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Factors Affecting Perceived Usefulness of Google Scholar by University Students: An Empirical Study from Vietnam

Tran Gia Thanh LE¹, Trong Luan NGUYEN²

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Abstract

Many new challenges in different sectors have emerged due to societal growth, and researchers are needed to help solve them; and Google Scholar is a tool to assist researchers in doing so. The goal of this study is to figure out what characteristics influence how effective the Google Scholar tool is for Vietnamese university students. The study focuses on analyzing and explaining the interplay between the independent variables Perceived of Google Scholar, Perceived ease of use, Comprehensiveness and subjective norm, Perceived Satisfaction for the dependent variable Perception of usefulness. The study was carried out using quantitative and qualitative methods with 280 data points collected online through the survey link. The methods used to test the scale such as Cronbach alpha, CFA, SEM, One sample *T*-test, Independent Sample *T*-test, and One-way Anova are used to find the correlation between factors such as gender, Age, and Majors that affect the students' perception of the usefulness of google scholar. The results show that all the factors suggested in the model have a significant impact on the perceived usefulness of Google scholar. Furthermore, research shows that Google Scholar is an important academic search engine for Vietnamese students.

Keywords: Google Scholar, Perceived Usefulness, Academic Search Engine, Vietnamese University

JEL Classification Code: I20, I21, D83

1. Introduction

Today the need for information has become an important issue in society; people need to find out information when they wonder about a certain issue or want to research them. The appearance of information makes processes faster and more convenient; it also enables individuals to increase their knowledge and adjust their behaviors in the process of collecting information. In a study to find out what constitutes human information needs, it was found that information needs belong to three different domains such as

work, research, and personal interests. Needs serve different purposes, such as deciding between two or more alternatives, making decisions ourselves, to find inspiration for something we want to achieve (Borlund et al., 2019). Information is essential in our daily activities. It is needed for a variety of reasons, most of which involve understanding and solving problems. When faced with a difficult problem, we will look for information and analyze it, which will help us understand the problem and come up with solutions to overcome it. A study has shown that an information search will take place and start with a problem to understand and solve, which leads to an increased need for information seeking to quickly clarify the problem (Belkin & Croft, 1992).

With that information search need, we need a tool that can support in-depth searches or have a large data set so that users can query diverse and different information. Information can be from many different branches in society, such as economic, literary, social, historical, and depending on the goals of the searcher and information requirements, the information needs can be divided into four levels implicit, conscious, formal, and compromise according to research contributions of (Taylor, 1968). Among today's academic search engines, what is needed is still the way

¹First Author. Faculty of Business Administration, FPT Can Tho University, Can Tho City, Vietnam. ORCID ID: 0000-0003-0067-696X. Email: ThanhLTGCS140542@fpt.edu.vn

²Corresponding Author. Lecturer, Faculty of Business Administration, FPT University, Can Tho Campus, Vietnam. ORCID ID: 0000-0002-3489-1628. [Postal Address: 600 Nguyen Van Cu Street, An Binh Ward, Ninh Kieu District, Can Tho City, 94100, Vietnam] Email: LuanNT73@fe.edu.vn

these search systems respond to the words that are queried by users when searching, which has a huge impact on search results information and user support, with one study showing that we can distinguish levels of information need based on linguistic patterns. The language is used to express a need for the information sought as well as their problems (Ruthven, 2019). Before the era of the internet exploded, the search for information was mostly done in libraries and it was also the most effective source of information at that time, but not everyone could easily access this information or can view all the books at the library, this has created a big barrier for learning, research as well as information search needs.

Today, the development of the internet has completely changed the traditional ways of finding information, publishers or universities can directly upload academic documents information and store them with its limitless ability; everyone can access and search for the information they want or publish articles in many different formats. The development of the internet has led to many search engines developing with it, of which Google Scholar is a typical example. A tool that can help researchers search-related documents by querying words with high accuracy; above all, the ability to access those documents is almost complete and an important point of Google Scholar is that experimenters can use it to trace interconnections among authors citing papers on the same content and to determine the frequency with which others cite a specific composition, as it has "cited by" point (Noruzi, 2005).

Information search is almost an important and urgent issue in today's society how reliable the information is searched will affect the research results of the users, article research or an issue will have different results based on the information they collect, and if that information is not of high research value, it will greatly affect the user. In Vietnamese universities, the need to find information for study and research is also a matter of greater concern than ever; the usefulness of Google Scholar has been found in the studies of other universities. However, we want through this study to clarify the factors affecting the useful perception of Google Scholar among university students in Vietnam. The results of this study are intended to help people better understand the effects that influence the usefulness of Google Scholar among students in Vietnam and thereby clarify how Google Scholar has shown usefulness at universities here as well as increasing awareness of a useful academic search engine like Google Scholar among the public.

2. Literature Review

2.1. Perception of Usefulness

The emergence of Google Scholar has made it easier and faster for students, especially those working on research

papers, to do them, according to a study at the University's Twin Cities campus. When studying in Minnesota, did the students here find that they felt the usefulness and convenience that Google Scholar brought in the process of using it, besides that, Google Scholar also helped them improve their search capabilities and quality of research papers (Shen, 2012)? Google Scholar is a great tool for individuals who are passionate about scientific research and learning, it aims to improve and improve complex problems that students in particular or users say commonly encountered during the research (Cothran, 2011).

However, Google Scholar is not accepted everywhere, and users feel it is not really useful for their research despite all the users that Google Scholar offers; typically in a study conducted at the University of Ilorin, Nigeria, researchers showed that respondents were not satisfied with Google Scholar because it did not speed up their research or make their research easier (Tella et al., 2017). Thereby, we can see that depending on the needs of each country and the appearance of academic search engines, the perception of the usefulness of Google Scholar is different, but we cannot deny that this academic search engine is getting better and better by the day. An example of the usefulness of Google Scholar to help users better is the system of ranking articles based on the number of times that article is cited, which makes it easier for users to find relevant articles prestigious research articles with high quality to increase their literature and knowledge (Beel & Gipp, 2009). In fact, there are now many studies that prove that Google Scholar is one of the effective support tools for scientific researchers; the documents are accessed accurately with high coverage, making it difficult to access the documents. Users prefer Google Scholar, and even university lecturers use them for academic-related purposes for teaching (Falagas et al., 2008).

2.2. Perception of Google Scholar

Currently, along with the increasing demand for searching for highly specialized and referenced documents, there have been many tools to help do that more accurately and easily. Among them, Google Scholar a tool provided by Google, has been developed and received a lot of high praise from experts. Google Scholar is described as a search engine that allows users to freely access published scientific articles (Martín-Martín et al., 2021). This search engine is used to search articles from various sources and information such as academic publishers, universities, and pre-depository preprints searching for articles, theses, citations, and journals. On top of that, Google Scholar is a large database comparable to Thomson's ISI WoS data, and it contains various databases mainly used for text search and scholarly articles, be it digital or print, where more than 85% of the data is found by Google scholar (Mikki, 2010).

According to a study to compare the citation popularity of all three tools, Google Scholar, Scopus, and WoS, both Scopus and Google Scholar have a higher number of citations and visits than WoS, and the difference between Google Scholar is even more evident when compared with WoS (Anker et al., 2019). This is because Google Scholar was created by linking it to a large database of academic institutions worldwide. In addition, the scope of Google Scholar is more interdisciplinary because it includes nearly all subjects in all disciplines available today, along with the huge database that allows it to easily generate information results when the user enters it to search. Google Scholar is a freely accessible search engine, and it makes writing theses faster and easier; in one study, it was found that Google Scholar seems to be dominating in academic search engines because of the diversity of document information as well as the relatively high level of recognition with users, which makes people tend to be more and more interested in this tool (Gusenbauer, 2019). The hypotheses of this study are proposed as follows:

H1: Perceptions of Google Scholar have an impact on the perceived usefulness of Google Scholar.

2.3. Perceived Ease of Use

In a large-scale study with the participation of more than twenty universities across the United States on the ease of use as well as the usability of two tools, Google Scholar and academic library discovery systems, it was found that the ease of use, system quality, and user satisfaction Google Scholar is much higher than academic library discovery systems (Alzhanova et al., 2020; Oh & Colón-Aguirre, 2019). This may explain that Google has set up some simple, user-friendly algorithms to make it easier for users to access and manipulate the query process on this tool. This is consistent with a similar study conducted with postgraduate students in the UK. Research showed that the majority of postgraduate students continued to use Google Scholar partly because of factors such as display and information accessibility that this tool brings to users (Alotaibi & Johnson, 2020).

Nowadays, the need for academic research is increasing day by day, and developing a tool to help users do this is a big concern, a study on technology acceptance and Using Google Scholar was conducted with the participation of more than two hundred students from the Greek university and the results of the study indicate that ease of use and perceived usefulness are the decisive factors including students' intention to use Google Scholar (Lavidas et al., 2020). The development of tools to help research should be done in a way that is easily accessible and easy to use by users, which greatly contributes to the increase of students' research as well as creating the opportunity to develop

everyone's research potential. The appearance of Google Scholar has made a huge difference in users' search when people can now completely search for scientific articles or academic documents with a separate tool with a high degree of accuracy more accurate than regular Google and also easier to use than other academic search engines (Johnson et al., 2016). The hypotheses of this study are proposed as follows:

H2: Perceived ease of use has an impact on the perceived usefulness of Google Scholar.

2.4. Comprehensiveness and Subjective Norm

Today's abundance of technological resources and the Internet can help us both simplify our research problems, but it also has the potential to complicate the world of researchers. Such innovations place a burden on researchers to keep abreast of advancements in technology and then discern the best technology tools to use and the emergence of Google Scholar solves most of the above problems (Zientek et al., 2018). Google Scholar provides an academic search engine for researchers to help them optimize and gather information quickly and accurately, along with a huge database of Google Scholar providing resources and research resources in the best and most complete way to users. Google Scholar has provided a convenient search alternative for finding scholarly research papers since its inception in 2004 and has become a popular tool for many scholars today; a study from Taiwan University showed that students appreciate using Google Scholar to search for documents more than the school library, and they said this tool can help to find the documents they need devices that they search for quickly (Wu & Chen, 2014).

A recent study has shown that the benefits of using Google Scholar's virtual corpus are great because of the wide representation of written academic language, the ability to capture subtle changes in academic samples and the ability to compare language samples in different academic fields of Google Scholar has created development opportunities for students, especially studying project topics in and abroad (Brezina, 2012). In today's modern era, the quality of scientific articles must be rich and diverse, and the presence of Google Scholar allows users to search for articles or scientific journals. Study in the form of text with many different publication formats, one of which is PDF, to help users get ideas to make a quality scientific work and contribute to their research the whole country (Rafika et al., 2017). The following are the proposed hypotheses for this study:

H3: Comprehensiveness and subjective norm have an impact on the perceived usefulness of Google Scholar.

2.5. Perceived Satisfaction

Google Scholar is doing an excellent job of supporting researchers and users, creating pleasant experiences on the academic search engine. Besides that, it also helps other researchers worldwide collect data related to citations and areas of interest (Kousha & Thelwall, 2019). In a study conducted and reviewed at business schools in Canada, it was found that research papers cited by Google Scholar gave better results and it also had more academic significance are citations from other research tools, which has important implications for choosing the right academic search engines and delivering the desired results for their users (Amara & Landry, 2012). Currently, there are many search engines developed based on Google Scholar, such as OneSearch, which have become an essential library search tool, especially for students, but they have not yet achieved a positive response when put into use; research results show that Google Scholar is still an important and indispensable research tool in universities (Wang, 2020). One of the functions of Google Scholar that makes users happy is that researchers can use it to track connections between authors quoting articles on the same topic and to determine the frequency with which they have published the rate at which others cite a particular article from which it is easy to consult the literature on related disciplines or issues (Noruzi, 2005).

The satisfaction of users comes from the fact that Google Scholar has provided the necessary information as well as the search for clear and certain academic documents to readers, making lecturers and university students always have the best experiences and the most powerful tools in learning and research. According to a study, universities can improve the quality of their training to increase student satisfaction and boost their knowledge by meeting their academic needs students as curriculum, applying technology to learning, and

researching during their studies at the school (Le et al., 2022). The following are the proposed hypotheses for this study:

H4: *Perception Satisfaction has an impact on the perceived usefulness of Google Scholar.*

The conceptual framework of this study is depicted in Figure 1.

3. Research Methods

3.1. Research Design

The research is carried out based on the theoretical model proposed in Figure 1. In this study, the dependent variable is Perception of usefulness, while the independent variable is Perceived of Google Scholar, Perceived ease of use, Comprehensiveness, subjective norm, and Satisfaction. Elements are designed into questions for primary data collection. Likert scale with 5 levels, from 1: completely disagree to 5: completely agree, was used to design the question. The Likert scale is applied as one of the basic psychological measurement tools of survey participants and is frequently used in social science research and education (Joshi et al., 2015). We chose to conduct this research as a survey using an online questionnaire created on Google’s forms platform. The questionnaire is one of the most widely used tools for data collection in social science studies. Especially the main objective of questionnaires in research is to collect information related to the topic most reliably and validly for use as analytical data (Taherdoost, 2018).

3.2. Data Collection

The primary data is collected using a survey form and a questionnaire created with Google Forms. The total number

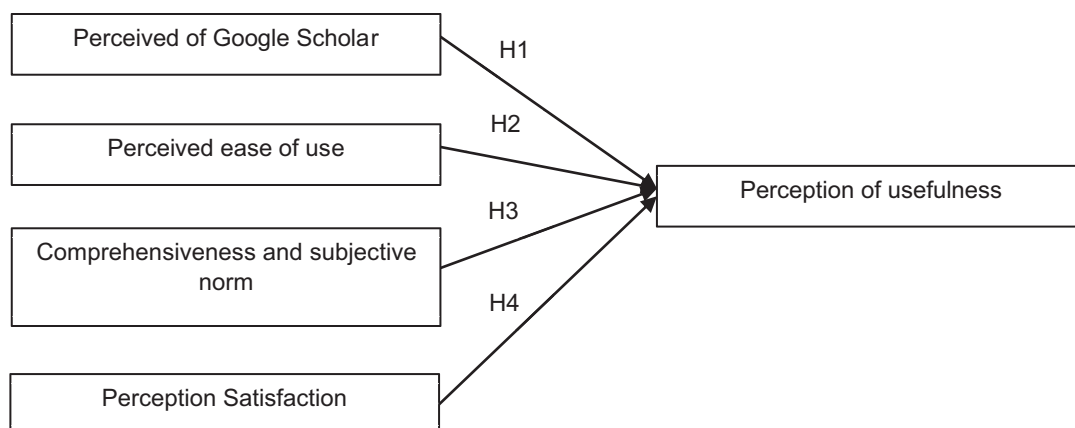


Figure 1: Research Model

of questionnaires obtained through an online survey after two months of surveying and data collection is 280 samples. The surveys are separated into five sections, each illustrating the relationship between the independent and dependent variables. The sections were divided into the google scholar perception survey, perceived ease of use, the impact of the Comprehensiveness, and subjective norm followed by the fourth part, in which we asked about their satisfaction with using Google Scholar. In the fifth part, in which we want to learn about the perceived usefulness of university students in Vietnam to Google Scholar. The five-point Likert scale is used to assess attitudes and how they relate to a certain statement. On a scale of one to five, one signifies “completely disagree,” and five represents “completely agree”.

3.3. Data Analysis Method

To begin, we employed survey questionnaires to gather data from surveyors, and we used both qualitative and quantitative analysis approaches to complete the study. The survey’s qualitative approach will allow us to learn about the gender, age, and majors of survey participants, and allow us to conjecture, explore, and interpret useful perceptions of Vietnamese students for google scholar (Miles & Huberman, 1994). On the other hand, the quantitative approach is carried out using the data collected and analyzed from the survey results of the respondents (Kidder & Fine, 1987). This quantitative method involves collecting data from study subjects and transforming it into precise assessment measures, all while depending on data to make logical arguments and judgments that fit and test the presented hypotheses. We employ SPSS and AMOS software to analyze the data collected and provide more trustworthy study results using Cronbach’s alpha reliability, Confirmatory Factor Analysis (CFA), and Structural Equation Modeling (SEM). Cronbach’s alpha reliability describes the reliability of a sum (or average) of q measurements where the measurements may represent raters, occasions, alternative forms, or questionnaire/test items (Cronbach, 1951). The primary benefit of CFA is its ability to assist researchers in bridging the frequently observed gap between theory and observation (Mueller & Hancock, 2015). Structural equation modeling (SEM) is a technique for specifying, estimating, and evaluating linear models among a set of observed variables in terms of a subset of unobserved variables SEM can be used to develop or test theories (Byrne, 2010).

4. Results

4.1. Profile of Respondents

Table 1 lists the profile information of the survey respondents. The results show that 52.5% of respondents

Table 1: Profile of Respondents

Demographic Available		Frequency	Percent
Gender	Male	147	52.5
	Female	133	47.5
Age	From 18 to 22	206	73.6
	From 23 to 25	59	21.1
	Above 25	15	5.4
Majors	Software Technology	12	4.3
	Safety Information	16	5.7
	Artificial Intelligence	14	5.0
	Graphic Design	17	6.1
	Business Administration	72	25.7
	International Business	55	19.6
	Multimedia Communications	27	9.6
	Hotel Management	23	8.2
	Management of Tourism & Travel Services	8	2.9
	English Language	16	5.7
	Japanese Language	14	5.0
	Korean Language	6	2.1

are male and 47.5% are female, which shows that both men and women have an interest in using Google Scholar and its usefulness. In addition, the majority of respondents aged 18–22, accounting for 73.6%, showed large participation of students at the university. In addition, the number of survey respondents who mainly belong to economic majors at the university such as business administration 25.7% and international business 19.6% show that students of this economic sector have an interest in Google Scholar more than the rest of the disciplines.

4.2. Reliability Test

Cronbach’s alpha reliability coefficient was calculated to check the reliability of the five-component scale affecting the perception of the usefulness of Google Scholar, and the results are shown in Table 2: (1) Perceived of Google Scholar (PGS); (2) Perceived ease of use (PE); (3) Perception of usefulness (PU); (4) Comprehensiveness and subjective norm (PC) and (5) Perception of Satisfaction (PS). Table 2 shows that Cronbach’s alpha coefficients ranging from 0.93 to 0.86 are all greater than 0.7, showing that the relationship of the observed variable with the total variable is reliable. In addition, the correlation coefficient of each observed variable with the total variable is greater than 0.3 (Nunnally

Table 2: Cronbach's Alpha

Items		Corrected Item-Total Correlation	Cronbach's Alpha If Item Deleted
Perceived of Google Scholar (PGS): Cronbach's Alpha = 0.867	PGS1	0.764	0.821
	PGS2	0.749	0.826
	PGS3	0.441	0.911
	PGS4	0.787	0.816
	PGS5	0.786	0.818
Perceived ease of use (PE): Cronbach's Alpha = 0.928	PE1	0.825	0.909
	PE2	0.789	0.916
	PE3	0.831	0.908
	PE4	0.766	0.920
	PE5	0.843	0.905
Perception of usefulness (PU): Cronbach's Alpha = 0.93	PU1	0.808	0.916
	PU2	0.812	0.914
	PU3	0.808	0.915
	PU4	0.839	0.909
	PU5	0.812	0.914
Comprehensiveness and subjective norm (PC): Cronbach's Alpha = 0.928	PC1	0.812	0.913
	PC2	0.821	0.910
	PC3	0.790	0.916
	PC4	0.809	0.912
	PC5	0.831	0.908
Perception of Satisfaction (PS): Cronbach's Alpha = 0.921	PS1	0.819	0.900
	PS2	0.827	0.895
	PS3	0.818	0.897
	PS4	0.818	0.897

& Bernstein, 1994). From the above results, we can conclude that the component variable and the total variable have a relationship with high reliability.

4.3. Multiple Linear Regression

First, we need to evaluate the model fit accurately through hypothesis testing. To test the regression model fit, we hypothesize $H_0: R^2 = 0$. The F test is used to test this hypothesis. The test results are as follows:

Looking at Table 3, we can see that the Sig value < 0.05 : we will reject the hypothesis H_0 , that is, $R^2 \neq 0$ statistically significant and the regression model is suitable.

Table 3 gives us the results of the F test to evaluate the hypothesis of fit of the regression model. F -test sig value is $0.000 < 0.05$, so the regression model is suitable.

We use a commonly used linear regression model fit measure, the coefficient of determination R^2 (R square). When most of the data points are concentrated close to the regression line, the R^2 value will be high, and if the data points are scattered far away from the regression line, the R^2 value will be low. Looking at the value of R square, we can see that the value of R square = 0.913 is approaching 1; we can say that the independent variables are explaining a significant amount of the dependent variable. As a result of Table 3, we will see the results of R squared (R Square) and adjusted R squared (Adjusted R Square) to evaluate the goodness of fit of the model. The Adjusted R Square value of 0.912 shows that the independent variables included in the regression analysis affect 91.2% of the variation of the dependent variable; the remaining 8.8% is due to out-of-model variables and random errors.

Table 3: Multiple Linear Regression Result Summary

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	245.058	4	61.265	721.175	0.000 ^b
	Residual	23.362	275	0.085		
	Total	268.42	279			
Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	
1	0.955 ^a	0.913	0.912	0.29146	1.92	
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.164	0.077		2.141	0.033
	PSG	0.159	0.037	0.165	4.344	0
	PE	0.177	0.051	0.184	3.49	0.001
	PC	0.276	0.047	0.28	5.897	0
	PS	0.368	0.049	0.37	7.589	0

The results of Table 3 also give Durbin–Watson values to evaluate the phenomenon of first-order series autocorrelation. The value DW = 1.92, ranges from 1.5 to 2.5, so the results do not violate the assumption of first-order series autocorrelation (Qiao, Wu, Yang, Zhang & Liu, 2011).

We will evaluate whether the regression coefficient of each independent variable is significant in the model or not based on the t (student) test with hypotheses H0, H01, H02, H03 are set as:

H0: The regression coefficient of the independent variable PSG is 0.

H01: The regression coefficient of the independent variable PE is 0.

H02: The regression coefficient of the independent variable PC is 0.

H03: The regression coefficient of the independent variable PS is 0.

The test results are as follows:

Looking at Table 3, we can see that all Sig values of the independent variables have Sig < 0.05 So we reject the hypotheses H0, H01, H02, and H03 which means the regression coefficients of the independent variables are statistically significant other than zero, so the four

independent variables PSG, PE, PC, and PS have an impact on the dependent variable PU.

From the regression coefficients, we can build two normalized and unnormalized regression equations in the following order:

$$Y = 0.370 \times PS + 0.280 \times PC + 0.184 \times PE + 0.165 \times PSG + \varepsilon$$

$$Y = 0.164 + 0.368 \times PS + 0.276 \times PC + 0.177 \times PE + 0.159 \times PSG + \varepsilon$$

4.4. One Sample T-test

The following hypotheses are posed for the One-Sample T-Test in turn:

H01: The average rating of the respondents for the criteria of the perceived of Google Scholar is 4.

H02: The average rating of the respondents for the criteria of the perceived ease of use factor is 4.

H03: The average rating of the respondents for the criteria of the factor Perceived usefulness is 4.

H04: The average rating of the respondents for the criteria of the factor Comprehensiveness and subjective norm is 4.

H05: *The average rating of the respondents for the criteria of the perceived satisfaction factor is 4.*

We will perform the test to see if we will reject or accept the hypotheses H01, H02, H03, H04, and H05 (95% confidence interval used).

The *t*-test sig value shows that all sig values are less than 0.05 except for variables PGS3, PU2, PS2, and PS4 with sig values > 0.05. Thus, we can reject the initial hypotheses H01, H02, H03, H04, H05, that is, the average score of the respondents for the criteria of cognitive factors about Google Scholar, Perception ease of use, perceived usefulness, comprehensiveness, and subjective norm, and perceived satisfaction as different 4.

For the variables PGS3, PU2, PS2, and PS4 because the Sig values are 0.935, 0.376, 0.598, and 0.101 > 0.05, respectively, this means we will accept the hypotheses H01, H02, H03, H04, H05 for the variables PGS3, PU2, PS2, PS4 or in other words, the average rating of the respondents for the above criteria of the cognitive factors of Google Scholar, Perceived usefulness, and perceived Satisfaction consciousness is equal to 4.

4.5. Independent Sample T-Test

To compare the factors affecting the perceived usefulness of Google Scholar among university students in Vietnam between male and female surveyors. Quantitative variables include Perceived of Google Scholar (PSG), Perceived ease of use (PE), Perception of usefulness (PU), and Comprehensiveness and subjective norm (PC) using a 5-level Likert measure; qualitative variables include two values value: 1 is male, and 2 is female. To test the mean value of the quantitative variable and the group of values of the qualitative variable, we hypothesized:

H01: *There is no difference between men and women in Perceived of Google Scholar.*

H02: *There is no difference between men and women in terms of Perceived ease of use for Google Scholar.*

H03: *There is no difference between men and women in terms of Perception of usefulness for Google Scholar.*

H04: *There is no difference between men and women in the Comprehensiveness and subjective norm for Google Scholar.*

The *t*-test is used to test this hypothesis. The *t*-test data obtained from the *t*-test for the Vehicle are shown in Table 4.

From the above data table, we can easily see that Sig Levene's Test value is less than 0.05, so the variance between the two sexes is different, we will continue to use sig Equal variances not assumed.

The sig *T*-Test values of the four variables PSG, PE, PU, and PC are all less than 0.05, we conclude: There is a statistically significant difference between men and women for all four proposed variables. Therefore, we reject the hypotheses H01, H02, H03, and H04 proposed above. According to the above test results, we conclude that there is a statistically significant difference in the Perceived of Google Scholar, Perceived ease of use, Perception of usefulness and Comprehensiveness, and subjective norm of respondents belonging to other genders. together. Thus, the level of awareness of both men and women is different for each variable.

4.6. One-Way ANOVA

The results in Table 5 show that the sig Levene Statistic value of the Age factor with the PU variable in this test is 0.076 > 0.05, so the variance between the choices of the above qualitative variable is not different see Table 5. In addition, the results also show that the Levene Statistic sig value of the Majors factor with the PU variable in this test is 0.000 < 0.05. The hypothesis of uniform variance between groups of qualitative variable values has been violated. That is, the variances between the groups are not equal. We cannot use the ANOVA table for the case of the Age factor, but we will enter the Welch test for the case of violation of the uniform variance assumption, see the results in Table 5.

The sig result of the PU variable with the Age factor in Table 5 is 0.002 < 0.05, we can conclude that: There is a statistically significant difference in the perceived usefulness of Google Scholar for students belonging to different ages. We can see the results shown in Table 5 show that the sig of the Welch test in the Robust Tests tables 0.004 < 0.05, we can conclude that: There is a statistically significant difference in the perceived usefulness of Google Scholar for students of different majors.

5. Discussion and Recommendations

We use Multiple Linear Regression to test survey data collected from university students in Vietnam to identify factors affecting the perceived usefulness of the Google Scholar tool. This paper solves the problem by integrating them into a model that considers the factors affecting user perception with Google Scholar. Through it, we have findings related to the perception of university students in Vietnam towards the academic search engine Google.

Through survey and data analysis, we found that the majority of Google Scholar users are university students or are in the process of doing a graduate thesis in the age group of 18 to 22, accounting for 73.6%. This is understandable because the university environment is the best place to

Table 4: Independent Sample T-Test

		Levene's Test for Equality of Variances	t-test for Equality of Means
		Sig.	Sig. (2-tailed)
Perceived of Google Scholar (PSG)	Equal variances assumed	0.026	0.015
	Equal variances not assumed		0.016
Perceived ease of use (PE)	Equal variances assumed	0.000	0.004
	Equal variances not assumed		0.004
Perception of usefulness (PU)	Equal variances assumed	0.000	0.007
	Equal variances not assumed		0.008
Comprehensiveness and subjective norm (PC)	Equal variances assumed	0.000	0.000
	Equal variances not assumed		0.000

Table 5: One-way ANOVA Result Summary

	Test of Homogeneity of Variances					
	Levene Statistic	df1	df2	Sig.		
Age	2.599	2	277	0.076		
Majors	4.176	11	268	0		
ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Age	Between Groups	11.427	2	5.714	6.158	0.002
	Within Groups	256.993	277	0.928		
	Total	268.42	279			
Robust Tests of Equality of Means						
Majors		Statistica	df1	df2		Sig.
	Welch	2.866	11	66.091		0.004

facilitate and require students to improve their academics, so Google Scholar is a better tool to help students in their study and research. Through our analysis, we also found that students in the economic sector accounted for a higher proportion of using Google Scholar, which shows that students in the economic sector have a higher demand for searching, academic research to serve their research, this is a good sign for the economy of Vietnam because these studies will help to solve current economic problems, promote new aspects of economic development as well as providing solutions in a complete and useful way.

By analyzing and reviewing research conditions, we found that there is a strong impact of the factors proposed in the research model on the perceived usefulness of Google

Scholar. Through research, we found that university students in Vietnam have a very high perception of the usefulness of Google Scholar, and factors such as Perceived of Google Scholar, Perceived ease of use, Comprehensiveness and subjective norm, and Perceived Satisfaction all had a strong impact on the perception of the students. Most of the survey respondents have a very high level of agreement with the proposed Google Scholar questions, in which factors such as perceived satisfaction and usefulness of Google Scholar show that not only students in Vietnam but also lecture is now accustomed to using academic search engines, especially Google Scholar, which has a certain position in the perception of university students today. The academic search engine Google has proven its usefulness in helping

students solve learning and research problems; besides, many students choose this tool because of the high academic and easy operation that it brings to users (Nguyen et al., 2021).

During the analysis, we found a statistically significant difference between the sexes for independent factors found. The results show that male students tend to use Google Scholar more than female students, and they also show the usefulness of Google Scholar in research and other issues more clearly. It can be explained that male students in Vietnam are familiar with the use of tools provided by Google as well as the operations that this tool provides, in addition, male students tend to use this tool in support of more research which helps to partly explain the difference between the sexes with respect to the proposed independent factors. Another finding found among university students in Vietnam is that the perception of the usefulness of Google Scholar is different depending on each age group, and each year requires the amount of information and knowledge will vary from person to person, and academic search engine requirements also growing. This is which may lead to current tools no longer being able to meet these requirements that users expect so they can look to other academic search engines. Developers should focus on improving the quality of Google Scholar at present because the development of the times requires more information, and hence the tools must always be improved and developed to match the requirements of users; Google Scholar currently holds an important position in the perception of academic search engines among students in Vietnam. It helps students have an opportunity to be exposed to a lot of high academic information as well as to promote individuals with a passion for research to contribute and develop to the country's economy.

6. Conclusion

The purpose of this study is to clarify the factors affecting the perception of the usefulness of Google Scholar among university students in Vietnam. The results show that the proposed factors have a strong impact on the perceived usefulness of Google Scholar. That means university students in Vietnam today have a very high awareness of the academic search engine Google and it is considered by students as one of the best. Survey data are collected from university students in Vietnam, but the sample size is still quite small, so the representativeness may not be high and does not completely reflect the research problem. Despite its limitations, this study found some interesting points as students in Vietnam have a very high passion for research and academia, which is a boon for the academic research background of Vietnam in the future. Besides that, this study will contribute to the economic development of the country and its findings can also be used by researchers and businesses who provide learning solutions research can be

considered to improve the quality of academic support tools as well as encourage the younger generation of Vietnam to participate more in research.

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