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The effect of implicit theories on help-seeking behavior: Focusing on anticipated evaluation and perceived implicit theories of the peer member.

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Abstract

We investigated the effect of implicit theories (belief about malleability of ability) on help-seeking behavior in peer learning situation. We predicted that entity theorists (those who believe that ability is fixed) are less likely to seek help because they anticipate that peer members would lower their evaluation of competence. We conducted a scenario experiment and required participants to indicate to what extent they would ask questions to the peer member when they encounter an incomprehensible term which was already explained, and others seemed to understand. The results did not support our hypotheses. The results revealed that the interaction between one's own and perceived others implicit theories predicted intention to ask questions. Specifically, while perceived others' implicit theory did not affect incremental theorists' (those who believe that ability is malleable) intention to ask a question, entity theorists were more likely to ask a question when they perceive others as entity theorists.

Keywords: implicit theories; mindsets; peer learning situation
help-seeking behavior

Introduction

The presence of peers plays a significant role in multiple aspects of learning situation (e.g., Wentzel & Caldwell, 1997). One effective strategy for overcoming difficulties in peer learning situations is help-seeking (Nelson Le-Gall, 1986). This study aims to investigate the factors that promote or suppress help-seeking behaviors. Especially, this study focuses on implicit theories, which are learners' belief about the malleability of ability (Dweck, 1986), as a significant factor.

The role of peers in learning situation and help-seeking behavior

Although peer groups are conceptualized in several ways, they are commonly defined as any set of individuals of approximately the same age who share common interests or identities and engage in sustained interactions (Sallee & Tierney, 2007). Individuals within peer groups do not need to

be friends but may simply be acquaintances, such as fellow classmates (Sheffler & Cheung, 2019).

Previous studies demonstrated that the presence of peers affects multiple aspects. In a longitudinal study of 6th to 8th grade peer networks, group membership was a consistent predictor of academic achievement (Wentzel & Caldwell, 1997). In addition to academic achievement, the presence of peers affects learners' motivation and other beliefs related to learning such as self-perception of competence and preference for challenges (Altermatt & Pomerantz, 2003).

In peer group learning, mutual help plays a significant role. Most learners encounter ambiguities and difficulties in their schoolwork. In such situations, help-seeking is an effective self-regulated learning strategy for overcoming academic difficulties (Nelson Le-Gall, 1986). However, learners do not necessarily seek help even when they face inevitable difficulties (Ryan, Pintrich, & Midgley, 2001). Even if the sources that provides help is available, when it is expected that one's self-esteem will be threatened by help-seeking, learners may not choose to seek help (Ryan et al., 2001). For example, long-tenured individuals seek less help to appear confident and self-assured (Ashford, 1986). The need for help may be perceived as a lack of ability, leading to negative judgements from peers (Ryan et al., 2001).

Based on these findings, learners concern about negative judgement for their competence could be a factor that inhibit help-seeking behavior. Implicit theories, which are belief about the malleability of ability, are one of the significant factors which affects these concerns.

Implicit theories and motivational goals

Implicit theories refer to one of the two kinds of beliefs about malleability of human attributes (Dweck, 1986; 2006). People who believe that ability is malleable are incremental theorists and those who believe that ability is fixed are entity theorists.

According to Dweck and Leggett (1988), incremental and entity theorists endorse different achievement goals while engaging in tasks. Incremental theorists tend to show mastery-oriented responses to tasks, such as seeking

challenging situations or persisting in difficult tasks and endorsing learning goals that motivate individuals to improve their ability to solve the task. Meanwhile, entity theorists tend to endorse performance goals that motivate individuals to gain positive evaluations and avoid negative evaluations. Although entity theorists can maintain mastery-oriented responses when they engage in a task in which they perform well, they tend to show helpless responses when they face difficulties and cannot obtain positive evaluations.

Several empirical studies have discussed the desirability of holding incremental theory. For instance, a longitudinal survey of a junior high school in New York showed that students with incremental theory tended to have an upward trajectory in mathematics grades, whereas those with entity theory showed a flat trajectory (Blackwell et al., 2007). Hong et al. (1999) surveyed university students and found that entity theorists showed less interest in taking a remedial course even when they received a poor grade on a standardized examination. In addition to learners, instructors are recommended to endorse incremental theory. Rattan et al. (2012) revealed that instructors who are incremental theorists tend to attribute students' academic failure to their lack of effort and therefore provide strategy-oriented feedback to change their learning strategies and encourage further effort. However, entity theorists attribute students' failures to their lack of ability and hence, provide comfort-oriented feedback, which entails informing students that not everyone has the same talent. Based on these findings, researchers have reached a consensus that incremental theory is more adaptive than entity theory in learning situations. Dweck (2006) recommended that parents and teachers foster the former among their students.

Several studies have investigated the consequences of learners' or instructors' endorsement of specific implicit theories. However, studies investigating the effects of implicit theory in peer learning situations are limited (Muenks et al., 2021). When learners interact with peers endorsing the incremental theory, they tend to value the task more than when the peer endorse the entity theory (Sheffler, & Cheung, 2019). A longitudinal study has shown that implicit theories are contagious among peers (King, 2020). Muenks et al. (2021) investigated instructors' and the peers' implicit theories separately and revealed that instructors' and peers' implicit theories have unique effects on learners' motivation. They also revealed that learners tended to believe that instructors were more likely to endorse incremental theory than their peers. Although these are signs of the growth of studies investigating implicit theories in the context of peer learning situation, it is still on the path toward development.

Overview of this study

Based on these findings, we propose that implicit theories are significant factors that promote or inhibit learners' help-seeking behavior in peer learning situations. As mentioned above, one of the factors that inhibits help-seeking is the avoidance of negative judgements. This corresponds to entity

theorists' performance goals (Dweck, & Leggett, 1988). Entity theorists might avoid help-seeking to avoid negative evaluation from the peer members. Although some studies have discussed the relationship of implicit theory and help-seeking behavior (Dweck, 2000; Kim, Zhang, & Park, 2018), none of them has focused on the peer learning situation. However, since peers and instructors have different impacts on learning behaviors and learners perceive their implicit theory differently (Muenks et al., 2021), it is necessary to distinguish the effect of peers from that of instructors. The theoretical hypothesis was as follows: H1: The stronger the learner endorses entity theory, the less likely they are to engage in help-seeking behavior.

We also investigate the mediating processes of implicit theory and help-seeking. The avoidance of negative evaluations is said to inhibit help-seeking (Ryan et al., 2001). However, in the literature on impression management, impressions have two core dimensions: warmth (those perceived as low in warmth are disliked) and competence (those perceived as low in performance are disrespected) (Fiske et al., 1999). Achievement goal (Dweck, & Leggett, 1988) is a concept that explains different behavioral patterns in task engagement and is related to their competence. If entity theorists endorse performance goals and are motivated to avoid negative evaluations of their competence, only the prediction of peer members' evaluation of competence (not warmth) will mediate the relationship between implicit theories and help-seeking. In other words, entity theorists seek less help because they anticipate that if they seek help, the peer members will lower their evaluation about their competence and therefore inhibit help-seeking. The theoretical hypothesis was as follows: H2: Only the anticipated evaluation of their competence mediates the relationship between implicit theories and help-seeking, not warmth.

To test these hypotheses, we conducted a scenario experiment to measure participants' intentions to seek help in learning situations with peers. We instructed the participants to imagine that they were taking a course that required to learn with peer groups, and to indicate whether they would ask for an explanation from their peers when they encountered a term that was once explained but was incomprehensible for the participant. The participants were students from Japanese university with the experience in attending such a course.

We also measured the participants cultural construal of self. Cultural construal of self is defined as the lay theory of self, which has historically been shared within cultures (Markus & Kitayama, 1991). There are two types of beliefs: independent and interdependent. People who endorse independent self-construal believe that a human being is an internally driven entity that is distinct from others and motivated to behave individualistically. People who endorse interdependent self-construal believe that they are embedded in their relationships with others and motivated to seek harmony within groups (Markus & Kitayama, 1991). Although it was not our primary interest, it is likely that participants' cultural

Table 1: Descriptive statistics of the variables

	<i>M</i>	<i>SD</i>	2	3	4	5	6	7
1. Implicit theory	3.42	1.21	.461**	-.007	.029	.000	.035	.014
2. Perceived implicit theory of others	3.54	1.02	-	.016	.116	.118	.176*	.096
3. Independent self-construal	3.43	0.92		-	-.562	.241**	.099	.104
4. Interdependent self-construal	4.62	0.77			-	-.236**	-.075	-.068
5. Intention to ask a question	66.02	28.15				-	.318**	.157*
6. Anticipated evaluation of warmth	3.12	0.91					-	.653**
7. Anticipated evaluation of competence	2.83	0.83						-

Note: The right part of the table represents the correlation coefficients.

** $p < .01$, * $p < .05$.

construal of the self would affect their help-seeking behaviors. Therefore, we measured participants' cultural construal of self and tested whether the effect of implicit theory stands while controlling for cultural construal of self.

Methods

Participants

In total, 184 students from a Japanese university participated in the survey. All participants were undergraduates majoring in psychology. Those who did not follow the instructions or who did not correctly read the scenario were excluded. Finally, data from 161 students ($M_{Age} = 19.22$, $SD_{Age} = 1.25$; 40 men, 119 women; 2 did not specify their gender) were used in the analysis. They were informed that their participation was voluntary and that they could quit the survey at any time. The participants received partial course credit. The survey was administered online.

Measuring individual variables

Before reading the scenario, participants were asked to respond to items measuring individual variables.

Implicit theories

We used three-item scale concerning implicit theories (Hong, Chiu, Dweck, Lin, & Wan, 1999). The scale was modified slightly to measure beliefs about human abilities (e.g., "People have a certain amount of intelligence, and you really can't do much to change it," six-point Likert scale). The Japanese translation was based on Oikawa (2005). Cronbach's alpha was satisfactory ($\alpha = .90$); therefore, we used the average scores of the three items in the analysis. A higher score indicates stronger endorsement of the entity belief.

They also indicated their perceptions of other people's implicit theory in their university in average. The same items to measure their own implicit theories was used with a slight

modification to specify that the item was to measure their prediction about other people in the university (e.g., "I think that other people believe that 'People have a certain amount of intelligence, and you really can't do much to change it'"). Cronbach's alpha was satisfactory ($\alpha = .92$); therefore, we used the average scores of the three item in the analysis. A higher score indicates the stronger prediction of others' endorsement of entity belief.

Cultural construal of self

We selected ten-item scale concerning the cultural construal of self from Takada (2000): four items to measure independent self-construal (e.g., "Even if I think differently from other people, I stick to what I believe") and Six items to measure interdependent self-construal (e.g., "I change my attitudes or behaviors depending on the situation or surrounding people"). Cronbach's alpha was satisfactory with both independent self-construal ($\alpha = .71$) and interdependent self-construal ($\alpha = .79$). Therefore, we average the score of these items in the analysis.

Scenario

Next, the participants were instructed to read the scenario and answer the following questions: The participants were instructed to imagine that they were participating in a class requiring them to study in a peer group that lasted for this semester. It was their first time to meet each other for them. The script for this scenario was as follows:

"The group member decided to read a couple of scientific articles and introduce them in turn. Today is the second round of the introduction, and one of the peers gives a speech on the paper. During the presentation, you encountered a term that you could not comprehend. The concept of the term was important to continue with group work, and this term was introduced in the first round. Therefore, the presenter did not provide a specific explanation of the term, and the other members seemed to understand the concept. Now you are thinking that if you remain incomprehensible about the term,

it will be hard to participate in the discussion, and you are getting frustrated.”

Questionnaire

After reading the scenario, participants indicated how they would think and behave in the presented situation.

Intention to ask questions

The Participants indicated whether they would ask the presenter about the term in the given situation from 0 (I will never ask questions) to 100 (I will definitely ask questions).

Anticipated evaluations by others

The Participants indicated their prediction of how other group members would evaluate them if they gave a question. We measured this prediction based on two aspects: warmth and competence. Participants rated their expectations of being perceived as warm (friendly, fun, good-natured, likeable, nice; $\alpha = .89$) and as competent (competent, responsible, intelligent, level-headed, successful; $\alpha = .83$) if they would ask a question to the presenter.

Results

Descriptive statistics

The descriptive statistics for the variables are provided in Table 1. The intention to ask questions was positively correlated with anticipated evaluation of warmth ($r = .318, p < .001$), anticipated evaluation of competence ($r = .157, p = .047$), and independent self-construal ($r = .241, p = .003$), negatively correlated with interdependent self-construal ($r = -.236, p = .002$). Those who anticipated that they would be evaluated as either warmer or more competitive if they ask a question were more likely to ask a question. Also, those who construed themselves as more independent and less interdependent on others were more likely to ask a question. It did not correlate with either of own implicit theory ($r = .000, p = .996$) or others implicit theory ($r = .118, p = .136$). The perceived implicit theories of others were positively correlated with anticipated the evaluation of warmth ($r = .176, p = .025$), implying that the more they perceived others as entity theorists, they anticipated that they would be evaluated as warm if they ask a question (i.e., the more they perceive others as incremental theorists, the less they would anticipate that they would be evaluated as warm).

Hypothesis testing 1: Did stronger endorsement of entity theory predict the intention to ask a question?

To test Hypothesis 1, we conducted a multiple regression analysis with the intention of asking questions as the dependent variable. Implicit theory served as an independent variable, and we added independent and interdependent self-construal as control variables. The main effect of implicit theories was not significant ($\beta = .006, p = .941$), which suggests that hypothesis 1 was not supported.

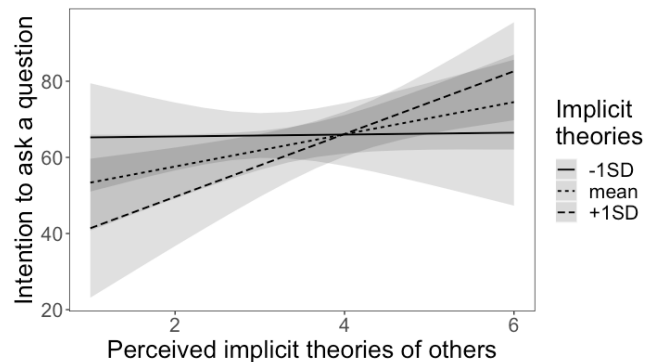


Figure 1: The effect of interaction between their own and others' perceived implicit theories on intention to ask a question.

Hypothesis testing 2: Did anticipated evaluation of competence (not warmth) mediate the relationship of implicit theories and intention to ask a question?

To test Hypothesis 2, we first analyzed whether implicit theories predicted the anticipated evaluation of competence and warmth. We then analyzed whether anticipated evaluation and implicit theory predicted the intention to ask questions. Although Hypothesis 1 was not supported, to test the possibility that direct and indirect effect offset each other, we follow the standard procedure of mediation analysis. Interdependent and independent self-construal were controlled for throughout.

First, we conducted multiple regression analysis with the anticipated evaluation of competence as the dependent variable. The main effect of implicit theory was not significant ($\beta = .015, p = .852$).

We then conducted a multiple regression analysis with the intention of asking a question as the dependent variable, and implicit theories and anticipated evaluation of competence as independent variables. Neither of implicit theory ($\beta = .004, p = .961$) nor anticipated evaluation of competence ($\beta = .132, p = .087$) was significant.

We conducted a parallel analysis in which the anticipated evaluation of competence was replaced with that of warmth. When anticipated evaluation of warmth served as dependent variable, the main effect of implicit theories ($\beta = .037, p = .643$) was not significant. When the intention to ask a question served as dependent variable, the main effect of implicit theories ($\beta = -.005, p = .945$) was not significant. Meanwhile, the main effect of anticipated evaluation of warmth significantly predicted the intention to ask a question ($\beta = .294, p < .001$). These results do not support Hypothesis 2. Rather, the anticipated evaluation of warmth was a significant predictor of the intention to ask questions.

Additional analysis

Based on studies that claim the significance of others' perceived implicit theories on peer learning situations (e.g.,

Muenks et al., 2021), we explored the effect of the interaction between their own implicit theory and the perceived theory of others. We conducted a multiple regression analysis with the intention of asking a question as the dependent variable, implicit theories, perceived implicit theories of others, and their interaction as independent variables, and interdependent and independent self-construal as control variables. The interaction of implicit theories and perceived implicit theories of others was significant ($\beta = .145, p = .038$)¹. Simple slope analysis (Figure 1) revealed that for those endorsing stronger incremental belief (-1SD), the main effect of perceived implicit theories of others was not significant ($\beta = .009, p = .941$). For those endorsing stronger entity belief (+1SD), the main effect of perceived implicit theories was significant ($\beta = .298, p = .006$).

These results suggest that individuals endorsing stronger incremental beliefs are less likely to consider other implicit theories when deciding whether to ask questions. Those endorsing a stronger entity theory are likely to consider these factors. Specifically, they were likely to ask questions when they perceived others' implicit theories as entity theories and less likely to ask questions when they perceived others' implicit theories as incremental theories.

Discussion

Summary of this study

This study aimed to investigate how implicit theories affect help-seeking behavior in peer-learning situations. We predicted that entity theorists would be less likely to seek help because they anticipated that peer members would lower their evaluation of competence (i.e., disrespect). To test this hypothesis, we conducted a scenario experiment and required participants to indicate the extent to which they would ask a question to a peer member when they encountered an incomprehensible term that was already explained and others seemed to understand.

The results did not support our hypotheses. Implicit theories did not predict the intention to ask a question, nor the anticipated evaluation of competence. The anticipated evaluation of competence did not predict the intention to ask a question either.

However, there were several intriguing findings we did not predict. First, instead of the anticipated evaluation of competence, the anticipated evaluation of warmth was a stronger predictor of intention to ask questions. This indicates that regardless of one's implicit theories, learners are more concerned about being disliked by the peer members for asking questions. It is possible that asking questions in this situation not only meant that you are incompetent, but rather meant that you did not do what you should (i.e., make effort to understand the concept of the term by yourself), which could be perceived as norm violation. Japan is known as a country in which effort is highly valued (Nakane, 1970) and

the belief that one should make effort before relying on others might be perceived as a norm. Japan is also known as collectivistic culture, where harmony seeking and avoidance of deviation matters (Markus & Kitayama, 1991). One intuitive explanation for the unexpected results could be that the Japanese participants were more concerned with being disliked than being disrespected, because of the pressure to obey the norms that one should make effort. Further studies such as cross-cultural comparisons are required to investigate this issue. However, the effect of perceived implicit theories of others were significant while the interdependent and independent self-construal was controlled, so there could be additional explanations other than obeying the norms.

Second, the interaction between their own and others' perceived implicit theories had an impact on help-seeking behaviors. Specifically, for those with stronger incremental beliefs, perceived implicit theories did not matter to the extent to which participants wanted to ask a question. On the other hand, those with stronger entity beliefs were more likely to ask questions when they perceived others as entity theorists rather than incremental theorists. This is counterintuitive, because if you perceive others as entity theorists, it may be inferred that they perceive their help-seeking behavior as a sign of incompetence. However, as noted above, warmth (i.e., being disliked) mattered more than competence (i.e., being disrespected) did. Interestingly, although it was not an entity-theorist-specific pattern, the more participants perceived their peer members as incremental theorists, the more they anticipated that they would lower their evaluation of warmth when asked questions. It is possible that entity theorists believe incremental theorists to be harsher toward people who do not do things that they should, and therefore, inhibit help-seeking behavior.

Significance of this study

These results suggest that in peer learning situations, the factors that affect learners' help-seeking behavior are not only implicit theories but also the perceived implicit theories of the peer group. Especially for entity theorists, the perception that they are surrounded by incremental theorists could inhibit help-seeking behaviors. Furthermore, at least for Japanese university students, help-seeking behavior is not only perceived as a sign of incompetence, but also of not being a likable person.

This study clarifies one of the factors that encourage or discourage learners from engaging in help-seeking behavior. Although help-seeking behavior is an effective learning strategy (Nelson Le-Gall, 1986), help-seeking behavior is not always taken (Ryan, Pintrich, & Midgley, 2001). The fact that entity theorists tend to seek help when they perceive their peers as entity theorists can improve this situation. In addition, being disliked matters more than being disrespected. Promoting discussions among peer members about what

¹ The interaction effect remained significant even if interdependent and independent self-construal was not controlled.

help-seeking means could be effective not as a sign of incompetence or loafing, but as an effective learning strategy.

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