a file from the World Wide Web to your computer?

2. How familiar are you with the following terms? MP3

3. How familiar are you with the following terms? Preference setting

4. How familiar are you with the following terms? Refresh/Reload

5. How familiar are you with the following terms? Newsgroup

6. How familiar are you with the following terms? PDF

7. How familiar are you with the following terms? Advanced Search

For Moodle

Perceived ease of use (Islam A. N., 2013)

USE-1: I use Moodle frequently in this academic period

USE-2: I use Moodle heavily during my study

Learning Assistant (Islam A. N., 2013)

LA-1: Moodle provides flexibility of learning with regard to time and place

LA-2: Moodle assists learning performance

LA-3: Moodle assists learning efficiency

LA-4: Moodle assists learning motivation

Perceived community building assistance: (Islam A. N., 2013)

CB-1: Moodle provides opportunities to establish personal contact with teachers

CB-2: Moodle makes it easy to do group work

CB-3: Moodle provides opportunities to establish new contacts with other students

Academic performance (Ifinedo, 2017)

ACA3: I anticipate better grades in classes where Moodle is used heavily compared to where they are not used.

ACA2: I anticipate better grades in classes where Moodle is used heavily.

ACA1: I anticipate good grades in courses where Moodle is used heavily.

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1: Moodle use has positive impacts on my learning.

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SAT1: I am satisfied with the performance of Moodle.

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Digital Literacy (DL) (sum of 7 items) - (Mohammadyari, 2015)

1. Do you know how to download a file from the World Wide Web to your computer?

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3. How familiar are you with the following terms? Preference setting
4. How familiar are you with the following terms? Refresh/Reload
5. How familiar are you with the following terms? Newsgroup
6. How familiar are you with the following terms? PDF
7. How familiar are you with the following terms? Advanced Search