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# The Factors Influencing Intention to Study via Online Education: The Case Study of People in Bangkok, Thailand

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*Abstract*— Recently, online education or online learning is an interest in Thailand and some of Thai people study via internet, noticed that in Thailand not only some universities provide online education such as Massive Open Online Courses, called MOOCs, but various schools and institutions provide online learning for their students as well. Online education provides an opportunity to improve people at the lower cost via computer technology, which is beneficial to developing countries. Thailand is still a developing country and online education is likely to be a new trend in Thailand because it reduces costs and enhances the quality of education. Consequently, this research analyzes influencing factors which have an impact on usage intention of online education. This research aims to study various factors, which are able to be improved for usage intention of online education quality, system quality, function quality as key factors of usage intention. The research applied many methods such as Single Linear Regression and Multiple Linear Regression to analyze all hypotheses with 441 respondents who live in Bangkok, Thailand, and use online education. This paper addresses the effects of information quality, system quality, function quality, and social quality influencing toward usage intention of online education. Besides, social quality not only affects usage intention but also has an impact on other factors which are information quality, system quality.

*Keywords*— online education, digital education, online learning, online course, internet, social influence, information quality, system quality, function quality, usage intention.

## I. INTRODUCTION

From the past up to the present, education is still important for people around the worldto gain knowledge and develop their perspective in terms of looking at the world. Education is the formal process by which society transmits knowledge, values, skills and tradition. In the digital age, most of people in this age are interested in technology, internet, social networking, online activities, and etc., including online education, which is accessible anywhere and anytime. It tends to be suitable for the lifestyles of people nowadays. Therefore, online education becomes well known around the world because people are able tolearn and study wherever they are and whenever they want.

In other words, distance education is likely to have the power to change the educational landscape. Also, technological innovation is essential for the development of distance education as it ensures that distance education is effective. Furthermore, online education, or online learning as distance education needs technological innovation, quality system, and quality function to improve effectiveness. Actually, online education is not a new thing and has been known as 'Distance education' or 'Distance learning' for over 170 years ago. In Great Britain, an instructor and students had associated viapost involving in 'correspondence courses'. Since 1840s, the first distance learning had taken placeby Sir Isaac Pitman in London, England. In 1858,the University of London was the first university offering students distance learning degrees. After then, distance learning is developed continuously across the country such as inthe United States andwidespread into other countries worldwide. However, people today think of distance education as 'Online education'because modern technology turns it into a new thing as a modern version. (Hickey, 2014; "Distance education", n.d.)

The leading countries of online education in the world are the United Kingdom, Australia, and South Africa. In Asia, there are many leading countries of online education which are India, China, South Korea, and Malaysia ("8 countries leading the way", 2012).Online education is not only applied in developed countries, but it is also used in developed countries and provides an opportunity to improve people at the lower cost via computer technology, which is beneficial to developing countries (Hellman, 2003).In the case of Thailand which is a developing country, to build economic accomplishment, is developing country and has an economic model plan to be Thailand 4.0 as a new Thailand Government's policy, which is powered by technology, creativity, innovation, quality communications, and infrastructure. Therefore, online education will be beneficial to Thailand as a developing country such as increasing educational opportunity and reducing the cost of transportation, and textbook as e-textbooks are used.The growth of online education has been driven by developing internet and supporting online learning technology.

Recently, many universities, schools and institutions in Thailand have provided online education for their students in order to enhance the quality of teaching in some disciplines and reduce costs; for example, Massive Open Online Courses, MOOCs, including online courses by institutions and online courses on some blogs or some websites such as courses about stock and investment, English courses, music courses, courses for programmers, courses on Youtube, Facebook and tutors' website, and etc. The above mentioned has widely attracted by many people in Bangkok.

Thereby, the researcher of this study is interested in online education and aims to understand the factors influencing intention to learn viaonline education of people living in Bangkok, Thailand.

#### II. LITERATURE REVIEW

### Social influence

Social influence is an individual's behaviors which has an impact on the other person's behavior and attitude, including emotions and opinions.

As Christensen and Schiaffino (2014) mentioned, social influence is defined as the degree of influence that one individual may have on another and may be measured by analyzing various social factors such as Trusted-Relationships, Social Similarity, Social Centrality, and etc.

Social influence is found in many fields such as conformity, socialization, peer pressure, obedience, leadership, persuasion, sales, and marketing.According to social influence theory, there are three processes of social influence; compliance, identification and internalization (Kelman, 1974).

- 1. Compliance occurs when people accept influence from another person or from a group and adopt induced behavior either to gain a reward or avoid a punishment.
- 2. Identification occurs when people accept influence from another person or from a group and act as a reciprocal role in order to establish or maintain a satisfying self-defining relationship to the other.
- 3. Internalization occurs when people accept influence from another person or from a group and act and believe with a value system both publicly and privately.

In addition, social influence affects quality perception of people due to having perception of others, people would evaluate in different ways, and social influence also affects user's usage intention. (Wang and Lin, 2011; Salganik, Dodds, and Watts, 2006)

## Information quality

Information quality is defined as a lot of established meaning defined ambiguously (Popovič and Habjan, 2012) and is defined as many dimension as well. As essential information dimensions, information quality is grouped into four common Information Quality (IQ) categories as following attributes (Miller, 2005; RUŽEVIČIUS and GEDMINAITĖ, 2007):

- 1. Intrinsic Information Quality (IQ) is information which has quality in itself involving in IQ dimensions such as accuracy, believability, reputation, and objectivity.
- 2. Accessibility Information Quality (IQ) is the system and information database which is accessible and secure related to IQ dimensions such as Access, and security.
- 3. Contextual Information Quality (IQ) is context needed in information quality involving in IQ dimensions such as relevancy, value-added, timeliness, completeness, and amount of data.
- 4. Representational Information Quality (IQ) is the important in the information quality system related to IQ dimensions such as interpretability, ease of understanding, and concise and consistent representation.

Besides, information quality, as one of platform quality, involves satisfaction, usage intention, and system usage. (Wang and Lin, 2011; DeLone and McLean, 1992, 2004) *System quality* 

System quality means the quality of the information system represented in the performance of the system (Bharati and Berg, 2003). System quality is indicated by perceptual measures such as ease of use, flexibility, data quality, convenience of access, functionality, and system reliability (DeLone and McLean, 2003). In terms of website information and system quality, system quality is the key satisfaction related to information quality and measure of system' s output (Saha, Nath, and Salehi - Sangari, 2012), including users' behavioral intention to participat in a virtual community (Wang and Lin, 2011; Lin, 2006).

Function quality

Function quality consists of the plentiful and useful contents which are designed and managed with pre-defined categories, keywords, tags, etc. Most of all, the blog with function quality provides various templates of blog layout. Sometimes, it provides with extension capabilities for advanced users to support the appearance or interactivity such as java script or third-party plug-ins (Wang and Lin, 2011). That is a reason why quality function deployment is an important strategy or tool impacting on a usage intention by adding value through quality and satisfaction such as developing a comprehensive quality system (Mehrjerdi, 2010).

### Usage intention

Usage intention is the intent to use which is similar to attitude toward the behavior, subjective norm and perceived behavior control. Basically, the intention is an acceptance on a representative relationship and readiness to do something of individuals (Ridha and Wahyu, 2017). It is defined in the theory of planned behavior (TPB). The theory mentions that intention might be the most influential that can predict human behavior in many context in terms of behavior (Cheng, Sanders, and Hampson, 2015), including usage behavior.

#### III. CONCEPTUAL FRAMEWORK AND METHODOLOGY

In this study, the conceptual framework refers to previous researches (Wu and Chen, 2015; Wang and Lin, 2011; DeLone and McLean, 2003; Hsu and Lu, 2004; Rivis and Sheeran, 2003) involving the influences of social influence (SI), information quality (IQ), system quality (SQ), and function quality (FQ) on usage intention (UI) as the construct and measurement items shown in the Figure 1.



The items involved in Information quality (IQ) and System quality (SQ) were based on those of Wu and Chen (2015), and DeLone and McLean (2003). The items for Social influence (SI) were based on Wu and Chen (2015), Hsu and Lu (2004) and Rivis and Sheeran (2003). The items involving in Function quality (FQ) were adapted from Wu and Chen (2015), and Wang and Lin (2011). Lastly, the items for online education Usage intention (UI) were applied from Wu and Chen (2015), and Hsu and Lu (2004). This study addressed the impacts of social influence (SI) on information quality (IQ), system quality (SQ), function quality (FQ), and usage intention (UI), including the impact of information quality (IQ) on usage intention (UI), the impact of system quality (SO) on usage intention (UI), and the impact of function quality (FQ) on usage intention (UI). Therefore, the following hypotheses are proposed:

- H1. Social influence (SI) has a significant impact on Information quality (IQ) of online education.
- H2. Social influence (SI) has a significant impact on System quality (SQ) of online education.
- H3. Social influence (SI) has a significant impact on Function quality (FQ)of online education.
- H4a.Information quality (IQ) has a significant impact on Usage intention (UI) of online education.
- H4b. System quality (SQ) has a significant impact on Usage intention (UI) of online education.
- H4c. Function quality (FQ) has a significant impact on Usage intention (UI) of online education.
- H4d. Social influence (SI) has a significant impact on Usage intention (UI) of online education.

## **Research Methodology**

#### Data collection

The questionnaire is based on previous studies (Wu and Chen, 2015; Wang and Lin, 2011) to ensure content validity,

consisting of three parts. The first part is screening questions. The second part is demographic information, including gender, age, income, occupation, and educational level. The last part measures the factors influencing intention to study via online education. Each item was measured by a five-point Likert scale ranging from (1) as "Strongly Disagree" to (5) as "Strongly Agree". The data was collected by online survey using non-probability sampling as convenience and snowball sampling methods.

## Measurement of variable

The target populations in this study are people living in Bangkok, Thailand, who use online education.

# Population and Samples

The number of respondents is 441 by using screening question to screen all respondents who are living in Bangkok, Thailand, and studying online education. The data was collected by online survey using nonprobability sampling and snowball sampling methods.

Reliability Test

To confirm validity and reliability of the questionnaire survey, the pilot was tested by using 30 respondents in order to estimate Cronbach's Alpha Coefficient or coefficient alpha. An alpha of 0.7 or higher is acceptable for the reliability of statistics (Cronbach, 1951) and all variables are equal to or greater than 0.7 as shown in Table1.

 TABLE I

 CONSISTENCY OF THE SCALES TEST (N=30)

Variables	Number of items	Cronbach's Alpha
Social influence (SI)	4	.700
Information quality (IQ)	3	.736
System quality (SQ)	4	.782
Function quality (FQ)	5	.723
Usage intention (UI)	4	.852

#### IV. RESULT AND DISCUSSION

Data Analysis

This chapter applies statistical methods including Single Linear Regression (SLR) and Multiple Linear Regression (MLR) by using statistical application to analyze the influences of independent variables toward dependent variables as the conceptual framework of this research. *Demographic Factors of Respondents Explanation* 

Descriptive analysis is conducted to describe the data samplings collected from 441 respondents as 100 percent. The demographic factors are consisted of gender, age, average income, occupation, educational level, subjects which they've ever study online, and pay for online education, illustrated in Table 2.

According to the collected data, the main population of respondents of this research was female represented as 75.51 percent and male as 24.49 percent. The majority of age is less than 18 years old represented by 60.09 percent and the second is the age of 18-25 years oldrepresented by 18.59 percent, followed by the age of 26-35 years old as 9.98 percent, 46-55 years old as 6.80 percent, the age of 36-45 years old as 3.63 percent, and the age more than 55 years old as 0.91 percent.

	Frequency	Percentage		
Gender				
Male	108	24.49		
Female	333	75.51		
Age				
Less than 18 years old	265	60.09		
18-25 years old	82	18.59		
26-35 years old	44	9.98		
36-45 years old	16	3.63		
46-55 years old	30	6.80		
Over 55 years old	4	0.91		
Average Income		-		
Less than 15,000 THB	321	72.79		
15,000 – 29,999 THB	32	7.26		
30.000 – 49.999 THB	59	13.38		
50.000 – 69.999 THB	20	4.54		
More than 70.000 THB	9	2.04		
Occupation				
Company Employee	53	12.02		
Government Officer	24	5.44		
Business Owner	15	3.40		
Student	327	74.15		
Freelance	4	0.91		
Unemployed	11	2.49		
Healthcare Providers	7	1.59		
Educational Level				
Lower than High School	3	0.68		
High School	312	70.75		
Bachelor's degree	106	24.04		
Master Degree or higher	20	4.54		
Subjects which they've ever s	studied online			
Languages	217	21.11		
Programming languages	63	6.13		
Mathematics	287	27.92		
Science	229	22.28		
M.B.A.	21	2.04		
Music & Music instrument	55	5.35		
Making Food	82	7.98		
Dancing	46	4.47		
Stocks & Investment	26	2.53		
Others	2	0.19		
Pay for online education				
Pay	213	48.30		
Free	228	51.70		

 TABLE III

 DEMOGRAPHIC FACTORS OF RESPONDENTS (N=441)

For the average income of respondents, the majority of average income is the level of less than 15,000 THB represented by 72.79 percent, followed by the level of 30,000 - 49,999 THB as 13.38 percent, 15,000 - 29,999 THB as 7.26 percent, 50,000 - 69,999 THB as 4.54 percent, and more than 70,000 THB as 2.04 percent.

The majority of occupation is student which is represented by 74.15 percent, followed by company employee as 12.02 percent, government officer as 5.44 percent, business owner as 3.40 percent, unemployed as 2.49 percent, healthcare providers as 1.59 percent, and freelance as 0.91 percent. For educational level, the majority is high school, which is 70.75 percent, followed by 24.04 percent of Bachelor's degree, 4.54 percent of Master Degree or higher, and 0.68 percent of lower than high school. Consequently, the most subject which they have ever studied online is Mathematics represented by 27.92 percent, the second is science represented by 22.28 percent, the third is Languages represented by 21.11 percent, and followed by Making Food as 7.98 percent, Programming languages as 6.13 percent, Music & Music instrument as 5.35 percent, Dancing as 4.47 percent, Stocks & Investment as 2.53 percent, M.B.A. as 2.04 percent, and others as 0.19 percent. Lastly, 48.30 percent of people paid for online education and 51.70 percent of people did not pay for online education. *Descriptive Analysis and Correlation Matrix* 

The 5-point Likert scale was used as the scale to test each variable where 1 refers to strongly disagree and 5 refers to strongly agree. The correlation matrix from Table 3 revealed that an independent variable, Social influence (SI), has positive correlation as P-value < 0.05 with a dependent variable, Information quality (IQ). Social influence (SI) has relationship with Information quality (IQ) at .511.

The correlation matrix from Table 3 revealed that an independent variable, Social influence (SI), has positive correlation as P-value < 0.05 with a dependent variable, System quality (SQ). Social influence (SI) has relationship with System quality (SQ) at .475.

The correlation matrix from Table 3 revealed that an independent variable, Social influence (SI), has positive correlation as P-value < 0.05 with a dependent variable, Function quality (FQ). Social influence (SI) has relationship with Function quality (FQ) at .519.

TABLE IIIII CORRELATION MATRIX (DEPENDENT VARIABLES OF SLR: INFORMATION QUALITY (IQ), SYSTEM QUALITY (SQ)AND FUNCTION QUALITY (FQ), AND DEPENDENT VARIABLE OF MLR:USAGE INTENTION (UI))

Variables	Mean	SD	UI	SI	IQ	SQ	FQ
Usage intention (UI)	4.1621	.60941	1.000				
Social influence (SI)	3.9121	.64099	.513*	1.000			
Information quality (IQ)	4.0499	.59163	.570*	.511*	1.000		
System quality (SQ)	3.9870	.59038	.638*	.475*	.631*	1.000	
Function quality (FQ)	3.8385	.62962	.578*	.519*	.541*	.648*	1.000

\*Correlation is significant at 0.05 level (1-tailed)

The correlation matrix from Table 3 revealed that 4 independent variables, which are Social influence (SI), Information quality (IQ), System quality (SQ), and Function quality (FQ), have positive correlation as P-value < 0.05 with a dependent variable, Usage intention (UI). Social influence (SI) has relationship with Usage intention (UI) at .513, and Information quality (IQ) has relationship with Usage intention (UI) at .570, while System quality (SQ) has relationship with Usage intention quality (FQ) has relationship with Usage intention (UI) at .578.

#### Inferential Analysis

This study applied Single Linear Regression (SLR) in order to test H1, H2, and H3, which is Social influence (SI) has significant impact on Information quality (IQ), System quality (SQ), and Function quality (FQ) toward using online education. Besides, it is used Multiple Linear Regression (MLR) to test H4a, H4b, H4c, and H4d, which is Social influence (SI), Information quality (IQ), System quality (SQ), and Function quality (FQ) has significant impact on Usage intention (UI) toward using online education.

TABLE 4 THE RESULT OF A SIGNIFICANT FACTOR IMPACTING ON INFORMATION QUALITY (IQ)

Variable	Bata	VIF	
Social influence (SI)	.511*	1.000	
<i>R</i> -square $(R^2)$	.262		
Adjusted R <sup>2</sup>	.260		

\* Beta coefficients with standard errors in parenthesis \*  $p \le 0.05$ 

Table 4 shows the results of Single Linear Regression (SLR) by using Social influence (SI) as an independent variable and Information quality (IQ) as a dependent variable. As Table 4, it shows the value of R-square is .262 indicated that Social influence (SI) can explain Information quality (IQ) 26.2 percent. P-value result less than 0.05 can be implied that Social influence (SI) has a significant impact on Information quality (IQ) and the value of adjusted R2 is equal to .260 or 26.0 percent. Thereby, it implied that H1 is supported. Besides, the Standardized Coefficients Beta ( $\beta$ ) from Table 4 shows level of the independent variable impacts on the dependent variable which equal to .511 and the Variance Inflation Factor (VIF) from Table 4 also demonstrates that there is no critical multicollinearity problem in this study due to VIF is equal to 1.000 which does not exceed the maximum value of 5.

TABLE 5 THE RESULT OF A SIGNIFICANT FACTOR IMPACTING ON SYSTEM QUALITY (SO)

Variable	Bata	VIF
Social influence (SI)	.475*	1.000
<i>R</i> -square $(R^2)$	.226	
Adjusted R <sup>2</sup>	.224	

\* Beta coefficients with standard errors in parenthesis, \*  $p \le 0.05$ 

Table 5 shows the results of Single Linear Regression (SLR) by using Social influence (SI) as an independent variable and System quality (SQ) as a dependent variable. As Table 5, it shows the value of R-square is .226 indicated that Social influence (SI) can explain System quality (SQ) 22.6 percent. P-value result less than 0.05 can be implied that Social influence (SI) has a significant impact on System quality (SQ) and the value of adjusted R<sup>2</sup> is equal to .224 or 22.4 percent. Therefore, it implied that H2 is supported. Moreover, the Standardized Coefficients Beta ( $\beta$ ) from Table 5 shows level of the independent variable impacts on the dependent variable which equal to .475 and the Variance

Inflation Factor (VIF) from Table 5 also demonstrates that there is no critical multicollinearity problem in this study due to VIF is equal to 1.000 which does not exceed the maximum value of 5.

TABLE 6 THE RESULT OF A SIGNIFICANT FACTOR IMPACTING ON FUNCTION QUALITY (FQ)

	Variable	Bata	VIF
	Social influence (SI)	.519*	1.000
	$R$ -square ( $R^2$ )	.269	
	Adjusted R <sup>2</sup>	.26	58
-			

\* Beta coefficients with standard errors in parenthesis, \*  $p \le 0.05$ 

Table 6 demonstrates the results of Single Linear Regression (SLR) by using Social influence (SI) as an independent variable and Function quality (FQ) as a dependent variable. As Table 6, it shows the value of R-square is .269 indicated that Social influence (SI) can explain Function quality (FQ) 26.9 percent. P-value result less than 0.05 can be implied that Social influence (SI) has a significant impacton Function quality (FQ) and the value of adjusted R<sup>2</sup> is equal to .268 or 26.8 percent. Hence, it implied that H3 is supported. Moreover, the Standardized Coefficients Beta  $(\beta)$ from Table 6 shows level of the independent variable impacts on the dependent variable which equal to .519 and the Variance Inflation Factor (VIF) from Table 6 also demonstrates that there is no critical multicollinearity problem in this study due to VIF is equal to 1.000 which does not exceed the maximum value of 5.

 
 TABLE 7

 THE RESULT OF SIGNIFICANT FACTORS IMPACTING ON USAGE INTENTION (UI) OF ONLINE EDUCATION

Variables	Bata	VIF
Social influence (SI)	.174*	1.537
Information quality (IQ)	.177*	1.876
System quality (SQ)	.326*	2.150
Function quality (FQ)	.180*	1.953
$R$ -square ( $R^2$ )	.502	
Adjusted R <sup>2</sup>	.498	

\* Beta coefficients with standard errors in parenthesis \* p < 0.05

Table 7 demonstrates the results of Multiple Linear Regression (MLR) by using Social influence (SI), Information quality (IQ), System quality (SQ), and Function quality (FQ) as independent variables and Usage intention (UI) as a dependent variable. As Table 7, it shows the value of R-square is .502 indicated that Social influence (SI), Information quality (IQ), System quality (SQ), and Function quality (FQ) can explain Usage intention (UI)50.2 percent. P-value result less than 0.05 can be implied that Social influence (SI), Information quality (IQ), System quality (SQ), and Function quality (FQ) as independent variables have a significant impact on Usage intention (UI) and the value of adjusted R<sup>2</sup> is equal to .498 or 49.8 percent. Thus, it implied that H4a, H4b, H4c, and H4d are supported. In addition, the Standardized Coefficients Beta ( $\beta$ ) from Table 7 shows level of the independent variables impact on the dependent variable which equal to .174, .177, .326, and .180. As a result, it shows that System quality (SQ) has the most impact on Usage intention (UI) and Social influence (SI) has the least impact on Usage intention (UI). Also, Function quality (FQ) has more impact on Usage intention (UI) than Information quality (IQ). Besides, the Variance Inflation Factor (VIF) from Table 7 also demonstrates that there is no critical multicollinearity problem in this study due to VIF is between 1.537 and 2.150 which did not exceed the maximum value of 5.

#### V. CONCLUSION AND RECOMMENDATIONS

This research determined the influence of factors toward usage intention of online education by using data sampling of 441 respondents who live in Bangkok, Thailand, and use online education. The results of single linear regression of this study demonstrate that Social influence (SI) has a positive significant impact on Information quality (IQ), System quality (SQ) and Function quality (FQ). According to the result of multiple linear regression, all variables namely Information quality (IQ), System quality (SQ), Function quality (FQ) and Social influence (SI) have a positive significant impact on usage intention of online education and System quality (SQ) is the strongest factor. The second is Function quality (FQ) following by quality (IQ) and Social Information influence (SI)respectively. Hence, the first factor which should be concerned is the system quality of online education.

To enhance usage intention of online education, the developer shouldemphasize on improvement and maintenanceof the system and infrastructure in order that the system quality is suitable and good enough for learning in terms of stability and performance. For example, the developer should provide multiple channels, at least two or three channels, to support increasing users in the future. Also, the developer should always improve their own user interface to be easier to use. Developing user interface, the most important thing is consistency in terms of pages, functions and options throughout the interface. Other important things are color scheme and layout, which show consistent appearance. It will be easier to use and the users will feel intuitive. (Vivo, 2013)In addition, the developer should emphasize on users' requirement and enhance their satisfaction as well. They should open mind and get the feedback from users to improve the system in the future. Also, the developer should provide goodfunction quality such as keeping it simple, including providing high quality in terms of information. That keeping a function simple is also important in order not to make complicated matter with unnecessary extra features (Vivo, 2013). To enhance high information quality, the developer should address information quality management. It is an information technology management composed of elements of quality management, information management and knowledge management, including information criteria such as efficiency, effectiveness, reliability, and etc. (Ge and Helfert, 2007; "Information Quality Management", n.d.) For instance, the developer should create not only up-to-date information but also provide correct information.Besides, providing more

value of online education and creating awareness, positive perspectives, and good attitudes of online education in order to increase social influence.

For the limitation in this study, the questionnaires were not distributed to the target sample throughout Bangkok.Moreover, online education is a new trend for people in Thailand and Thai people have less experience in this type of education except the generation Y; therefore, the majority of the collected data which are under the conditions of this study are from the generation Y and the data is quite restricted in one group.

Finally, the next research is suggested to continue studying from the respondents in Thailand or addresses in the other key factors norder that the research will become more meaningful. In addition, it can dig deep in terms of types of online education for more specific one such as synchronous online education, asynchronous online education, hybrid education, Massive Open Online Courses(MOOCs), and etc.

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