

What are the most important predictors of Middle School Students' Online Academic Help-seeking Behaviors?

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Abstract: With the rise of online learning and counseling, exploring the influencing factors of online academic help-seeking behavior can provide more targeted intervention and support for the students' individualized help. Taking mathematics as an example, we conducted a questionnaire survey on the seventh-grade students in two districts of Beijing, China, to explore the reasons why students differ in the choice of online academic help-seeking approaches. Results show that instrumental help-seeking and executive help-seeking have a significant impact on the choice of help approaches. The purpose of instrumental help-seeking is more positively correlated with the willingness of one-on-one online tutoring, and the purpose of executive help-seeking is more positively correlated with the willingness of the Q&A center. In terms of external factors, peer influence significantly predicts the willingness of two online academic help approaches. The fact that the tool is easy to use positively affects one-on-one online tutoring while it has no significant impact on the Q&A center.

Keywords: Online Academic Help-seeking, One-on-one online tutoring, Q&A center, influencing factors

1. Literature Review

1.1 Online academic help-seeking

Online academic help-seeking is a behavior in which learners spontaneously seek help from others through the Internet. Liu divided online academic help into the real-time academic help (such as video conferencing, telephone and other real-time interactive communication) and non-real-time academic help (such as forum reply, email and other non-real-time interactive communication) (2017). The help-seeking platform mentioned here supports high quality teachers to answer questions for students after classes in Beijing. The platform supports two types of teacher-student interaction: Real-time one-on-one online tutoring (Figure1) and Non-real-time Q&A center (Figure2). Learners can get reply from both approaches. Teacher-student interaction through real-time academic help is similar to face communication and learners have more chances to ask questions and clarify their thoughts (Liu, 2017). Learners have different choices in online academic help approaches (Cheng & Tsai, 2011; Hao, Wright & Barnes, & Branch, 2016). To provide effective guidance for students, it is significant to find out what factors influence the choice of help approaches. Based on previous studies (Aleven, Stahl, Schworm, Fischer, & Wallace, 2013), we plan to explore the influencing factors from individual and external aspects.



Figure 1. The Real-time one-on-one Online Tutoring.



Figure 2. The Non-real-time Q&A Center.

1.2 The influencing factors of online academic help-seeking behavior

1.2.1 Self-efficacy of Mathematics

Mathematical self-efficacy refers to the judgment of an individual's actual ability to learn mathematics. Individuals who have high self-efficacy of mathematics tend to attach more importance to external help, and they are more likely to seek help (Marchand&Skinner,2007, Ryan&Shin,2011).

1.2.2 The Purpose of Students' Help-seeking

Nelson-Le Gall divided academic help-seeking into two categories according to help-seeking purposes: instrumental help-seeking means that the learner asks the helper for some information related to solving the problem, and hopes to use the information to solve the problem; Executive help-seeking is that the learner asks the teacher or classmate for answers without understanding (1985).

1.2.3 Value of Mathematics Homework

The value of mathematics homework refers to perceived utility and cost of doing homework in math, which affects students' learning strategies. Students who believe mathematics homework is important have more help-seeking behaviors. (Trautwein, Lüdtke, & Schnyder,2006).

1.2.4 Social Factors

Parental attention to homework refers to the level of parental involvement in student work. Parents can influence students' learning behaviors by teaching various strategies(Zhang,2010). Peers are the key factors affecting the network pleasure and curiosity for middle school students (Zhu,Wang, &Wang,2016).

1.2.5 Perceived Ease of Use

Perceived ease of use refers to the degree to which the student expects the system to be free of effort (Davis, Bagozzi, & Warshaw,1989,Chu, Hwang, Tsai, &Tseng, 2010).The ease of use is strongly related to individual's willingness to use the help-seeking platform (Liu,2017).

2. Methodology

2.1 participants

Random sample was used to select six junior high schools which were participating in the help-seeking program in Beijing. Students in the seventh grade as subjects. In July 2018, 1237 students participated in an offline survey,and 1115 questionnaires are valid .

2.2 Questionnaire

The first part is background information. The second part are factors that affect the students' online academic help-seeking. The third part is the willingness of students using two approaches. A 5-point Likert scale ranging from 1 (completely disagree) to 5 (completely agree) are used for the questionnaire.

3. Research Results

3.1 Correlation Matrix

Table 1 shows all factors are positively correlated with the two approaches. Executive help-seeking is more positively correlated with the Q&A center.

Table 1

Correlation between Influencing Factors and Online Academic Help

	Self-efficacy of math	Instrumental help-seeking	Executive help-seeking	Value of math homework	Parental attention to homework	Peer influence	Ease of use
One to One	0.266***	0.618***	0.072*	0.104**	0.131***	0.479***	0.380***
Q&A	0.215***	0.526***	0.130***	0.034	0.110***	0.418***	0.296***

* $p < 0.05$, ** $P < 0.01$, *** $P < 0.001$

3.2 Regression Analysis

We choose the one-on-one online tutoring as dependent variable. Multivariate stepwise regression results are shown in Table 2. Instrumental help-seeking, peer influence, executive help-seeking, and ease of use significantly predict the choice of one-on-one online tutoring.

Table 2

Multiple Regression of factors to one-on-one online tutoring

Model	Non-standardized coefficient		Standardized coefficient	T	Significance
	B	S.E.	Beta		
Constant	-.752	.178		-4.219	.000
Instrumental help-seeking	.615	.033	.499	18.740	.000
Peer influence	.273	.039	.199	7.026	.000
Executive help-seeking	.185	.032	.131	5.769	.000
Ease of use	.110	.043	.070	2.543	.011
R=0.663 R ² = 0.440 Adjusted R ² = 0.438					

* $p < 0.05$, ** $P < 0.01$, *** $P < 0.001$

Taken the willingness of using Q&A center as dependent variable. The results are shown in Table 3. The instrumental help-seeking, peer influence, and executive help-seeking in the model significantly influence the choice of Q&A center.

Table 3

Multiple Regression of factors to Q&A center

Model [↗]	Non-standardized coefficient [↗]		Standardized coefficient [↗]	T [↗]	Significance [↗]
	B [↗]	S.E. [↗]	Beta [↗]		
Constant [↗]	-1.017 [↗]	.180 [↗]		-5.656 [↗]	.000 [↗]
Instrumental help-seeking [↗]	.606 [↗]	.039 [↗]	.438 [↗]	15.577 [↗]	.000 [↗]
Peer influence [↗]	.319 [↗]	.043 [↗]	.208 [↗]	7.395 [↗]	.000 [↗]
Executive help-seeking [↗]	.279 [↗]	.039 [↗]	.175 [↗]	7.174 [↗]	.000 [↗]
R=0.583 R ² = 0.340 Adjusted R ² = 0.339 [↗]					

*p<0.05 , **P<0.01 , ***P<0.001[↗]

4. Findings

Instrumental help-seeking is the most important factor for two approaches. Students with high instrumental help-seeking tendency perceive more benefits easily, which can result in more help-seeking behaviors (Keith, Babb, & Lowry, et al, 2015).

Executive help has a greater impact on the Q&A approach. Students with strong executive help-seeking tendency are more inclined to seek answers. Q&A Center does not support students talking with teachers, which reduces the cost of help, and it induces students to directly search for superficial answers without thinking. To reduce the phenomenon, we should guide students to develop instrumental help-seeking tendency. Also, help system can add hints to support students posting questions.

Peer influence is an important factor for middle school students to seek online academic help-seeking. Adolescents' online behaviors were influenced by peers (Niu, & Han-Jen, 2013), the result imply us that we should promote the sharing of help-seeking experiences between peers.

The ease of use only significantly predicts one-on-one online tutoring. One-on-one help seeking approach is a synchronous communication method. The feedback time, network, voice and picture quality all affect teacher-student instant communication. Q&A center is an asynchronous communication tool which needs simple operation, so the ease of use does not influence the Q&A center significantly. Ease of use is directly affected by system reaction time and stability (Lin, & Hsipeng, 2000). Therefore, help-seeking system should ensure the stability. Further, the ability of the one-to-one tutoring system to respond to the student's request for help should be improved.

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