Patterns of Asking for Help with Software

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ABSTRACT: This study examines who is more or less likely to ask for help with software from a librarian, teacher, fellow student, or close friend rather than family members or coworkers by using 2002-2004 General Social Survey data and logistic regression analysis. It is found that demographic variables such as age, race and marital status, and socio-economic status variables such as education and family income, play significant roles in predicting the patterns of people asking for help with software. African-Americans are more likely to ask librarians for help with software. Ethnic minorities and the unmarried are more likely to ask teachers for help with software. The more educated people are, the more likely they are to ask teachers or fellow students for help with software. The older people are, the less likely they are to ask fellow students for help with software. African-Americans and the unmarried are more likely to ask fellow students for help with software. People with higher levels of family income are less likely to ask fellow students for help with software than their counterparts. The unmarried are more likely to ask close friends for help with software. The variables of the ability to use the Internet, when first to use the web, gender, and region make no difference in this study. The findings will be of value for software firms to provide high quality software with desirable help features and services for customers, and for schools and libraries to improve services with software usage.

I. Introduction

In the information age, information technologies are evolving rapidly. In order to open global markets and attract more users, software firms continue to develop high quality software with help features that make their applications easy for users to learn in different cultures and contexts. More and more people use computers at home or work, and purchase applicable software with regard to life, learning, and work, but "When they want to learn how to do something new with their software, they need advice on how to do it" (Davis & Smith, 2005). Some ask for help with software from family members or coworkers. Others ask for help with software from librarians, teachers, fellow students, or close friends. The patterns in asking for help with software vary among individuals. What factors influence people's preferences of

asking for help with software from librarians, teachers, fellow students, or close friends other than other people? This is the focus of the current study with the 2002-2004 General Social Survey (GSS) data and a logistic regression analysis. The findings will be of value for software firms to provide high quality software with desirable help features and services for customers, and for schools and libraries to improve services with software usage.

II. Literature Review

With the software and services industry boom in the 1990s and its continuing rapid expansion, a great quantity of literature on software and services industry has emerged. The vast literature covers several main topics such as software technologies, software developments, software products, how to choose software, how software assists people in their activities, how to offer users the support software tools to reduce the costs of long calls from customers, the increased customer dissatisfaction with software service, help with software features, and software trends.

Hefley, Curtis, and Nielsen (1995) described the online help technologies and computer users' patterns of asking a real person for help. Yakal (2004) introduced several available kinds of help tools in "TaxCut Premium 2003". Strauss (1999) thought that the increase of free software for users, free software provided by the government for users to do their taxes, and free trials of software by companies would become the trends. Recently, the number of the customer' dissatisfaction with help service is increasing. The survey reported by CNN showed that "Of the nearly 8 million computer users who seek technical support from software manufactures, nearly a third never get the help they need" (Lundquist, 2003). More help with software tools should be developed to meet the technical-support needs of customers (Metz, 2002). Hayes (1995) discussed the help features of Lotus' Ask the Expert and Microsoft's Answer Wizard application software, and mentioned that "Both companies say they've spent years researching how to improve help features, and have determined that most users ignore the help button on the tool bar in favor of asking nearby users for advice." Who the nearby users are is not mentioned. Are they librarians, teachers, fellow students, or close friends?

The social software such as blogs, wikis, and RSS feeds is currently used in libraries (Rutherford, 2008). People utilize a variety of software for creative work and need support and help along the way. However, there is little research that examines users' patterns of asking for help with software. This study intends to fill this gap.

III. Study Framework and Hypothesis Development

People's preferences on whom to ask for help with software depend on many factors. The framework is to examine the relationships between people's asking for help with software and three types of variables: demographic, socio-economic, and Internet or web. Testable hypotheses are proposed.

Age, gender, race, marital status, and region might be very important in predicting people's patterns of asking for help with software. In the increasingly changing software technology environment, young people have more chances to use a variety of software. They might have some problems to solve while using updated software to complete creative projects. It is hypothesized that the younger people are, the more likely they will ask for help with software from other people. Both females and males in all areas are facing the similar situations to use software no matter whether they are whites, African-Americans, or other races, married or unmarried. There is no relationship between gender and asking for help with software. There is no relationship between region and asking for help with software. And there is no relationship between marital status and asking for help with software. It is thus hypothesized that there is no relationship between race and asking for help with software.

Those with higher education level might have more knowledge and skills with their software. It is hypothesized that the higher education level the software users are at, the less likely they are to ask for help with software from other people. Those who have higher income and good occupations might afford to purchase more updated software, and accordingly seldom ask for help with software. The higher income people have, the less likely they are to ask for help with software from other people. The higher occupational prestige score people have, the less likely they are to ask for help with software from other people. Those who have the ability to use the Internet or web may look at the online software "help". It is thus hypothesized that they are less likely to ask for help with software from librarians, teachers, fellow students, or close friends.

IV. Data and Methods

The 2002-2004 GSS data are utilized in this study. The 2002-2004 GSS is a nationally representative sample of the US adult population. In the survey, the respondents were asked who they could ask for help with software when they wanted to learn how to do something new with their software. The collected data make it possible to study who asks for help with software from a librarian, teacher, fellow student, or close friend. The valid sample sizes for analyzing the patterns of asking help with software from a librarian, teacher, fellow student, or close friend are the same (N=574). The sample sizes for the logistic regression models vary because of the missing values for some independent variables.

The following four dependent variables are used: (1) asking a librarian for help with software; (2) asking a teacher for help with software; (3) asking another student for help with software; and (4) asking a close friend for help with software. All of these variables are dichotomous with 1 indicating the designated category and 0 otherwise.

The independent variables consist of three categories. Demographic variables include dummy variables for gender, race, marital status, and region, as well as a continuous

variable for age. Three indicators are used to measure socio-economic status: education, family income, and occupational prestige score. The variables of the ability to use the Internet and when first to use the web are ordinal ones.

The technique used to analyze the data is logistic regression because the dependent variables are dichotomous. As far as a dependent variable is concerned, the fundamental model is first examined, including the demographic variables such as age, gender, race, and marital status. Secondly, socio-economic status variables such as education, income, and occupation are added. The use of Internet and web variables are finally included and tested. This strategy helps to determine which factors influence a dependent variable and how the effect of a predictor changes when new variables are included.

V. Findings and Discussion

1. Descriptive analysis

Table 1 (see Appendix 1) shows the means, medians, standard deviations, and ranges of the variables. As shown in Table 1, 17.5% of the respondents asked a librarian for help with software; 20.8% asked a teacher for help with software; 18.9% asked a fellow student for help with software; and 69.8% asked a close friend for help with software.

The average age of respondents was 46.3 years with a range from 18 to 89. Females made up 45.8% of the sample. Whites accounted for 78.7 of the sample, African-Americans 14.6%, and other races 6.7%. The never married accounted for 25.6%.

Of the total responses, 34.6% resided in the South. The average year of schooling was 13.4 years, which seems low, and suggests that some respondents were not well-educated.

The median family income was 17, which indicates that the median family income of the respondents was between $35,000 and $39,999.

There exists a limitation with the 2002-2004 GSS data. The sample sizes for variables with regard to asking for help with software are relatively small, but they are adequate to generate reliable estimates.

2. Asking a librarian for help with software

Table 2 (see Appendix 2) reports the estimates of three nested logistic regression models predicting patterns of asking for help with software from librarians other than other people. In the first model, the model x^2 is very statistically significant. This suggests that the demographic variables as the predictors are very important in

predicting patterns of asking librarians for help with software. In models 2 and 3, the model x^2 decreases by 5.0 and 2.6 respectively. The first model is the best fitting model, on which the interpretations mainly focus.

As shown in Model 1, the relationship between African-American and asking a librarian for help with software is positive and very significant. African-Americans are about 2.6 times as likely as whites to ask librarians for help with software. This rejects the hypothesis that there is no relationship between race and asking for help with software.

3. Asking a teacher for help with software

Table 3 (see Appendix 3) shows the results of logistic regression estimates for determinants of asking teachers for help with software other than other people. The model x^2 in the three models is extremely statistically significant at the 0.05 level. Race has a great effect on predicting patterns of asking a teacher for help with software.

Compared with the first model, the model x^2 in Model 2 extremely significantly increases by 4.9 (= 39.4-34.5). The model x^2 in Model 3 increases by 1.5 (= 40.9-39.4), which is extremely significant at the 0.01 level. This indicates that socio-economic status and using the Internet and web variables are very important in predicting patterns of asking teachers for help with software. Model 2 is the best fitting model on which interpretations are focused.

The results in Model 2 show that there is significant and positive relationship between African-American and asking a teacher for help with software. African-Americans are about 2.7 times as likely as whites to ask teachers for help with software. The relationship between other races and asking teachers for help with software is positive and significant. The other races are about 2.5 times as likely as whites to ask teachers for help with software.

The relationship between the unmarried and asking a teacher for help with software is very significant and positive. The unmarried are about 2.1 times as likely as the married to ask a teacher for help with software. These results reject the proposed hypotheses in this study. In the three models, the variables of race and the unmarried show consistent effects on the dependent variable.

There is a significant and positive relationship between education and asking a teacher for help with software. The more educated the respondents are, the more likely they are to ask teachers for help with software. With each additional year increase in education, the probability of asking teachers for help with software would increase by 10.3%. This does not support the hypothesis.

4. Asking a student for help with software

Table 4 (see Appendix 4) shows the logistic regression estimates of three nested models predicting patterns of asking students for help with software. Model 1 only focuses on demographic variables. In the second model, socio-economic status variables are added as predictors and improve the model x^2 by 5.9 (=97.3-91.4), which is extremely statistically significant at beyond the 0.001 level with a difference of 3 degrees of freedom. The x^2 in the third model increases by 8.6 (=105.9-97.3) through adding using the Internet and web variables, which is extremely highly significant at the 0.001 level with a difference of 2 degrees of freedom. It indicates that these variables play an important role in predicting the patterns of respondents ¡¯ asking students for help with software. Model 3 is the best fitting model, which will be mainly interpreted.

The three demographic variables of age, African-American and the unmarried have a consistent effect on dependent variable in the three models. As shown in Model 3, age has an extremely significant and negative effect on the dependent variable. The older the respondents are, the less likely they are to ask fellow students for help with software. For each additional year increase in age, the probability of asking students for help with software would decrease by 4.2%. Race has a great effect on predicting patterns of asking students for help with software. Compared with whites, African-Americans are about 2.8 times as likely as whites to ask for students for help with software. Compared with the married, the unmarried are 82.8% more likely to ask students for help with software.

The relationship between education and asking students for help with software is extremely significant and positive. The more educated respondents are, the more likely they are to ask fellow students for help with software. With each additional year increase in education, the probability of asking students for help with software would increase by 24.9%. It is not consistent with the hypothesis.

There is a very significant and negative relationship between family income and asking students for help with software. For each additional level increase in family income, the probability of asking students for help with software decreases by 6.6%. This coincides with the expectation. The predictor of occupational prestige score has a significant and negative effect on the dependent variable. The other predictors have no significant effect on asking fellow students for help with software.

5. Asking a friend for help with software

As shown in Table 5 (see Appendix 5), logistic regression estimates for determinants of asking a close friend for help with software indicate that the model x^2 only in Model 1 and Model 3 is significant at the 0.05 level. The model x^2 in Model 3 increases by 3.1 with a difference of 2 degrees of freedom.

Only marital status has a consistent effect on dependent variable in the three models. There exists the significant and positive relationship between the unmarried and asking a close friend for help with software. The unmarried are about 2 times as likely as their counterparts to ask close friends for help with software. This rejects the hypothesis that there is no relationship between marital status and asking for help with software.

Socio-economic status and using the Internet and web variables do not significantly influence respondents ¡¯ asking close friends for help with software.

VI. Conclusion

The main findings in this study show that demographic variables (e.g., age, race, and marital status), and socio-economic status variables play significant roles in predicting patterns of asking help with software from a librarian, teacher, fellow student, or close friend other than family members, co-workers or other people. This suggests that there are many factors that have significant effects on users' asking for help with software.

African-Americans are more likely to ask librarians for help with software. African-Americans, other races, and the unmarried are more likely to ask teachers for help with software. The more educated the respondents are, the more likely they are to ask teachers or fellow students for help with software. The older the respondents are, the less likely they are to ask fellow students for help with software. African-Americans and the unmarried are more likely to ask fellow students for help with software. The unmarried are more likely to ask close friends for help with software.

Another finding is that the variables of ability to use the Internet, when first using the web, gender, and region make no difference.

Besides the factors explored in this study, there exist some other ones such as computer use at locations and computer owners that could be further researched to shed light on people's patterns of asking help with software while doing something new or creative with their software.

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Appendix 1

Table 1

Descriptive Statistics of Variables Used in the Analysis, U.S. Adults

Variable	Percent/Mean	S.D
Dependent Variables		
Asking a librarian for software help	17.5%	
Asking a teacher for software help	20.8%	
Asking a fellow student for software help	18.9%	
Asking a close friend for software help	69.8%	
Independent Variables		
Age	46.3	17.4
Female	45.8%	
Race		
White	78.7%	
African-American	14.6%	
Other	6.7%	
Never Married	25.6%	
Region		
Northeast	21.4%	
Midwest	24.7%	
South	34.6%	
West	19.2%	
Years of schooling	13.4	3.0
Family income (23-point scale)	17.0[a]	22.0[b]
Occupational prestige score	43.9	13.9
Ability to use the Internet	4.0[a]	4.0[b]
When first beginning using the web	3.0[a]	6.0[b]

[a] Median, [b] Range

Appendix 2

Table 2

Logistic Regression Estimates for Determinants of Asking a Librarian for Software Help Other Than Other People

Predictors	Model 1		Model 2		Model 3	
	B	exp(*B*)	*B*	exp(*B*)	*B*	exp(*B*)
Demographic characteristics						
Age	.001	1.001	.003	1.003	.007	1.007
	(.009)		(.010)		(.011)	
Female	.275	1.317	.220	1.246	.238	1.269
	(.229)		(.242)		(.243)	
Race (White=ref.)						
African-American	.974**	2.649	.918**	2.505	.964**	2.622
	(.324)		(.342)		(.346)	
Other	.226	1.254	.306	1.357	.338	1.402
	(.428)		(.431)		(.432)	
Never married	.391	1.478	.301	1.351	.256	1.292
	(.265)		(.291)		(.294)	
Region (Northeast = ref.)						
Midwest	.662	1.939	.528	1.695	.509	1.663
	(.348)		(.365)		(.365)	
South	.018	1.019	.084	1.088	.049	1.050
	(.352)		(.361)		(.362)	
West	.558	1.747	.467	1.595	.435	1.545
	(.353)		(.368)		(.368)	
Socio-economic status						
Years of schooling			.001	1.001	-.016	.984
			(.050)		(.051)	
Family income			-.016	.984	-.019	.981
			(.025)		(.025)	
Occupational prestige			.010	1.010	.007	1.007
			(.010)		(.010)	
Using the Internet and web variables						
Ability to use the Internet					.062	1.064
					(.155)	
When first beginning using the web					-.102	.903
					(.081)	
Constant	-2.293***	.101	-2.493**	.083	-2.144	.117
	(.537)		(.894)		(1.223)	
-2 log likelihood	513.8		472.3		469.9	
Model χ^2	20.3**		15.3		17.7	
df	8		11		13	
N	574		526		526	

The *B* is the logistic regression coefficient; exp (*B*) or odds ratio is the antilog of *B*; and standard errors are in parentheses.

*p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001.

Source: The 2000 – 2004 General Social Survey.

Appendix 3

Table 3

Logistic Regression Estimates for Determinants of Asking a Teacher for Software Help Other Than Other People

Predictors	Model 1		Model 2		Model 3	
	B	exp(*B*)	*B*	exp(*B*)	*B*	exp(*B*)
Demographic characteristics						
Age	-.010	.990	-.014	.986	-.011	.989
	(.009)		(.010)		(.011)	
Female	-.109	.897	-.170	.843	-.152	.859
	(.221)		(.235)		(.236)	
Race (White=ref.)						
African-American	.805**	2.237	.989**	2.688	1.000**	2.718
	(.313)		(.333)		(.335)	
Other	.890*	2.435	.917*	2.502	.936*	2.551
	(.377)		(.386)		(.386)	
Never married	.790***	2.204	.739**	2.093	.710**	2.033
	(.249)		(.274)		(.276)	
Region (Northeast = ref.)						
Midwest	.449	1.567	.450	1.568	.439	1.551
	(.321)		(.340)		(.341)	
South	.273	1.314	.300	1.351	.269	1.309
	(.311)		(.328)		(.329)	
West	-.268	.765	-.275	.760	-.281	.755
	(.353)		(.372)		(.372)	
Socio-economic status						
Years of schooling			.098*	1.103	.091	1.095
			(.050)		(.052)	
Family income			.008	1.008	.008	1.008
			(.025)		(.025)	
Occupational prestige			-.004	.996	-.006	.994
			(.009)		(.009)	
Using the Internet and web variables						
Ability to use the Internet					.161	1.174
					(.153)	
When first beginning using the web					-.013	.987
					(.078)	
Constant	-1.478**	.228	-2.695**	.068	-3.229*	.040
	(.504)		(.873)		(1.221)	
-2 log likelihood	551.4		500.0		498.6	
Model χ^2	34.5***		39.4***		40.9***	
df	8		11		13	
N	574		526		526	

The *B* is the logistic regression coefficient; exp (*B*) or odds ratio is the antilog of *B*; and standard errors are in parentheses.

*p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001.

Source: The 2000 – 2004 General Social Survey.

Appendix 4

Table 4

Logistic Regression Estimates for Determinants of Asking a Fellow Student for Software Help Other Than Other People

Predictors	Model 1		Model 2		Model 3	
	B	exp(*B*)	*B*	exp(*B*)	*B*	exp(*B*)
Demographic characteristics						
Age	-.057***	.945	-.053***	.949	-.043***	.958
	(.012)		(.013)		(.013)	
Female	.120	1.127	-.051	.950	-.005	.996
	(.242)		(.261)		(.263)	
Race (White=ref.)						
African-American	.775*	2.170	.969**	2.634	1.022**	2.780
	(.349)		(.378)		(.385)	
Other	.013	1.013	.067	1.070	.136	1.146
	(.456)		(.459)		(.464)	
Never married	1.010***	2.745	.654*	1.923	.603*	1.828
	(.258)		(.287)		(.292)	
Region (Northeast = ref.)						
Midwest	.525	1.691	.417	1.517	.387	1.473
	(.351)		(.377)		(.382)	
South	-.142	.868	-.156	.856	-.227	.797
	(.361)		(.385)		(.390)	
West	.171	1.187	.209	1.233	.215	1.239
	(.369)		(.393)		(.395)	
Socio-economic status						
Years of schooling			.241***	1.272	.223***	1.249
			(.059)		(.061)	
Family income			-.068**	.934	-.069**	.934
			(.026)		(.026)	
Occupational prestige			-.018	.983	-.022*	.978
			(.010)		(.010)	
Using the Internet and web variables						
Ability to use the Internet					.464	1.591
					(.182)	
When first beginning using the web					-.039	.962
					(.090)	
Constant	-.081	.922	-1.596	.203	-3.261	.038
	(.575)		(.953)		(1.401)	
-2 log likelihood	463.7		408.5		399.9	
Model χ^2	91.4***		97.3***		105.9***	
df	8		11		13	
N	574		526		526	

The *B* is the logistic regression coefficient; exp (*B*) or odds ratio is the antilog of *B*; and standard errors are in parentheses.

*p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001.

Source: The 2000 – 2004 General Social Survey.

Appendix 5

Table 5

Logistic Regression Estimates for Determinants of Asking a Friend for Software Help Other Than Other People

Predictors	Model 1		Model 2		Model 3	
	B	exp(*B*)	*B*	exp(*B*)	*B*	exp(*B*)
Demographic characteristics						
Age	-.006	.994	-.005	.995	-.001	.999
	(.007)		(.008)		(.009)	
Female	.152	1.164	.158	1.171	.171	1.187
	(.192)		(.205)		(.206)	
Race (White=ref.)						
African-American	-.036	.964	-.028	.972	-.032	.968
	(.312)		(.332)		(.334)	
Other	.238	1.268	.170	1.185	.185	1.203
	(.389)		(.394)		(.395)	
Never married	.834***	2.303	.740**	2.095	.699**	2.012
	(.251)		(.271)		(.273)	
Region (Northeast = ref.)						
Midwest	.115	1.122	.206	1.229	.208	1.231
	(.279)		(.291)		(.292)	
South	.165	1.180	.348	1.416	.316	1.372
	(.261)		(.276)		(.277)	
West	.120	1.127	.169	1.184	.164	1.178
	(.281)		(.292)		(.293)	
Socio-economic status						
Years of schooling			.059	1.061	.051	1.053
			(.042)		(.043)	
Family income			-.012	.988	-.013	.987
			(.022)		(.022)	
Occupational prestige			.003	1.003	.001	1.001
			(.008)		(.008)	
Using the Internet and web variables						
Ability to use the Internet					.204	1.226
					(.124)	
When first beginning using the web					.000	1.000
					(.065)	
Constant	.693	2.000	-.173	.841	-.879	.415
	(.414)		(.751)		(.998)	
-2 log likelihood	684.9		620.2		617.1	
Model χ^2	19.4*		19.4		22.5*	
df	8		11		13	
N	574		526		526	

The *B* is the logistic regression coefficient; exp (*B*) or odds ratio is the antilog of *B*; and standard errors are in parentheses.

*p ≤ 0.05; **p ≤ 0.01; ***p ≤ 0.001.

Source: The 2000 – 2004 General Social Survey.

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