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Helping to Inspire: Culture and the Evaluations and Motivational Outcomes of Solicited and
Unsolicited Assistance

A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Philosophy
in Psychology

by

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June 2014

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ABSTRACT

Helping to Inspire: Culture and the Evaluations and Motivational Outcomes of Solicited and Unsolicited Assistance

by

Taraneh Joy Mojaverian

Research on academic achievement has focused on a variety of different moderators of academic motivation, and the role of culture is a relatively new topic of study in this area. Combining previous research on culture, education, and motivation, and following previous studies on culture and social support, the current research addresses how interactions between providers and recipients of assistance may enhance or detract from motivation in academic and learning domains, and how these outcomes may be influenced by cultural values and cultural norms. In two studies, this research directly examined evaluations of unsolicited and solicited assistance and individual assistance use, as well as the motivational implications of cultural differences in responses to solicited and unsolicited assistance situations in an educational setting. Tapping into how cultural norms may influence evaluations of assistance and assistance use, in Study 1, participants read about an interaction between a teaching assistant and a student during which the student receives solicited or unsolicited assistance and then answered questions about their evaluations of the assistance recipient and provider in the interaction, as well as answering questions on their own academic assistance use, in order to examine how solicited and unsolicited assistance are evaluated in different cultures

and how these types of assistance are utilized. Study 1 found that Asian Americans had more positive evaluations of unsolicited assistance compared to solicited assistance, whereas European Americans showed the opposite evaluation pattern. In Study 2, participants worked on a set of tasks, where the first task either involved the opportunity to solicit assistance or participants received unsolicited assistance. Later, participants worked on a second related task, as a way of measuring the impact of solicited and unsolicited assistance situations on post-assistance motivation and later task performance. Study 2 found that post-assistance task performance, in terms of creativity and complexity, was best following solicited assistance situations compared to unsolicited or no assistance situations, with no cultural differences by assistance type and no differences on self-reported motivation. Implications for future research are discussed.

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Helping to Inspire: Culture and the Evaluations and Motivational Outcomes of Solicited and Unsolicited Assistance

People deal with situations in which they need assistance from others in many contexts, such as school, work, and home. In the classroom, a student may raise his hand to ask the teacher a question about an answer for a problem during a class exercise, or a teacher may walk by and look over a student's work and give feedback on an answer. Even when the assistance given in both cases is similar, the outcomes of receiving help may differ depending on several factors. Among other factors, cultural background may influence what it means to ask for help and receive help from others.

In my previous research, I have investigated how different types of social support receipt have varied effects cross-culturally (Mojaverian & H. S. Kim, 2013). In this research, we found that solicited support, or help that is directly sought by the support recipient, and unsolicited support, or assistance given without previous recipient request, have different cultural implications for psychological well-being and self-esteem. Outside of this area, studies on academic achievement and motivation point to culture as reliably impacting the way people respond in a given situation. By integrating in these areas and building on previous research, the current research examines how unsolicited or solicited assistance differentially affect task motivation and task performance in an educational setting, and how culture influences these differences, as well as how evaluations of unsolicited and solicited assistance differ across cultures.

Culture and Social Support

Studies on social support may inform how assistance is perceived and received in a variety of contexts, including in the academic domain. Research has found variation in how people seek social support in different cultures (H. S. Kim, Sherman, Ko, & Taylor, 2006; H.

S. Kim, Sherman, & Taylor, 2008; Taylor et al., 2004; Taylor, Welch, H. S. Kim, & Sherman, 2007). These studies show that Asians/Asian Americans tend to avoid seeking social support out of a concern for disrupting group harmony and relational impacts, while these factors are not as strongly considered among European Americans (H. S. Kim et al., 2006; Taylor et al., 2004). Additionally, seeking support may have worse psychological and biological effects for Asians and Asian Americans than for European Americans. One study found that explicit support seeking in a lab setting increased production of the stress hormone, cortisol, among Asian and Asian Americans, whereas it did not among European Americans (Taylor et al., 2007).

A key distinction may be the method of obtaining support. Receiving social support without asking may be a fundamentally different event from receiving social support as a result of active seeking. Making a contrast between unsolicited support, support which is given without prompting from the recipient, and solicited support, support which is given after the recipient asks for assistance, may be valuable in disentangling the type of support receipt that is most beneficial in different cultures.

As there is a cultural emphasis on interdependence in East Asian cultural contexts, receiving unsolicited support may lead to greater feelings of being cared for by the support provider, in turn leading to more positive outcomes, compared to having to solicit social support. Soliciting support could lead to greater concerns for potentially negative relational outcomes for Asians/Asian Americans (H. S. Kim et al., 2006; Taylor et al., 2004), and therefore may lead to negative psychological outcomes. However, unsolicited support may affirm the self as interdependent, as this support is freely given by the provider and may be interpreted as genuine care and concern for the recipient (Chentsova-Dutton, 2009; Uchida et al., 2008). Feeling connected to and cared for by others may lead to greater self-worth for

Asian Americans, as previous research on relationship esteem suggests (Endo, Heine, & Lehman, 2000; Heine, Lehman, Markus, & Kitayama, 1999). Thus, unsolicited support could make those from more collectivistic cultures experience better psychological outcomes.

In contrast, for European Americans from cultures that place greater emphasis on personal agency than interpersonal obligations, such relational implications would be a less central issue. Thus, the potential relational implications of different forms of support receipt may not lead to as differentiated psychological outcomes. Previous research shows that priming of different relationships impacts Asian Americans' willingness to seek social support and their anticipation for support outcomes more strongly than European Americans, suggesting that these types of relational concerns may be less salient factors for them when considering social support use and outcomes (H. S. Kim et al., 2006). Therefore, these different types of support receipt may not matter as significantly for European Americans.

Research by Mojaverian and H. S. Kim (2013) examined psychological responses to solicited and unsolicited social support among European Americans and Asian Americans in two experimental studies. In one study, participants were exposed to a stressor in a laboratory setting and given the opportunity to enlist help from a fellow participant (a confederate) or spontaneously received help on the task before they had a chance to ask for it, and then reported how they felt about the task. Asian American participants in unsolicited support situations showed more positive effects than those in solicited support situations, reporting more positive emotions, more self-esteem related to academic ability, and rating the task as less stressful. European Americans did not show clear benefits of solicited support situations over unsolicited support situations.

In a second study, participants read a series of vignettes describing a hypothetical stressor and a stressor resolution involving solicited or unsolicited support. Participants were

asked how they would feel in each of the vignettes in order to address how solicited and unsolicited support may have different effects. For example, participants were instructed to imagine a situation in which they are having trouble balancing their expenses with their income, and either they asked their sister for advice or received unsolicited advice from their sister. Conceptually replicating the first study, results showed that Asian American participants reported better outcomes from receiving unsolicited support compared to solicited support. They reported feeling more positive emotions in the unsolicited vignettes than in the solicited vignettes, while European Americans did not significantly differ in support outcomes between support types. Reported self-esteem was a mediator of cultural differences in support outcomes in both studies. These studies suggest that unsolicited support may be a method of explicit support use that may be more effective for people from collectivistic cultures than utilizing solicited support.

Although we know implications of cultural differences in solicited and unsolicited help for self-esteem and mood, we don't know how they function outside of the domain of social support, and how these types of assistance may affect motivation on a given task. This solicited-unsolicited distinction may be important in the academic environment as outcomes of assistance in a classroom setting may also follow a similar pattern. While a mentor-student relationship differs in some ways from relationships between close others, both are social relationships in which similar concerns may be relevant. In the academic domain, receiving assistance from someone in a mentorship role may be perceived similarly to receiving support from a friend or family member. As students are generally invested in facilitating good student-teacher relationships, we can expect that receiving assistance from a mentor figure may have similar implications to receiving social support from a close other. In one previous study, participants received support from a fellow student with expertise in a task-

related area (a confederate posing as a math major; Mojaverian & H. S. Kim, 2013), in line with a possible student-mentor interaction. This supports the idea that interactions in an educational domain, such as the interactions in the current studies, could be expected to function in a similar way. Cross-cultural research on education and motivation can further inform how the solicited and unsolicited assistance distinction may lead to differentiated motivational outcomes and evaluations of assistance use, and how these differences may be important in a learning context.

Culture, Education, and Academic Achievement

Cultural norms have an impact on pedagogical styles and factors associated with academic success. Individualistic cultures, such as in the United States, value independence and personal agency, viewing the self as autonomous, distinct and separate from others, with a great emphasis on personal goals and actions based on personal beliefs (Markus, Mullally & Kitayama, 1997). Research on student populations in the United States has pinpointed self-efficacy as a major factor influencing academic achievement (Shunk & Pajares, 2002; Shunk & Pajares, 2009 for a review). Self-efficacy is defined as one's expectation or judgment that one is capable of accomplishing a specific task (Bandura, 1986; Shunk, 1991). In European American populations, self-efficacy has been directly associated with academic achievement outcomes (e.g., Pajares, 1996; Shunk, 1995). This research has found that having high self-efficacy in an academic domain led to greater persistence, more effective learning skills, better task performance, and greater retention of new information (Pajares, 1996; Schunk & Pajares, 2002).

Cross-cultural research on self-efficacy has further expanded understanding on the link between self-efficacy and achievement (see Pajares, 2007 for a review). Collectivistic cultures, such as in East Asia, encourage interdependence and foster social harmony, viewing

the self as intertwined with others, with group goals superseding personal interests (Markus & Kitayama, 1991; Triandis, 1989). Research on self-efficacy in collectivistic cultures has found that there are predominantly lower levels of self-efficacy than among individualistic cultures, and furthermore, that the link between self-efficacy and performance is stronger in individualistic than collectivistic cultures (e.g., Klassen, 2004b; Oettingen, 1995). However, this research implicates alternate sources of motivation among collectivistic cultures that may influence achievement in non-Western settings. Klassen (2004a) argues that collective efficacy, or the group-level efficacy belief that a group has the capability to perform required tasks, may be a larger motivator in collectivistic cultures. Research on European Canadian and South Asian Canadian adolescents found that adolescents from the two cultures differed in the apparent sources of self-efficacy regarding mathematics. For South Asian Canadian adolescents, comparison with others was a greater influence on self-efficacy beliefs and motivation, whereas past performance was the greatest influence among European Canadian students (Klassen, 2004b).

Research by U. Kim and Park (U. Kim & Chun, 1994; U. Kim & Park, 2006a; U. Kim & Park, 2006b; U. Kim & Park, 2008) on academic achievement in East Asian cultures has also linked academic motivation with relational factors. Perceived support from parents, friends and teachers was associated with greater feelings of self-efficacy and achievement motivation, as were feelings of indebtedness and awareness of familial expectations for success (U. Kim & Park, 2006a). Additionally, relational efficacy, or confidence in the strength of familial and social relations, has been linked to greater academic performance (U. Kim & Park, 2006b).

Stevenson and Stigler examined students and teachers in classrooms in the United States, Japan, and China in series of studies looking at cultural differences in East Asian and

American educational systems (Chen & Stevenson, 1995; Stevenson, Lee & Stigler, 1986; Stevenson & Stigler, 1992). Following students in elementary school classrooms, Stevenson and Stigler (1992) found that parents were more involved in children's academic outcomes among Chinese and Japanese students. In Japanese schools, parents and teachers kept a daily correspondence on the child's performance through the use of a notebook that the student carried back and forth from school to home. In Japanese classrooms, there is an early focus on learning skills needed to function effectively in a group context, with class discipline and classroom management being handled by the students as a collective, whereas these responsibilities were handled by the teacher in American schools. East Asian classrooms spent more time working as a class unit with the teacher, participating as a whole class, compared to in American schools, where more time was spent doing work individually (Stevenson, Lee, & Stigler, 1986). East Asian classrooms also did work in small groups comprised of students of varying levels of skill, and achievement in these groups was counted on a group level. In Japanese classrooms, individual students' grades are public knowledge among peers, and individual errors are discussed as a group while explaining correct answers, with errors seen as part of the learning experience (Stevenson & Stigler, 1992). Examining student motivation for mathematics achievement in high school students, academic achievement among East Asian and Asian American students was associated with the high standards of peers and parents, and believing that academic success comes from effort (Chen & Stevenson, 1995).

Cross-cultural investigations of academic factors all implicate relational factors as being particularly motivating for East Asian students, whereas individual performance is a greater motivator in classrooms in the United States. Thinking about this research in terms of how it may inform the dynamics of assistance in a learning context, among Asian and Asian

American students, receiving unsolicited assistance may be a way of strengthening educational relationships among peers and mentors while boosting self-efficacy and achievement, whereas seeking assistance may have negative relational consequences. Additionally, evaluations of unsolicited assistance transactions may be more favorable compared to solicited assistance receipt, as unsolicited assistance may be perceived as relationship-enhancing, while solicited assistance may be seen as relationship-damaging. For European American students, individual success is most linked to self-efficacy and achievement, and relational concerns would not be as much of an issue.

Culture and Motivation

Studies involving cultural influences on motivational factors have implications for an educational context as well. For example, greater intrinsic motivation has been linked to better academic outcomes (e.g., Lepper, Corpus & Iyengar, 2005). Research on the cross-cultural motivational consequences of choice has shown that the value of personal choice has differing motivational impacts depending on one's culture (Iyengar & Lepper, 1999). When presented with the opportunity to make personal choices about a task, European American students showed greater intrinsic motivation, liking the task more and spending more time on task, with greater task performance, compared to when choices were made for them by a close other or an experimenter. In contrast, for Asian American students, having a choice made for them by an ingroup member led to the greatest intrinsic motivation and task performance. In another study, the motivation to "please the teacher" was positively associated with intrinsic motivation for Asian American students, whereas it was negatively associated among European American students (Lepper et al., 2005). This research points to the centrality of the individual versus the group in influencing how people engage and persist in a given situation.

Cultural differences in motivational factors may be in some part tied to variation in lay theories on the basis of self and basis of intelligence, and these differences may be associated with academic outcomes. Dweck and colleagues (Dweck, Hong & Chiu, 1993; Dweck & Leggett, 1988) outline two types of self-theories. An entity theory of the self is the view that the self is stable, fixed, and immutable, and therefore, one's traits, such as intelligence, are resistant to change over time. An incremental theory of the self views the self as fluid over time, with traits that are malleable and open to alteration through effort. Holding an incremental theory of the self is associated with learning goals concerned with increasing one's competence, while entity self-theories are associated with performance goals concerned with achieving favorable performance feedback (Elliott & Dweck, 1988). Research has found that there are cultural differences in the prevalence of these self-theories. People from collectivistic cultures are more likely to endorse incremental self-theories, whereas entity self-theories are more common in individualistic cultures (Heine et al., 2001; Lockhart, Nakashima, Inagaki & Keil, 2008).

Heine and colleagues' work on cultural differences in the relative importance of self-improvement and self-enhancement speaks to the importance of these self theories and how they affect behavior (Heine et al., 2001). As European Americans/Canadians have been found to have a greater motivation for self-enhancement, with a focus on the importance of innate ability, success feedback enhanced later responses to a task, persisting longer at the task, and believing that the task was more accurate at judging ability than when receiving failure feedback. However, for Asian participants, with a greater motivation for self-improvement, and a focus on effort and of living up to societal expectations, failure feedback was most effective in task engagement, enhancing persistence compared to success feedback (Heine et al., 2001). Whereas maintaining and further constructing a positive self image is a primary

motivation for European Americans, an alternative motivation among East Asians may be maintaining “face,” or the social worth granted to the self by others when one has lived up to others’ expectations (Heine, 2005; Heine, 2007).

Cross-cultural research on promotion and prevention speaks to the importance of face in motivational orientations. Research on promotion and prevention orientations, within the model of regulatory focus theory, posits that there are distinct types of desired end-states that are associated with particular self-regulatory strategies (Higgins, 1997). Moreover, when people experience regulatory fit, in the case where their manner of actions encourage and sustain further use of their regulatory orientation, these behaviors are valued more greatly and they experience greater motivation (Higgins, 2000, Higgins, 2005). As face is more easily lost than gained, an orientation that is focused on avoiding negative outcomes, or a prevention focus, would help to facilitate face maintenance. Research has found that among East Asians, prevention focus is most prevalent (e.g., Elliot, Chirkov, Y. Kim & Sheldon, 2001; Hamamura, Meijer, Heine, Kamaya & Hori, 2009). However, a promotion focus, or an orientation focused on achieving or approaching positive outcomes, is more associated with better outcomes for European Americans (Hamamura et al., 2009). Hamamura and colleagues (2009) found that European American participants recalled information better when it was presented with a promotion focus, whereas East Asian participants recalled information better with a prevention information frame. Examining cultural products, they also found that the consumer book reviews on the North American Amazon website that were rated as most helpful were those that contained more approach-related content (mentioning presence or absence of positive attributes of the book). By contrast, the consumer book reviews rated most helpful on the Japanese Amazon website were those that contained more avoidance-related content (mentioning the presence or absence of negative characteristics).

Additionally, research on primary and secondary control is important in understanding how cultural influences motivations for behavior. Research has identified two different ways in which people gain control in their lives, and that culture influences normative styles of control (Rothbaum, Weisz & Snyder, 1982; Morling, Kitayama & Miyamoto, 2002). Primary control, also referred to as influence, is achieved by attempting to shape reality to fit personal goals, perceptions, or desires. Secondary control, also referred to as adjustment, is achieved by attempting to align oneself with reality through exerting control on the psychological impact of situations rather than through attempting changes to the situation itself. As the self is seen to be more flexible and more firmly embedded in the social context in East Asian cultures, research has found that secondary control is more predominant among East Asians. By contrast, stressing the consistency of the self, and one's ability to change one's surroundings, primary control is more central among people from Western cultures.

In one study, Morling (2000) surveyed attitudes of participants in aerobics classes in the United States and Japan to look at differences in strategies and motivations surrounding the class. American participants responses indicated that they chose a specific class because it was convenient for their schedule, and that if an instructor's move was too difficult, that they would do their own move instead (displaying motivation to influence the situation), whereas Japanese participants responded that they picked a class because it was an appropriate fitness level for them, and that they would try hard to keep up if the instructor did a difficult move (displaying motivation to adjust to the situation). In another set of studies, Japanese and American participants were asked to list situations in which they influenced people or changed people or events (using primary control), and situations where they tried to adjust themselves to people or events (using secondary control). Japanese participants remembered

having more adjusting situations than influencing situations, and Americans had the opposite pattern (Morling et al., 2002).

These lines of research have implications for evaluations and outcomes of solicited and unsolicited assistance in an educational domain. Research on culture, choice, and motivation (Iyengar & Lepper, 1999) suggests that having individual choice, such as the choice to seek assistance, may lead to greater motivation among European Americans, whereas a lack of choice, in the case of unsolicited assistance, may lead to lower levels of motivation, as well as more negative evaluations of unsolicited assistance receipt. For Asian Americans, however, having choices made by important close others (such as a peer or a teacher) leads to greater motivation. Unsolicited assistance may be interpreted as having someone making the choice to give help to the assistance recipient, and may lead to greater recipient intrinsic motivation as a result, and more positive evaluations of unsolicited assistance receipt.

Applying research on self-theories (Dweck et al., 1993; Heine et al., 2001) to the proposed line of research, when holding an incremental self-theory, more prevalent among East Asians, may mean that one is more open to receiving unsolicited help from others, as this help will aid in effort-based learning. However, when holding an entity self-theory, as is more prevalent among European Americans, unsolicited help may be interpreted as a cue that others believe you lack the ability to perform the task without assistance. Evaluations of solicited and unsolicited assistance may follow the same pattern, with European Americans evaluating unsolicited assistance recipients as less able than solicited assistance recipients, with an opposite pattern for East Asians. Supporting this interpretation, research by Graham and Barker (1990) found that after watching a video where two students were in the early stages of solving a math exercise in the presence of a teacher where the teacher gave

unsolicited help to one of the students, American participants rated the student who received unsolicited help as having lower ability compared to the student who did not receive help, even when it was not clear from the video that the student needed the help and would not have been successful without it. Additionally, Gilbert & Silvera's (1996) work on overhelping shows that when a help provider intervenes to give help to the help recipient, this invites observer attributions that this help was responsible for an individual's success, undermining perceptions of the help recipient's individual ability.

Cultural differences in motivational orientations (Elliot et al., 2001; Hamamura et al., 2009) may also affect evaluations and outcomes of assistance receipt. For East Asians, supporting a prevention focus, one may refrain from soliciting assistance in order to avoid the associated negative relational factors. Receiving unsolicited assistance may not have the same issues. For European Americans, supporting a promotion focus, if the goal involves task success, individual help-seeking could aid in reaching a given goal and enhance motivation.

Research on alternative methods of control (Morling, 2000; Morling et al., 2002) suggests that soliciting assistance could be a form of primary control, where one is influencing the situation by asking help from others, in line with European American cultural norms. However, receiving unsolicited assistance may be more related to secondary control, where the assistance recipient is adjusting to the situation by accepting the help offered by others, in line with East Asian cultural norms.

Overview of Current Research

Research on the foundations of academic achievement has long looked for moderators of academic motivation. The influence of culture has only recently been a topic of study in this area (see Pajares, 2007, for a review). By combining previous research on culture, education, and motivation, and using a methodological framework taken from studies on

culture and social support, the current research addresses how interactions between providers and recipients of assistance may enhance or detract from motivation in an academic domain, and how these outcomes are influenced by cultural values and cultural norms.

In two separate studies, the current research directly examined evaluations of unsolicited and solicited assistance and individual assistance use, and the motivational implications of cultural differences in responses to receiving solicited and unsolicited assistance in an academic-type setting. Tapping into how cultural norms may influence evaluations of assistance and assistance use, in Study 1, participants read about an interaction between a teaching assistant and a student during which the student receives solicited or unsolicited assistance and then evaluated the assistance recipient and provider in the interaction, and answered questions their own academic assistance use, in order to examine how solicited and unsolicited assistance are evaluated in different cultures and how these types of assistance are utilized. In Study 2, participants worked on a set of tasks, where the first task either involved the opportunity to solicit assistance or participants received unsolicited assistance. Later, participants continued to work further on a second task, as a way of measuring the impact of solicited and unsolicited assistance situations on post-assistance motivation, and the effect of assistance on later task performance. By manipulating the type of assistance situations that participants engaged in, I measured the impact of solicited or unsolicited assistance situations on task motivation through both behavioral and self-report measures.

Drawing on previous research on cultural differences in responses to solicited and unsolicited social support situations as well as research on motivation and education, I hypothesized that Asian American participants would have more favorable evaluations of unsolicited assistance situations compared to solicited assistance situations, evaluating

unsolicited assistance recipients as having higher levels of motivation, and rating unsolicited assistance providers more positively. I hypothesized that for European Americans, evaluations would be more favorable toward solicited assistance situations compared to unsolicited assistance situations, perceiving higher levels of motivation among solicited assistance recipients, and evaluating solicited assistance providers more positively (in Study 1).

I also hypothesized that for Asian American participants, being in an unsolicited assistance situation would lead to greater task motivation compared to being in a solicited assistance situation, with better task performance (more creativity and complexity in completed tasks). For European Americans, I hypothesized that being in a solicited assistance situation would lead to greater task motivation compared to being in an unsolicited assistance situation, with better task performance (more creativity and complexity in completed tasks) (in Study 2).

Study 1

Study 1 explored how evaluations of solicited and unsolicited assistance receipt differ by culture through the use of academic assistance scenarios. I hypothesized that Asian American participants would have more positive evaluations of unsolicited assistance compared to solicited assistance, perceiving unsolicited assistance recipients as more motivated, and rating unsolicited assistance providers more positively. Among European Americans, I hypothesized that evaluations would be more favorable toward solicited assistance compared to unsolicited assistance, perceiving higher levels of motivation among solicited assistance recipients, and evaluating solicited assistance recipients more positively.

Method

Design and Participants

This study had a 2 (culture: European American, Asian American) x 3 (assistance type: solicited, unsolicited, no assistance) between-subjects design. Seventy-five Asian American (41 females, 21 non-US born) and 100 European American (75 females) students from the University of California, Santa Barbara took part in this study. The average age was 18.93 years old ($SD = 2.16$). Participants were recruited from their introductory psychology classes and participated for research course credit.

Materials and Procedure

Introduction to the tasks. Participants were told that they would be participating in a study that was interested in student perceptions of classroom interactions. Participants were told that they would read a scenario of an academic interaction and answer questions about it as well as answering questions about their own experiences as a student.

Scenario task. Participants were told that they would read a scenario of a study session from an upper-division psychology class lead by the class teaching assistant, and that they would then answer questions about their perceptions of the interaction in the scenario. Participants read a short scenario (See Appendix A), describing an interaction between a teaching assistant and an undergraduate student during a review session for a psychology class (modeled after materials used in Graham & Barker, 1990). The student and the teaching assistant described in the scenario were both female to control for gender effects.

The scenario begins with a description of the task that the class is working on (a practice worksheet for an exam). The class is working individually on the worksheet while the teaching assistant is going around the room to check on student progress. The scenario focuses on one student, who is having trouble answering some of the more difficult questions on worksheet. The scenario explains that the student has spent some time looking for the answers to the questions, but she is now just staring at the sheet.

In the *no assistance condition*, the scenario ends with the student staring at the sheet and there is no help interaction, in order to gauge the stressfulness of the situation itself apart from receiving help (as a control comparison).

In the *solicited condition*, the scenario continues with the student raising her hand to ask a question to the teaching assistant. The teaching assistant comes over to the student's desk, and the student then asks about the two difficult questions from the worksheet. The teaching assistant responds that many students have trouble with those two questions and explains where to find the information about answering them. The student replies that she now understands the questions and thanks the teaching assistant and then goes back to working on the worksheet.

In the *unsolicited condition*, the scenario continues with the teaching assistant stopping at the student's desk, and mentioning that many students have problems with the two questions, then the giving the student the same suggestions on the same two questions that were asked in the solicited scenario without any prompting from the student. As in the solicited scenario, the student replies that she now understands the questions and thanks the teaching assistant then goes back to working on the worksheet. Previous pilot research on the typicality of received unsolicited and solicited assistance found that participants reported unsolicited assistance situations as less typical than solicited assistance situations in a classroom setting. Therefore, to increase the personal relevance of this type of situation, participants in the unsolicited condition were asked to recall and describe the last time that they received unsolicited academic help prior to reading the scenario¹.

¹ There were 19 participants in the unsolicited condition who indicated that they had never received unsolicited assistance (there were no differences by culture on frequency). Examining the results with these participants removed from the analyses shows a similar pattern, though power is reduced with the smaller sample size.

Scenario questionnaires. After reading the scenario, participants answered a series of questions about their evaluations of the student (assistance recipient) and the teaching assistant (assistance provider) on a scale from 1 (*not at all*) to 7 (*very much*). First, participants answered a question about how typical the interaction in the scenario was compared to a usual classroom interaction, to measure frequency norms regarding solicited and unsolicited assistance receipt. Then, participants answered a series of questions about the student described in the scenario. Participants answered questions about the perceived motivation of the student, specifically motivation to succeed on the worksheet task, viewing the worksheet task as important, motivation has increased after task meeting, motivated to do well in class, motivated to avoid a bad grade on the next exam. These motivation items were averaged into a composite of student motivation (5 items; $\alpha = .89$).

Then, participants answered questions on the teaching assistant in the scenario. They were asked a series of questions about their general positive evaluation of the teaching assistant, specifically how much they like the teaching assistant, how helpful the teaching assistant was, and how knowledgeable the teaching assistant was (averaged into a composite of positive TA evaluation, 3 items; $\alpha = .84$). Then, participants were asked a series of questions about their general negative evaluation of the teaching assistant, specifically how annoying, intrusive, interfering, and meddling the teaching assistant was (averaged into a composite of negative TA evaluation, 4 items; $\alpha = .82$). Participants also answered a series of questions on the effectiveness of the teaching assistant, specifically how good and how effective the teaching assistant was as at being TA, and how much the teaching assistant understood the needs of her students (averaged into a composite of TA effectiveness, 3 items; $\alpha = .93$). As the teaching assistant did not interact with the student in the no assistance scenario, participants in the no assistance condition did not answer these particular questions.

Personal experience questionnaires. After answering questions on the scenario, participants answered a series of questions about their own personal experiences as a student. Participants were asked to think about a recent large academic assignment that they worked on for one of their classes, and to write a short description of the assignment (a modification of the Brief COPE, Carver, 1997). They answered questions on a scale from 1 (*not at all*) to 7 (*very much*) about how stressful and difficult the assignment was, and then a series of questions on their strategies for working on the assignment. Among these strategies, there were several questions related to seeking academic assistance, including asking the professor or teaching assistant for clarification on the assignment, asking for feedback on answers for the assignment, asking questions during office hours, and asking friends who had taken the class before for advice. There were also several items related to receiving unsolicited assistance, including not asking for help because the participant thought the professor or teaching assistant would offer help without the participant asking for it, receiving help from the professor or teaching assistant without asking for it, and receiving help from friends without asking for their help. There were also items related to other coping strategies listed, including turning to work or other activities to take their mind off the assignment (distraction), concentrating on making a strategy to manage time for working on the assignment, and thinking hard about necessary steps to take to complete the assignment (planning), and hanging out with friends who didn't know about the assignment (implicit support). Participants also filled out demographic information at the end of the questionnaire and then were debriefed to conclude the study.

Results

For Study 1, the main dependent variables were participant evaluations of the assistance recipient, specifically recipient motivation, as well as participant evaluations of

assistance providers, specifically general positive evaluations, general negative evaluations, and teaching effectiveness. We also looked at the typicality of the scenarios to see how different types of assistance may differ in their commonness in an academic setting, as well as participants own reports of solicited and unsolicited academic assistance and academic coping strategies to measure frequency of academic assistance. Preliminary analyses showed no effects for gender, therefore gender was subsequently dropped from analyses.

Typicality

To examine cultural differences in the typicality of academic assistance scenarios, I conducted a 2 (culture: European American, Asian American) x 3 (assistance type: solicited, unsolicited, no assistance) between-subjects ANOVA on evaluations of the typicality of the scenario interaction, with planned contrasts comparing cultures and conditions. Results found that there was no main effect of culture, $F(1, 169) = 1.30, p = .26, \eta_p^2 = .001$, or a culture by assistance type interaction, $F(2, 169) = .37, p = .70, \eta_p^2 = .004$, on perceived typicality of the assistance scenario. There was a main effect of condition, $F(2, 169) = 9.48, p < .001, \eta_p^2 = .10$. Similar to results found in the pilot data, participants in the solicited condition ($M = 5.41, SD = 1.47$) found the scenario to be more typical of a usual classroom interaction than participants in the unsolicited ($M = 4.33, SD = 1.56, p < .001$) or no assistance ($M = 4.74, SD = 1.11, p = .24$) conditions. The no assistance and the unsolicited situations were seen as equally typical, $p = .14$.

Student (Assistance Recipient) Motivation

To examine cultural differences in motivational evaluations of unsolicited and solicited assistance recipients, I conducted a 2 (culture: European American, Asian American) x 3 (assistance type: solicited, unsolicited, no assistance) between-subjects ANOVA on evaluations of the assistance recipient motivation, with planned contrasts

comparing cultures and conditions. Results for student motivation found that there was no main effect of culture on evaluations of student motivation, $F(1, 169) = 2.36, p = .13, \eta_p^2 = .01$. There was a main effect of condition, $F(2, 169) = 31.73, p < .001, \eta_p^2 = .27$, such that participants in the solicited condition ($M = 5.61, SD = .83$) rated the student in the interaction as having greater motivation than participants in the unsolicited ($M = 4.89, SD = 1.06, p < .001$) and the no assistance ($M = 4.06, SD = 1.03, p < .001$) conditions, while the unsolicited condition reported greater motivation than the no assistance condition, $p < .001$.

The culture by assistance type interaction was also not significant, $F(2, 169) = 1.98, p = .14, \eta_p^2 = .02$. However, an exploratory analysis of the pairwise comparisons found that, within cultures, Asian Americans did not differ in their evaluations of student motivation in the solicited ($M = 5.56, SD = .92$) and unsolicited conditions ($M = 5.22, SD = 1.03, p = .17$), while Asian American participants in the solicited condition and unsolicited conditions evaluated student motivation as higher than participants in the no assistance condition did ($M = 4.20, SD = .90, p < .001$ and $p = .001$ respectively). By contrast, European American participants in the solicited condition ($M = 5.66, SD = .77$) evaluated student motivation as greater than participants in the unsolicited condition ($M = 4.64, SD = 1.02, p < .001$), and European American participants in the solicited condition and unsolicited conditions evaluated student motivation as higher than participants in the no assistance condition did ($M = 3.98, SD = 1.11, p < .001$ and $p = .007$ respectively). Between cultures, pairwise comparisons found no difference between Asian American and European American participants in the solicited ($p = .68$) or no assistance ($p = .47$) conditions, while Asian Americans reported greater student motivation than European Americans in the unsolicited condition ($p = .02$). See Figure 1 for the results on student motivation.

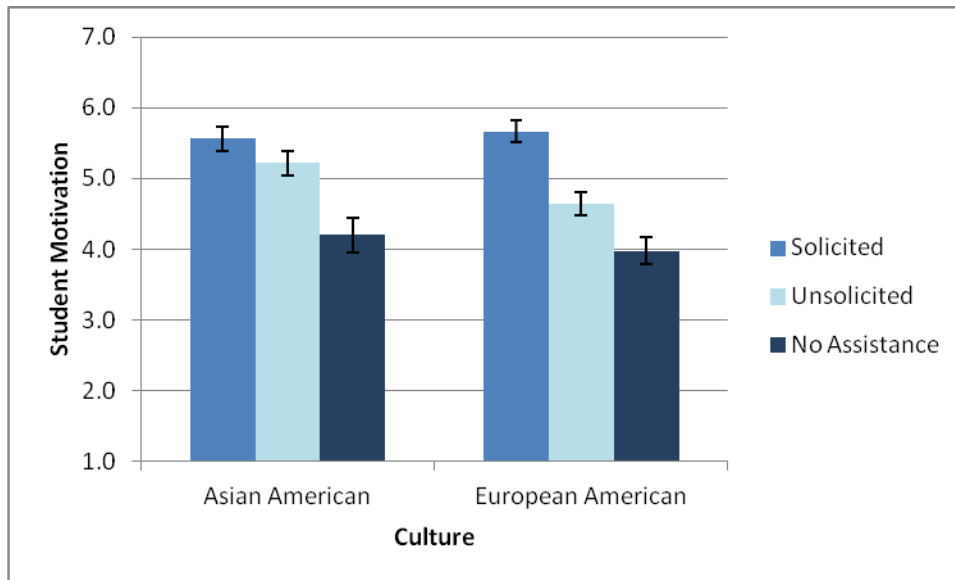


Figure 1. Cultural differences in evaluations of assistance recipient motivation in Study 1.

Teaching Assistant (Assistance Provider) Evaluation

In order to examine evaluations of solicited and unsolicited assistance providers, I conducted a series of 2 x 3 between-subjects ANOVAs on evaluations of the teaching assistant with planned contrasts comparing cultures and conditions, specifically general positive and negative evaluations, and evaluations of effectiveness.

General positive and general negative TA evaluation. Regarding results for cultural differences in general positive evaluations of the teaching assistant, there was no main effect of culture, $F(1, 128) = 1.54, p = .22, \eta_p^2 = .01$, or condition, $F(1, 128) = 2.52, p = .11, \eta_p^2 = .02$. There was a significant culture by assistance type interaction, $F(1, 128) = 5.08, p = .03, \eta_p^2 = .04$. Pairwise comparisons revealed, within cultures, Asian Americans evaluated the teaching assistant more positively in the unsolicited condition ($M = 6.07, SD = .73$) than in the solicited condition ($M = 5.48, SD = 1.20$), $p = .01$. European Americans did not differ in positive evaluations between the solicited ($M = 6.01, SD = .85$), and unsolicited

conditions ($M = 5.92$, $SD = .62$), $p = .62$. Between cultures, European Americans evaluated the teaching assistant more positively than Asian Americans did in the solicited condition, $p = .01$, while there was no difference between cultures in the unsolicited condition, $p = .48$. See Figure 2.

Regarding results for general negative evaluations of the teaching assistant, there were no main effects of culture, $F(1, 128) = .13$, $p = .72$, $\eta_p^2 = .001$, or an interaction, $F(1, 128) = .22$, $p = .64$, $\eta_p^2 = .002$. There was a marginally significant effect of condition, $F(1, 128) = 3.64$, $p = .06$, $\eta_p^2 = .03$, such that participants in the unsolicited condition ($M = 2.32$, $SD = 1.17$) had a more negative evaluation of the teaching assistant compared to participants in the solicited condition ($M = 1.95$, $SD = .97$).

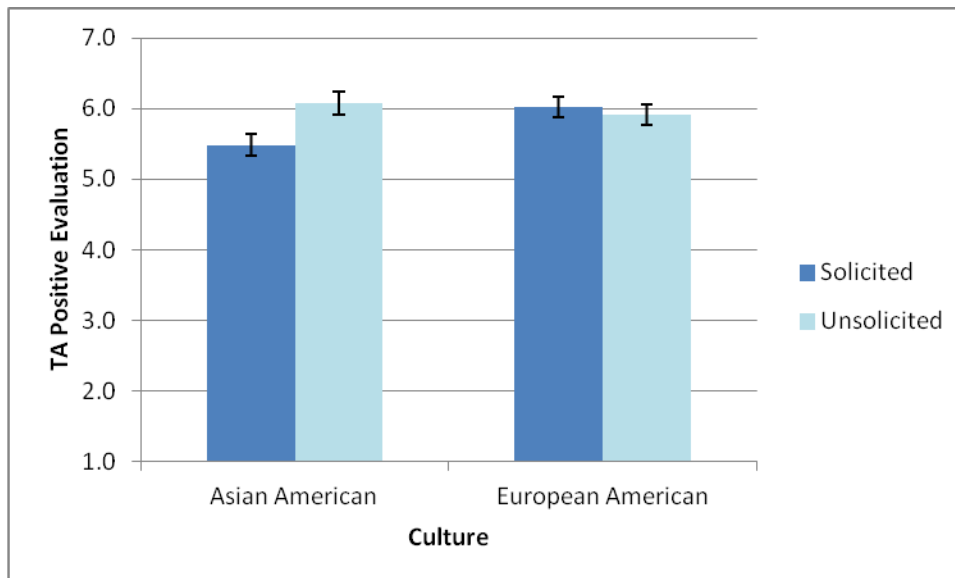


Figure 2. Cultural differences in positive evaluations of assistance providers in Study 1.

TA effectiveness. Regarding results on cultural differences in evaluations of the effectiveness of the teaching assistant in the scenario, there was no main effect of culture,

$F(1, 128) = 0.51, p = .48, \eta_p^2 = .004$. There was a significant main effect of condition, $F(1, 128) = 5.25, p = .02, \eta_p^2 = .04$, such that participants in the unsolicited condition ($M = 5.91, SD = .72$) reported greater teaching assistant effectiveness compared to participants in the solicited condition ($M = 5.54, SD = 1.24$).

There was also a significant culture by assistance type interaction, $F(1, 128) = 5.65, p = .02, \eta_p^2 = .04$. Pairwise comparisons showed that, within cultures, Asian Americans evaluated the teaching assistant as more effective in the unsolicited condition ($M = 6.07, SD = .73$) than in the solicited condition ($M = 5.24, SD = 1.40$), $p = .001$. European Americans did not differ in effectiveness evaluations between the solicited ($M = 5.79, SD = 1.04$), and unsolicited conditions ($M = 5.77, SD = .68$), $p = .95$. Between cultures, European Americans evaluated the teaching assistant as more effective than Asian Americans did in the solicited condition, $p = .03$, while there was no difference between cultures in the unsolicited condition, $p = .25$. See Figure 3.

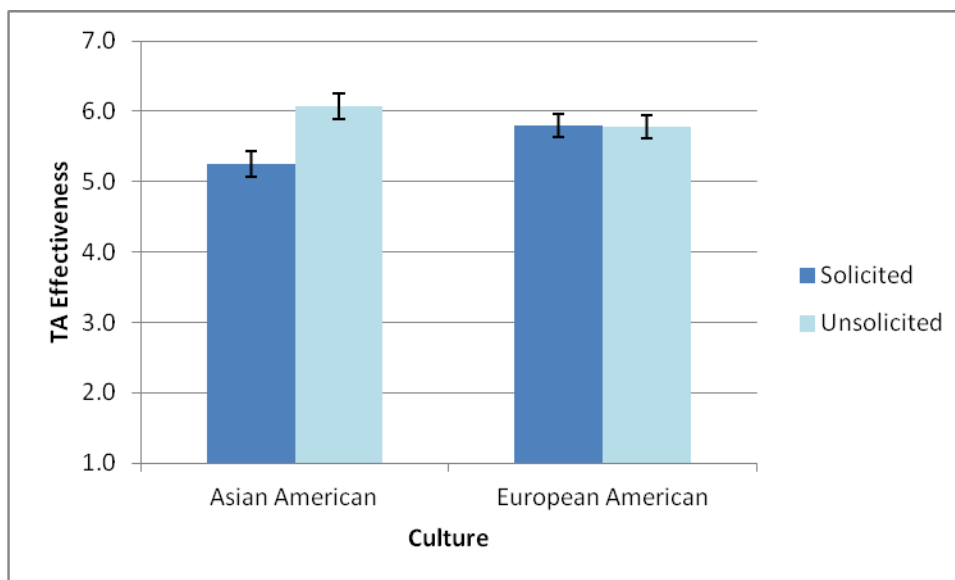


Figure 3. Cultural differences in effectiveness evaluations of assistance providers in Study 1.

Personal Academic Assistance

Preliminary analyses found no effects of condition or a culture by assistance type interaction for reported personal academic assistance, so personal assistance was examined by culture using a MANOVA. See Table 1 for a summary of results for all personal academic assistance items.

Of note in the results for personal assistance use, there were no differences by culture in difficulty or stressfulness of the reported academic stressors. Overall, there were no cultural differences in reported use of solicited assistance. There were also generally no cultural differences in unsolicited assistance, though one item, unsolicited assistance received from professors or teaching assistants, was significantly different by culture, $F(1, 172) = 4.11, p = .04, \eta_p^2 = .02$. Asian Americans ($M = 3.86, SD = 2.14$) reported receiving more unsolicited assistance from professors or teaching assistants compared to European Americans ($M = 3.22, SD = 2.03$).

For the other academic coping strategies, there was a cultural difference in reported use of distraction (turning to work or other activities, $F(1, 172) = 5.75, p = .02, \eta_p^2 = .03$), with Asian Americans ($M = 4.54, SD = 1.77$) reporting using distraction more than European Americans ($M = 3.89, SD = 1.71$). There were also cultural differences on both planning items (concentrating on making a strategy, $F(1, 172) = 5.14, p = .03, \eta_p^2 = .03$, and thinking hard about steps to take, $F(1, 172) = 3.30, p = .07, \eta_p^2 = .02$), with European Americans ($M = 5.26, SD = 1.40$ and $M = 5.49, SD = 1.26$) reporting using more planning than Asian Americans ($M = 4.74, SD = 1.59$ and $M = 5.12, SD = 1.40$). The item related to implicit support seeking was also significantly different by culture (hanging out with friends who did not know about the assignment, $F(1, 172) = 11.19, p = .001, \eta_p^2 = .06$) with Asian Americans

($M = 2.73$, $SD = 2.04$) reporting using more implicit support than European Americans ($M = 2.29$, $SD = 1.86$).

Questions about the stressor	<i>F</i> (df)	<i>p</i>	η_p^2
This assignment was stressful.	.64 (1, 172)	.42	.004
This assignment was difficult.	1.06 (1, 172)	.31	.006
Coping strategies			
<i>Solicited Assistance</i>			
I asked for clarification on the class assignment requirements from the professor or teaching assistant.	.16 (1, 172)	.69	.001
I asked friends who had taken the class before for advice.	.21 (1, 172)	.65	.001
I asked for feedback on assignment answers from the professor or teaching assistant.	.04 (1, 172)	.84	.001
I asked questions during office hours.	1.81 (1, 172)	.18	.01
<i>Unsolicited Assistance</i>			
I didn't ask for help because I thought that the professor or teaching assistant would offer help without me asking.	2.26 (1, 172)	.14	.01
The professor or teaching assistant gave me help regarding my class assignment without me asking for his or her assistance.	4.11 (1, 172)	.04	.02
Friends who had taken the class before gave me advice without me asking them for help.	2.19 (1, 172)	.14	.01
<i>Other Strategies</i>			
I turned to work or other activities to take my mind off my assignment. (Distraction)	5.75 (1, 172)	.02	.03
I concentrated on making a strategy on how to manage my time working on the assignment. (Planning)	5.14 (1, 172)	.03	.03
I thought hard about what steps I needed to take to complete the assignment. (Planning)	3.30 (1, 172)	.07	.02
I hung out with friends who did not know about the assignment. (Implicit support)	11.19 (1, 172)	.001	.06

Table 1. Personal academic assistance questions and results comparing cultures in Study 1.

Discussion

Study 1 examined evaluations of solicited and unsolicited academic assistance in order to examine cultural norms and assumptions surrounding received assistance in an educational setting. Study 1 also examined personal academic assistance and coping behaviors for potential cultural differences. Overall, in line with hypotheses, Asian Americans had more positive evaluations of unsolicited assistance, particularly for assistance providers, whereas European Americans had more positive evaluations of solicited assistance, particularly for assistance recipients.

Results found a trend for cultural differences in evaluations of assistance recipients. Within cultures, European Americans viewed solicited assistance recipients as more motivated than unsolicited assistance recipients, while Asian Americans' recipient evaluations did not differ by assistance type. Between cultures, while both cultures were similar in evaluations of solicited assistance recipients, Asian American participants perceived more motivation among unsolicited assistance recipients compared to European Americans. These results are in line with previous research on culture and motivation that suggest that these types of assistance may lead to different motivational outcomes by culture. For example, based on research on culture and lay theories of intelligence, holding an entity self-theory where the self is seen as fixed and immutable in ability, as is more common among European Americans, may lead to the interpretation of unsolicited assistance interactions that the participant lacks the ability to complete the task without outside assistance (e.g., Heine et al., 2001; Lockhart et al., 2008). Those with an entity self-view may evaluate unsolicited assistance recipients as having less ability compared to those holding an incremental self-theory, as is more common among Asian Americans. For someone holding an incremental self-theory, where the self is malleable and open to change through effort,

after having resources bolstered through unsolicited help, help recipients may be viewed as having more motivation.

Results also found cultural differences in evaluations of assistance providers. Within cultures, Asian Americans evaluated unsolicited assistance providers more positively and viewed them as more effective than solicited assistance providers, while European Americans' provider evaluations did not differ by assistance type. Between cultures, while both cultures were similar in evaluations of unsolicited assistance providers, Asian Americans evaluated solicited assistance providers less positively and rated them as less effective compared to European Americans.

Study 1 also looked at patterns of individual academic assistance to explore differences in academic assistance and coping behaviors. Overall, results found no cultural differences in frequency of solicited and unsolicited assistance, though Asian Americans did report receiving more unsolicited assistance from teachers and teaching assistants. This finding was unexpected as there were no strong hypotheses for cultural differences in assistance frequency. It may be that Asian Americans do receive more unsolicited assistance from their professors, or perhaps Asian Americans may be more attuned to unsolicited assistance situations since these situations are evaluated more positively, interpreting greater frequency of occurrence compared to European Americans. Future research should look further into the link between evaluations of assistance and frequency of received assistance. Results for cultural differences in other coping strategies, such planning and implicit support, replicate previous findings in the culture and social support literature (e.g., H. S. Kim et al., 2006, H.S. Kim et al., 2008).

Results from Study 1 point to initial evidence for cultural differences in norms regarding academic assistance, such that what is viewed as effective for fostering academic

motivation and success may be different depending on one's cultural context. In Study 1, participants were asked to evaluate a hypothetical scenario based on a potential academic assistance interaction, and they did not engage directly in an assistance situation. Thus, Study 2, a laboratory experiment, was conducted to examine the impact of actual solicited and unsolicited assistance situations on motivation and task performance.

Study 2

In Study 2, the main research question was how solicited and unsolicited assistance situations differentially affect post-assistance motivation and task performance (creativity and complexity) in a laboratory experiment. It is important to note that the focus of the study was what psychological effects occur as a result of being in a situation in which either one has to ask for assistance to receive it (whether the person actually asks for it or not), or assistance is given to a person without asking for it. Therefore, the design of the study sets up a situation where assistance is available if sought directly (solicited assistance condition), and a condition where assistance is given without prompting (unsolicited assistance condition) in order to make these comparisons.

This study also allows for a direct test of these assistance situations on motivation and task performance and the potential role of culture in these effects. While previous research on culture and motivation suggests that unsolicited assistance situations may be more beneficial for Asian Americans than solicited assistance situations, it is also a possibility that these types of assistance may function similarly cross-culturally. Outside of related work in the culture domain, there is a body of research showing the negative effects of unsolicited help on performance and perceptions of ability. For example, in the social support domain, controlling or interfering (unsolicited) help on a task was associated with negative task outcomes (Feeney, 2004). Intergroup research on assumptive help has found that receiving

unsolicited help from an outgroup member without any indicated need on the part of the help recipient is associated with lower self-esteem than those who did not receive help (Schneider, Major, Luhtanen, & Crocker, 1996). As such, the role of unsolicited assistance on motivation and performance cross-culturally is an open question that the current research attempts to address.

Based on previous research, I predicted that Asian American participants would experience better outcomes from unsolicited than solicited assistance situations, such as greater motivation and more positive evaluations from assistance providers, as well as greater post-assistance performance, while I predicted the opposite pattern for European Americans, who would experience better outcomes from solicited than unsolicited assistance situations.

Method

Design and Participants

This study had a 2 (culture: European American, Asian American) x 3 (assistance type: solicited, unsolicited, control) between-subjects design. Seventy-one Asian American (46 females, 26 non-US born) and 52 European American students (40 females) from the University of California, Santa Barbara took part in this study². The average age was 18.69 years old ($SD = 1.04$). Participants were recruited from introductory psychology classes and received research credit for participation.

Materials and Procedure

Introduction to the tasks. Participants were told that they would be taking part in a study involving learning and problem solving, using a program called Scratch (available

² Due to the nature of the task in Study 2, participants were asked a series of questions about their familiarity with computer science at the end of the study during the demographics. No participants were Computer Science majors or had taken computer science classes.

online for free use at scratch.mit.edu). They were told that Scratch is a program that can be used to create animations and games through step-by-step programming, and that the study was interested in seeing how people can use this program to create new projects. They were told that the first task would be to work on a practice project so that they can understand how the program works. Participants were also told that later, they will get the chance to work on their own projects, and the most creative projects would win a \$20 gift certificate to the UCSB bookstore. The experimenter for the study was either a female Asian American or a female European American, and the ethnicity of the experimenter was counterbalanced.

Task 1. Participants began by working on the practice task, which involved following a worksheet with instructions on how to create an underwater scene using the Scratch program (based on altered materials from a free tutorial on techbrarian.com created by Lou Lahana, see Appendix B for a copy of the task worksheet). The worksheet had a series of instructions with pictures on how to add items (sprites) to the scene and animate these items. In two places during the worksheet, the instructions had been altered to be confusing to follow (pictures were removed and key instructions are missing), making it difficult to complete the instructions without additional help. Participants were told that they would have about 20 minutes to work on this task, and that they could follow the step-by-step instructions for completing this task. They were reminded that after they finished the task, they would get to work on their own task, and that the practice task was designed to help the participant to get used to the Scratch program.

In the *control condition*, the participant completed the practice task alone in the room, with the experimenter working on organizing study materials for another study outside the room.

In the *solicited condition*, while the participant was getting set up at the computer, the experimenter mentioned that she was hoping to use the extra table in the testing room to prepare materials for another study because the other rooms in the lab would be in use. The extra table in the room had a clipboard and a file folder with a stack of bogus study materials (blank surveys). The experimenter also mentioned that she has used the Scratch program a lot, and that the participant can ask for help if there are questions about the practice task while working on it. While the participant completed the first task, the experimenter sat at the table behind the participant computer and filed papers, filling out a clipboard labeled as a checklist for study preparation. The clipboard had a hidden sheet with task timing information and notes on the participant. The experimenter timed how long the participant took to complete the task (measured in seconds), and marked the timing sheet with any questions that the participant asked during the task. If the participant asked for help on an item on the worksheet, the experimenter got up from the table and went to the computer and explained how to complete that item on the worksheet, walking through the item with the participant and then returning to her desk afterwards.

In the *unsolicited condition*, the experimenter remained in the room under the same circumstances as the solicited condition. In this condition, however, the experimenter automatically gave help on the two sets of confusing worksheet items once the participant reached that point in the task, mentioning that some of the instructions might be a little confusing and then going through the items with the participant, and returning to her desk afterwards.

In all conditions, once the participant finished the practice task, the experimenter saved the completed file on the computer, and marked the timing sheet with the Task 1 completion time in seconds.

Task 2. After Task 1 was completed, participants were told that they would now have time to work on their own projects. They were told that they could use any of the same coding tools that they used before in the practice task, or that they could try new tools if they would like. Participants were told that they would have up to 25 minutes to work on this project, and that they could take as little or as much of that time as they would like. They were told that the experimenter would come back in 25 minutes but they could come and get the experimenter if they are finished earlier. They were reminded again that the most creative projects will receive a gift card to the UCSB bookstore. In all conditions, the experimenter then left the room, and the participant worked on the second task alone. The experimenter timed the task to measure (in seconds) how long participants worked on Task 2, a potential measure of intrinsic motivation commonly used in motivation research (e.g., Iyengar & Lepper, 1999).

After the participants decided they were finished with the task, or after 25 minutes had elapsed, the experimenter returned and saved and closed the program. Timing for Task 2 was logged on the timing sheet.

Post-task questionnaires. After the participant had finished Task 2, the experimenter asked the participant to finish the study by filling out a series of questionnaires on the computer regarding their experiences with the tasks on a scale from 1 (*not at all*) to 7 (*very much*). These questionnaires included measures of participant motivation and performance regarding the Scratch tasks, specifically how well they felt they did on the Scratch tasks, how much they enjoyed and were interested in the tasks, and how confident they would feel doing another Scratch task in the future. These items were averaged into a composite of task motivation (4 items; $\alpha = .86$). They also answered questions about the task difficulty, specifically how stressful and how difficult it was to work on the tasks. These items were

averaged into a composite of task difficulty (2 items; $\alpha = .67$). Additionally, participants answered questions about the experimenter (the assistance provider), specifically how much they enjoyed their interaction with the experimenter, and how helpful and knowledgeable the experimenter was. These items were averaged into a composite of assistance provider evaluation (3 items; $\alpha = .87$). Then, participants filled out a demographics section to conclude the study, and were afterwards thoroughly debriefed.

Task 2 performance coding scheme. Actual performance on the second Scratch task was measured through the coding of the second task. Three undergraduate research assistants coded the Task 2 projects for complexity (technical prowess as measured by the amount of items/commands used in the task) and creativity (inventiveness as measured by using own created items and difference from practice task). Coder reliability alphas ranged from .63 to .97 (for continuous items) and percentage agreement ranged from 73.88% to 96.52% (for binary items). See Appendix C for the full coding scheme, and see Appendix D for sample completed Task 2 projects.

Complexity coding was measured through two coding composites. The first complexity variable, complexity scale, was a single-item coding of the overall complexity of the project on a scale from 0 (*not at all complex*) to 7 (*very complex*). The second complexity composite, complexity count, was created by standardizing count items into z-scores and then creating an average score (6 items, e.g., number of commands used, number of sprites used, $\alpha = .66$).

Creativity coding was also measured through two coding composites. One creativity composite, creativity scale, was created by averaging coding items related to overall difference from the first task and the creativity of the project on a scale from 0 (*not at all*) to 7 (*very*), (5 items, e.g., difference from practice task, overall creativity, $\alpha = .82$). The second

creativity composite, creativity binary, was created by averaging coding items related to creating items in the program instead of using the stock items that were available on a 0 (*no*) and 1 (*yes*) coding scheme (5 items, e.g., created own background, created own sound).

Results

For Study 2, our main dependent variables were participants' self-reported task motivation, task difficulty, and evaluations of the assistance provider, as well as performance on the second task, coded for complexity and creativity. We also looked at participant assistance seeking during the practice task, and task completion times for Task 1 and Task 2. Preliminary analyses found no effects of gender or confederate ethnicity for any major analyses, therefore gender and confederate ethnicity were dropped from subsequent analyses.

Assistance Seeking

To examine the impact of the assistance manipulation on amount of assistance sought by the participant during Task 2, I conducted a 2 (culture: European American, Asian American) x 3 (assistance type: solicited, unsolicited, control) between-subjects ANOVA on number of questions asked. Results found that there was no main effect of culture, $F(1, 117) = .15, p = .70, \eta_p^2 = .001$, or a culture by assistance type interaction, $F(2, 117) = 1.01, p = .37, \eta_p^2 = .02$. As expected by the study design, there was a main effect of condition, $F(2, 117) = 28.37, p < .001, \eta_p^2 = .33$. Participants asked significantly more questions in the solicited condition ($M = .96, SD = .73$) than in the unsolicited ($M = .20, SD = .40, p < .001$) or control ($M = .15, SD = .36, p < .001$) conditions, while the unsolicited and control conditions did not differ on number of questions asked, $p = .57$. The number of questions asked ranged from 0 to 3 questions.

To examine assistance seeking in terms of whether any help was sought or not specifically for the target conditions of solicited and unsolicited assistance, I conducted a 2

(culture: Asian American, European American) by 2 (condition: solicited, unsolicited) loglinear test. Results showed that there was a no main effect of culture, $\chi^2(1, N = 90) = 4.57$, $p = .20$. There was a significant effect of condition, $\chi^2(1, N = 90) = 26.92$, $p < .001$, such that participants in the unsolicited condition (21%) asked for assistance less frequently than participants in the solicited condition (75%) did. There was no culture by condition interaction, $\chi^2(1, N = 90) = .290$, $p = .59$. See Figure 4 for the proportion of participants who asked for any assistance during the task.

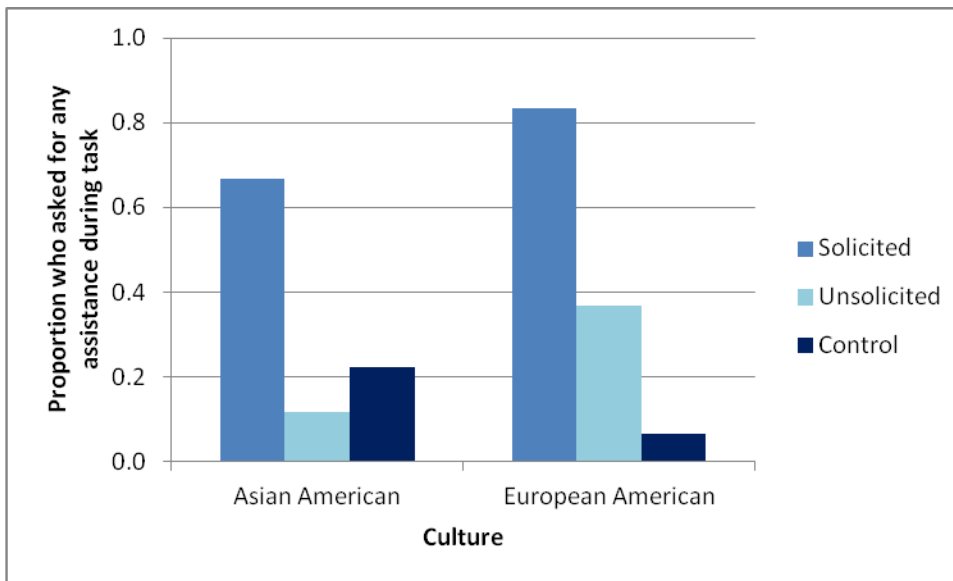


Figure 4. Proportion of participants who asked for any assistance during Task 2 in Study 2.

Self-Reported Task Motivation, Task Difficulty, and Assistance Provider Evaluation

To examine the impact of the assistance manipulation, I conducted a series of 2 (culture: European American, Asian American) x 3 (assistance type: solicited, unsolicited, control) between-subjects ANOVAs on self-reported task motivation, task difficulty, and evaluation of the assistance provider, with planned contrasts comparing cultures and

conditions. Results for the self-report items found no main effects of condition or interactions for any of the three self-reported dependent variables, and no main effect of culture for task motivation. See Table 2 for a full set of statistics on the self-reported dependent variables.

There was a main effect of culture for task difficulty, $F(1, 117) = 4.27, p = .04, \eta_p^2 = .04$, with Asian American participants ($M = 2.80, SD = 1.23$) reporting greater task difficulty than European American participants ($M = 2.33, SD = 1.10$). There was also a main effect of culture for assistance provider evaluation, $F(1, 117) = 4.66, p = .03, \eta_p^2 = .04$, with European American participants ($M = 5.69, SD = 1.03$) reporting more positive provider evaluations compared to Asian Americans ($M = 5.20, SD = 1.31$).

Dependent Variables	<i>F</i> (df)	<i>p</i>	η_p^2
<i>Task Motivation</i>			
Culture	1.53 (1, 117)	.22	.01
Condition	.39 (2, 117)	.68	.007
Interaction	.80 (2, 117)	.45	.01
<i>Task Difficulty</i>			
Culture	4.27 (1, 117)	.04	.04
Condition	.32 (2, 117)	.73	.005
Interaction	1.68 (2, 117)	.19	.03
<i>Provider Evaluation</i>			
Culture	4.66 (2, 117)	.03	.04
Condition	.81 (2, 117)	.44	.01
Interaction	.59 (2, 117)	.55	.01

Table 2. Results for self-reported dependent variables in Study 2.

Task Performance

To examine the impact of the assistance manipulation on task performance, I conducted a series of 2 (culture: European American, Asian American) x 3 (assistance type: solicited, unsolicited, control) between-subjects ANOVAs on Task 1 and Task 2 completion times, as well as Task 2 complexity and creativity, with planned contrasts comparing cultures and conditions.

Task 1 and 2 completion time. For Task 1 completion time (measured in seconds), there was no main effect of culture, $F(1, 117) = .66, p = .42, \eta_p^2 = .006$, or an interaction, $F(2, 117) = .04, p = .96, \eta_p^2 = .001$. There was a main effect of condition, $F(2, 117) = 40.79, p < .001, \eta_p^2 = .41$, such that participants in the unsolicited condition ($M = 390.93, SD = 77.53$) completed Task 1 more quickly than participants in the solicited ($M = 571.87, SD = 181.82, p < .001$) or control conditions ($M = 725.15, SD = 209.52, p < .001$). Participants in the solicited condition completed Task 1 more quickly than participants in the control condition, $p < .001$.

For Task 2 completion time (measured in seconds), there was no main effect of condition, $F(2, 117) = 1.28, p = .28, \eta_p^2 = .02$, or an interaction, $F(2, 117) = .10, p = .91, \eta_p^2 = .002$. There was a main effect of culture, $F(1, 117) = 5.38, p = .02, \eta_p^2 = .04$, such that European American participants ($M = 1191.77, SD = 382.99$) finished Task 2 more quickly than Asian American participants ($M = 1334.85, SD = 289.49$) did.

Task 2 complexity. Examining Task 2 performance in terms of complexity, for the first complexity variable, complexity scale, there was no main effect of culture, $F(1, 117) = .03, p = .87, \eta_p^2 = .001$ or an interaction, $F(2, 117) = .60, p = .55, \eta_p^2 = .01$ (See Figure 5). There was a marginal main effect of condition, $F(2, 117) = 2.74, p = .07, \eta_p^2 = .05$, such that participants in the solicited condition ($M = 3.52, SD = .84$) had more complex tasks than participants in the unsolicited condition ($M = 3.12, SD = .71, p = .03$), while they did not

significantly differ from participants in the control condition ($M = 3.44$, $SD = .81$, $p = .78$).

Control participants had more complex tasks than unsolicited participants, though this effect was marginal, $p = .08$.

For the second complexity variable, complexity count, there was no main effect of culture, $F(1, 117) = .43$, $p = .51$, $\eta_p^2 = .002$, or an interaction, $F(2, 117) = .14$, $p = .87$, $\eta_p^2 = .002$. There was a main effect of condition, $F(2, 117) = 3.24$, $p = .04$, $\eta_p^2 = .05$, such that participants in the unsolicited condition ($M = -.19$, $SD = .57$) had less complex tasks than participants in the control condition ($M = .15$, $SD = .59$, $p = .01$), while they did not significantly differ from participants in the solicited condition ($M = .005$, $SD = .55$, $p = .14$). The solicited and control conditions were not significantly different from each other, $p = .25$.

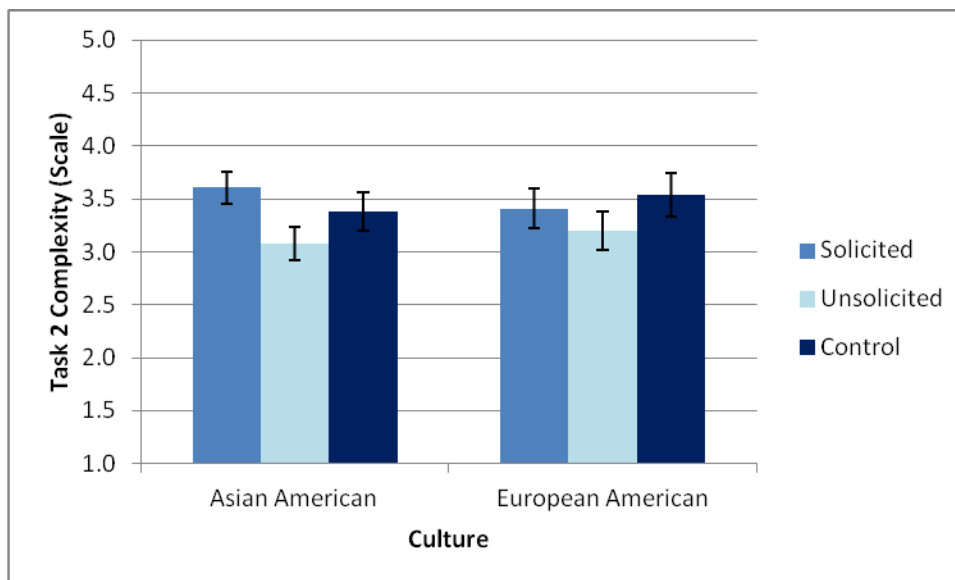


Figure 5. Task 2 complexity by condition in Study 2.

Task 2 creativity. Examining Task 2 performance in terms of creativity, for the first creativity variable, creativity scale, there was no main effect of culture, $F(1, 117) = .97$, $p = .33$, $\eta_p^2 = .008$, or an interaction, $F(2, 117) = .67$, $p = .51$, $\eta_p^2 = .01$ (See Figure 6). There

was a main effect of condition, $F(2, 117) = 3.08, p = .05, \eta_p^2 = .05$, such that participants in the solicited condition ($M = 2.58, SD = .99$) had more creative tasks than participants in the unsolicited condition ($M = 2.10, SD = .74, p = .02$), while they did not significantly differ from participants in the control condition ($M = 2.29, SD = .79, p = .19$). Participants in the control condition did not significantly differ from participants in the unsolicited condition, $p = .33$.

For the second creativity variable, creativity binary, there was no main effect of culture, $F(1, 117) = .37, p = .55, \eta_p^2 = .003$, or an interaction, $F(2, 117) = .80, p = .45, \eta_p^2 = .01$. There was a marginal main effect of condition, $F(2, 117) = 2.58, p = .08, \eta_p^2 = .04$, such that participants in the solicited condition ($M = .19, SD = .18$) had more creative tasks than participants in the unsolicited condition ($M = .10, SD = .16, p = .04$), and the control condition ($M = .11, SD = .19$), though the second effect was marginal, $p = .08$. Participants in the control condition did not significantly differ from participants in the unsolicited condition, $p = .84$. See Table 3 for the coded task performance variable results by condition.

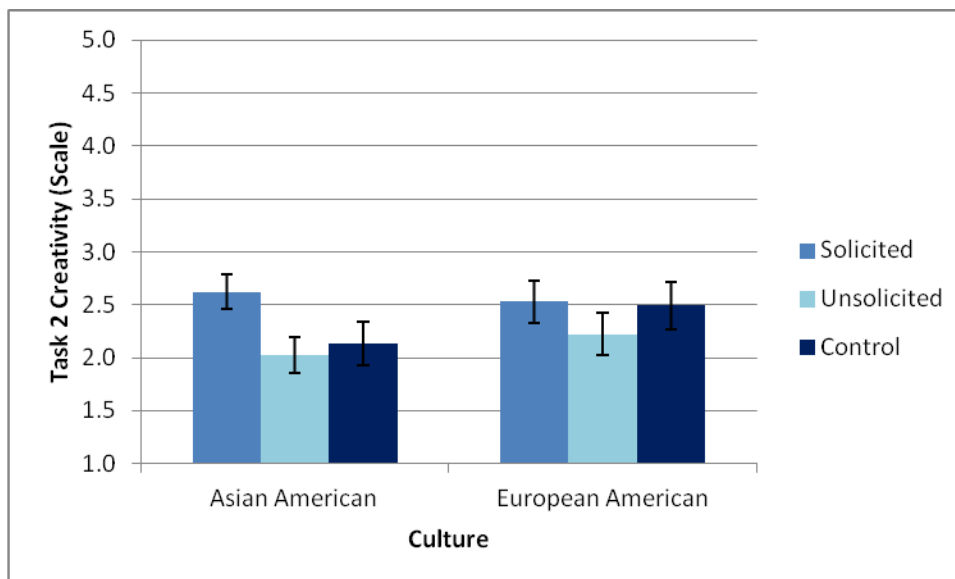


Figure 6. Task 2 creativity by condition in Study 2.

Dependent Variables	<i>M</i>	<i>SD</i>	<i>F</i> (df)	<i>p</i>	η_p^2	Cohen's <i>d</i> (Comparing Solicited and Unsolicited conditions)
<i>Complexity Scale</i>			2.74 (2, 117)	.07	.05	.52
Solicited	3.52	.84				
Unsolicited	3.12	.71				
Control	3.44	.81				
<i>Complexity Count</i>			3.24 (2, 117)	.04	.05	.35
Solicited	.005	.55				
Unsolicited	-.19	.57				
Control	.15	.59				
<i>Creativity Scale</i>			3.08 (2, 117)	.05	.05	.55
Solicited	2.58	.99				
Unsolicited	2.10	.74				
Control	2.29	.79				
<i>Creativity Count</i>			2.58 (2, 117)	.08	.04	.53
Solicited	.19	.18				
Unsolicited	.10	.16				
Control	.11	.19				

Table 3. Results for coded Task 2 performance variables by condition in Study 2.

Discussion

Study 2 examined the impact of solicited and unsolicited assistance situations on later task motivation and task performance, looking at self-reported post-assistance task motivation, evaluations of the task and the assistance provider, and post-assistance task performance. Contrary to hypotheses, results for self-reported task motivation, task difficulty, and evaluations of the assistance provider largely found no effects of culture, condition, or an

interaction, suggesting that these assistance situations did not affect how people evaluated the tasks. Additionally, there were no effects of assistance type or a culture by assistance type interaction regarding time spent on Task 2, another potential measure of motivation, as more engaged participants would ostensibly spend more time creating more involved projects. Nonetheless, it is clear that overall, participants were engaged in the second task. Participants spent over 20 minutes on average on the second task, despite their being no minimum time requirements for completion, as they could have completed the task at any time and potentially finished the study earlier. This finding also suggests that the assistance manipulation did not have a significant effect on motivation in either culture.

On the other hand, there was an effect of the assistance manipulation on task performance. For actual task performance, in terms of the complexity and creativity of Task 2, there were no differences by culture or an interactive effect of culture and assistance type. However, there was an effect of condition on task performance, such that participants in solicited assistance situations produced more complex and more creative post-assistance tasks compared to participants who received unsolicited assistance, regardless of participants' cultural background. Participants who worked on the project without assistance, in the control condition, showed similar results to those in the solicited condition, though in some cases, they fell between the solicited and unsolicited conditions on task performance. So, while participants did not differ in their reports of motivation or their evaluations of the task or the assistance provider, being in these different types of assistance situations did have an impact on task performance.

There were no cultural differences in the effect of assistance situations on task performance or an interactive effect of task assistance type and culture. It may be that the link between assistance and creativity functions in a similar matter cross-culturally. Indeed,

existing research on the link between culture and creativity found mixed results for cultural differences in creativity (see Zhou & Su, 2010 for a review). Also, the sample of Asian Americans in the study was compromised mostly of participants who were born and raised in the United States, with both East Asian and American cultural influences. This may also account for the lack of cultural differences in the effects of these types of assistance, and I will elaborate on this point in the general discussion.

Results for assistance seeking also found no cultural differences in asking for help during the practice task. This may be the result of a floor effect for help-seeking, as the average number of questions asked was rather low. Additionally, the nature of the task made it difficult to continue without asking for help, as the task required each step in succession to complete and it was not possible to skip over any portion of the task and successfully continue the task.

Overall, Study 2 examined the role of solicited and unsolicited assistance situations on task motivation and task performance across cultures, and found evidence of a cross-cultural impact of assistance on task performance, such that experiencing solicited assistance situations led to greater creativity and complexity in completed post-assistance projects compared to unsolicited assistance situations. However, assistance situations did not have an impact on self-reported evaluations of these tasks.

General Discussion

The current research used perspectives from culture, education, motivation, and social support research to examine how solicited and unsolicited assistance situations may have cultural differences in perceived norms and effects on motivation and performance. This research focuses on how interactions between providers and recipients of assistance may enhance or detract from motivation in an educational context, and how these outcomes are

influenced by cultural values and cultural norms. For Asian Americans, I hypothesized that evaluations and outcomes of unsolicited assistance situations would be more positive than evaluations and outcomes of solicited assistance situations, with more positive evaluations of unsolicited assistance providers and recipients, and greater task motivation and task performance following unsolicited assistance situations compared to solicited assistance situations. Among European Americans, I expected the opposite pattern, with more positive evaluations and outcomes of solicited assistance situations than unsolicited assistance situations.

Study 1 looked at evaluations of solicited and unsolicited assistance in a classroom setting in order to show how norms about academic assistance may differ by culture. Results from Study 1 largely supported hypotheses about cultural norms, showing that Asian Americans evaluated unsolicited assistance providers more positively than solicited assistance providers, rating them as more generally positive and more effective, while European American participants showed differences in evaluations of assistance recipient motivation, evaluating solicited assistance recipients as having more motivation than unsolicited assistance recipients. Study 1 suggests that there are differences by culture in norms about assistance interactions in an academic setting, both for the provider and the recipient of assistance.

Study 2 looked at motivational and performance outcomes related to task-based solicited and unsolicited assistance situations, showing how solicited and unsolicited assistance situations may affect later task motivation and task performance. In Study 2, contrary to hypotheses about potential cultural differences in the effects of these types of assistance, we found that across cultures, solicited assistance situations were associated with better task performance than unsolicited assistance situations, with participants who

experienced solicited assistance situations producing more complex and creative projects than participants who experienced unsolicited assistance, with control participants either looking similar to solicited participant task performance or falling in between the two assistance conditions. We found no significant effects of culture or assistance type on self-reported motivation, suggesting that while participants did not consciously experience the tasks differently, these types of assistance did have a lasting impact on their performance.

While unexpected, this task performance finding may be supported by research on creativity and help-seeking that shows that active help seeking is associated with more creative problem-solving (e.g., Mueller & Kamdar, 2011). Research on creativity has found that help seeking behavior was associated with more creative solutions to problems (Mueller & Kamdar, 2011), and seeking feedback on performance was associated with more creative output (De Stobbeleir, Ashford & Buyens, 2011). Thus, being in a situation where assistance is received only through active seeking may have been a source of inspiration for later creative performance.

Research on supervisory style also may inform the current research. For example, workgroups with a more controlling supervisory style were associated with less creative performance in workplace settings (e.g., Oldham & Cummings, 1996). It may be that being in an unsolicited assistance situation, where task information is given without prompting, may lead to less creative output on later tasks. Additionally, research on task autonomy and creativity shows that high task autonomy, or having greater flexibility in how tasks are completed, and being able to make individual choices about tasks is associated with greater creativity than situations when task autonomy is low (Amabile & Gitomer, 1984; also Chang, Huang, & Choi, 2012 with an East Asian sample).

Previous research showing negative effects of unsolicited help on motivation and performance (e.g., Feeney, 2004; Schneider et al., 1996) also may inform the current results, as task performance was consistently lowest for those who had received unsolicited assistance. It is possible that the act of working through the practice task on one's own terms, whether asking for help only if needed or working alone on the task, may have affected later performance, suggesting that autonomy may be a factor. Future research should examine the role of autonomy as it relates to solicited and unsolicited assistance.

The current research compares European Americans and Asian Americans of East Asian descent, most of whom were born in the United States, and found cultural differences in norms surrounding unsolicited and solicited assistance in a learning context, but no cultural differences in the effects of experienced solicited and unsolicited assistance situations. It may be that these cultural differences function at the level of perceived norms, while the actual efficacy of these types of assistance situations may have similar cross-cultural impacts, particularly in the creativity domain. In this case, there may be norms about seeking or not seeking assistance in a classroom setting that are different from the outcomes of receipt. For Asian Americans, it may be that receiving unsolicited help is evaluated more positively than soliciting assistance, while the actual impact of solicited assistance has more positive implications for performance compared to unsolicited assistance. Future research could take a more nuanced look at culture, including East Asian participants in East Asia, to examine if the lack of cultural differences in the effects of these assistance situations would replicate in a sample outside of the United States.

Previous research on solicited and unsolicited social support (Mojaverian & H. S. Kim, 2013) found that, after participating in a stressful math task, Asian American participants in unsolicited support situations reported greater self-esteem and rated tasks as

less difficult compared to participants in solicited support situations. The current research did not find the same pattern. There may be a variety of reasons why these two sets of studies found different results. The task itself is different. In the previous research, participants worked on a difficult math task, working to correctly answer these questions using previous knowledge on the subject, whereas the current research has a task that invokes more creativity and innovation, where participants were learning a new task and then creating a personal project of the participant's own design. It is possible that, particularly for Asian Americans, unsolicited assistance may be better for dealing with stressful situations or knowledge-based endeavors, whereas active help seeking is better suited to learning-based and self-expressive tasks cross-culturally, as previous research in the creativity domain suggests.

Additionally, the tasks involved different types of help providers. In the previous research, the help provider was a peer (another participant), whereas the help provider in the current research was an experimenter. It may be that when the help provider is a peer or a friend, soliciting assistance may be a stressor in itself, while unsolicited assistance is seen as care or concern for the assistance recipient. Previous research has shown that relational context and ingroup-outgroup distinctions have been shown to be of relatively greater importance among East Asians compared to European Americans, with East Asian participants being less willing to seek social support in close relational contexts (e.g., Kim et al., 2006). Being in a situation where the help provider is fellow student and fellow participant may be more stressful for Asian American participants, whereas when the help provider has a mentor or supervisory relationship, as in the case of the current research, this different relational context may not have the same relational implications, with a more

controlling supervisor affecting creativity across cultures. Future research could look at these relational distinctions in terms of help seeking.

In the current research, it may be that being in a solicited assistance situation, where participants could ask for help if they felt it was necessary, as well as having greater autonomy about receiving help from the experimenter, may have had downstream consequences for later task performance, as previous research on help seeking, task autonomy and creativity suggests. Also, the role of the experimenter as being more controlling of the situation when providing unsolicited assistance may also have affected later creativity. Future research could look further at the potential role of solicited and unsolicited assistance in creativity and problem-solving tasks.

Conclusion

By combining research from culture, academics, motivation, and social support domains, the present research provides insight into how academic assistance is evaluated, as well as the effects of assistance on motivation and task performance. What is viewed as effective for fostering academic motivation and success may be different depending on one's cultural context, and the type of assistance that is given may have downstream consequences for task performance cross-culturally. The present research underscores the importance of understanding how cultural norms may influence academic achievement, and it has implications for the development of constructive pedagogical styles. This research also outlines how different types of assistance may be involved in encouraging creativity cross-culturally. For a student in a classroom, asking for help to solve a problem may have differential impact than receiving help without asking for it.

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Appendix A: Study 1 Scenarios

Solicited Scenario

Diana is currently taking an upper-division psychology class on psychological research methods. Today in her class section, students are working individually on a worksheet task in reading psychological research articles as a practice exercise for the next exam. Emily, the teaching assistant who is leading the class section, is walking around the room to check on student progress. The task involves reading a research article and answering questions about the article content. Diana has been able to answer most of the easier questions on the worksheet, but she is having trouble with two of the more difficult questions related to summarizing the results of the study. She spent a few minutes looking through the article, but she can't find the information to answer the questions and she is now just staring at the worksheet. When the teaching assistant passes Diana's desk, Diana raises her hand and asks the teaching assistant about the two questions that she is having trouble answering. The teaching assistant mentions that many students have trouble with those two questions and explains where to find the information needed to answer them. Diana responds that she understands how to answer the questions now, and thanks her for her help. Then, Diana goes back to working on the worksheet.

Unsolicited Scenario

Diana is currently taking an upper-division psychology class on psychological research methods. Today in her class section, students are working individually on a worksheet task in reading psychological research articles as a practice exercise for the next exam. Emily, the teaching assistant who is leading the class section, is walking around the room to check on student progress. The task involves reading a research article and answering questions about the article content. Diana has been able to answer most of the easier questions on the worksheet, but she is having trouble with two of the more difficult questions related to summarizing the results of the study. She spent a few minutes looking through the article, but she can't find the information to answer the questions and she is now just staring at the worksheet. When the teaching assistant passes Diana's desk, the teaching assistant notices that Diana has not responded to the two questions that she is having trouble answering. The teaching assistant mentions that many students have trouble with those two questions and explains where to find the information needed to answer them. Diana responds that she understands how to answer the questions now, and thanks her for her help. Then, Diana goes back to working on the worksheet.

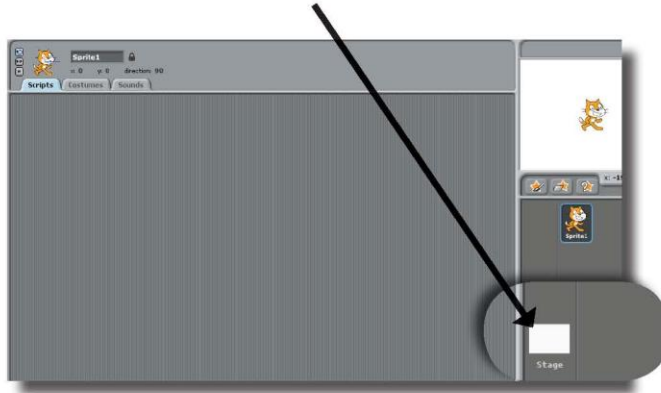
Control Scenario

Diana is currently taking an upper-division psychology class on psychological research methods. Today in her class section, students are working individually on a worksheet task in reading psychological research articles as a practice exercise for the next exam. Emily, the teaching assistant who is leading the class section, is walking around the room to check on student progress. The task involves reading a research article and answering questions about the article content. Diana has been able to answer most of the easier questions on the worksheet, but she is having trouble with two of the more difficult questions related to summarizing the results of the study. She spent a few minutes looking through the article, but she can't find the information to answer the questions and she is now just staring at the worksheet.

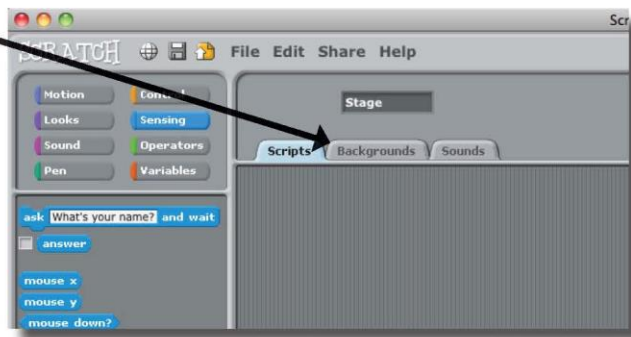
Appendix B: Study 2 Practice Task Worksheet



1. To start your fishbowl, click on the "Stage" symbol.



2. Next, click on "Backgrounds".



3. Now, click "Import".



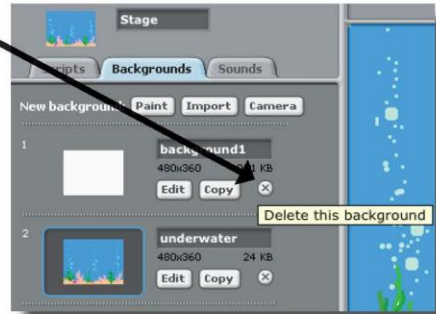
4. Double-click on the "Nature" folder.



5. Double-click on the "underwater" graphic.



6. Delete the blank white background by pressing the X.



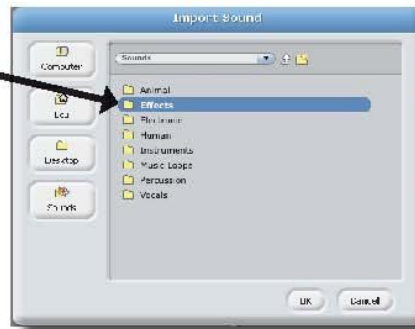
7. Now, click "Sounds".



8. Next, click on the "Import" button.



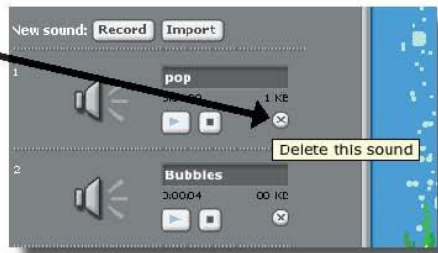
9. Click on "Effects".



10. Double-click on "Bubbles".



11. Delete the "Pop" sound.



12. Click on the "Scripts" tab.

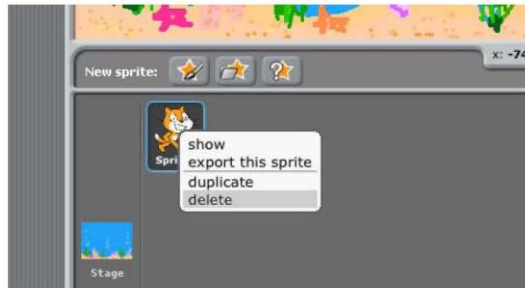


13. Now, let's drag the code blocks to make the bubbles sound play in the background. First, put the "when flag clicked" script in the scripting area.

14. Add a code block so this repeats Forever.

15. Now, add a block so that the bubbles sound is played continuously.

16. Before we put some fish sprites in the aquarium, let's delete the cat sprite. Hold down your mouse on the cat and select "delete".



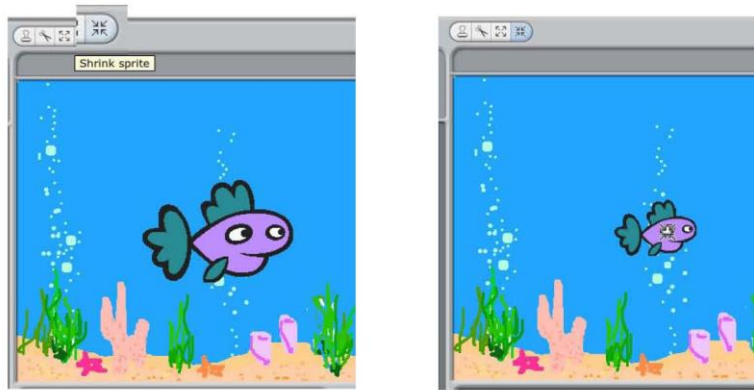
17. Now click the "choose new sprite from file" button.



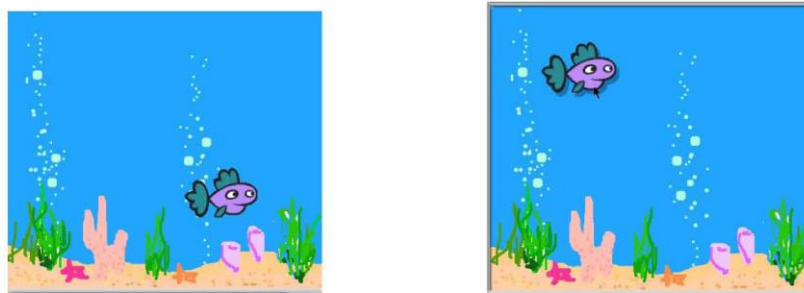
18. Double-click on the "Animals" folder and then double-click on "fish2".



19. Shrink the fish by pressing the "shrink Sprite" button and clicking on the fish.



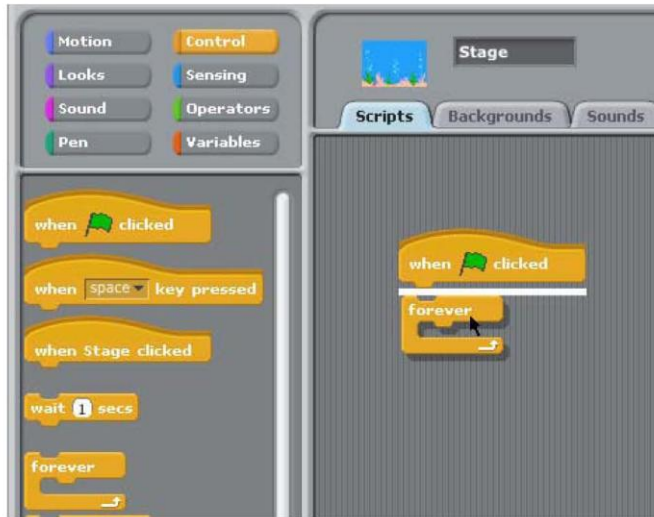
20. To move the fish, click your mouse on the water (or anywhere away from the fish) and then click back on the fish and drag it where you want.



21. Now, let's drag the code to make the fish move around the aquarium.
Drag the "when flag clicked" code block.



22. Next, drag the "Forever" code block below "When flag clicked".



23. Now we want to add movement to the fish sprite.

24. Drag a code block so that the fish will move 10 steps inside the other block.

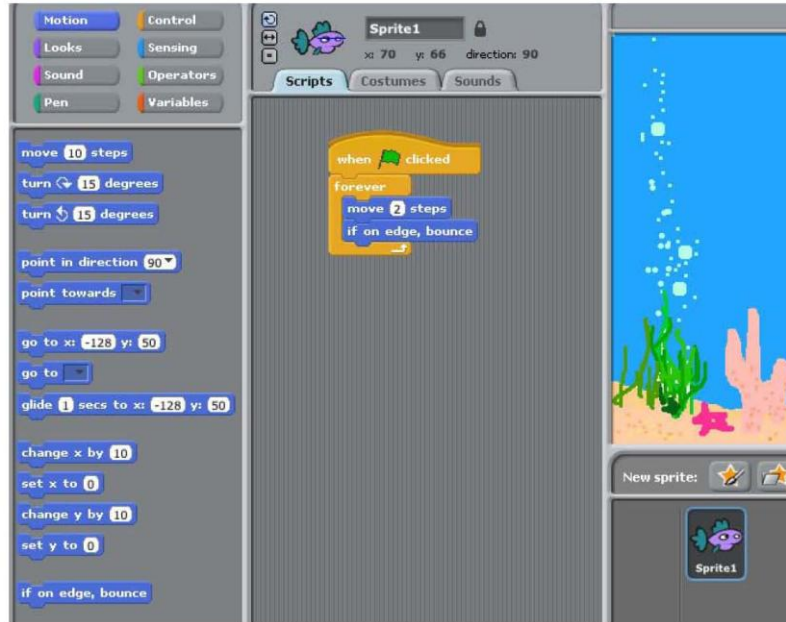
25. Change the move script so that it moves 2 steps.

26. Now let's test out the script you've created. Click on the green flag and watch your fish swim!

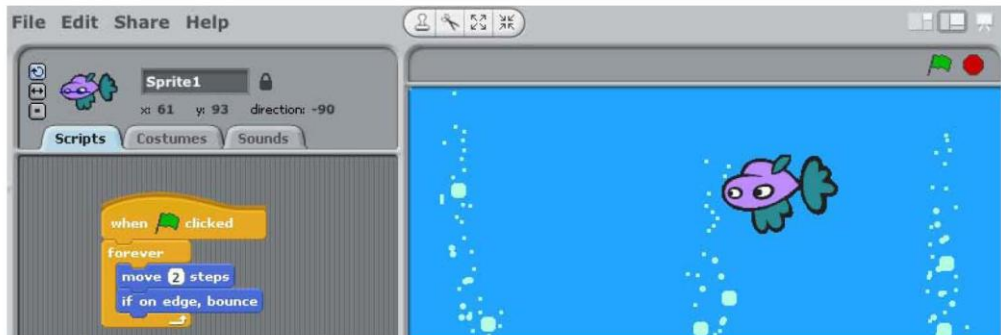


Press the red stop sign when you're done watching.

27. You'll notice that your fish doesn't stop swimming when it reaches the edge of the aquarium-- it keeps going until it disappears! That's no good. Lets drag a code block below "move 2 steps" that tells the fish to bounce off the edge.



28. Test out your code again by pressing the green flag. If your fish bounces, you're done!



Appendix C: Study 2 Task 2 Scratch Project Coding Scheme

Complexity Coding

Complexity Scale:

Overall complexity of project: 0 = not at all complex, 7 = very complex

Complexity Count:

Number of sprites (objects) used

Number of commands used

Number of separate coding blocks used

Number of different block tabs used

Number of backgrounds

Number of sounds

Creativity Coding

Creativity Scale:

If created storyline/narrative, how complex was it? 0 = not at all complex, 7 = very complex

If included dialogue, how complex was it? 0 = not at all complex, 7 = very complex

Difference from practice task (used same/different commands): 0 = very similar to practice task, 7 = very different from practice task

Overall creativity of project: 0 = not at all creative, 7 = very creative

Creativity Binary:

Created own background: 1 = yes, 0 = no

Created own sound: 1 = yes, 0 = no

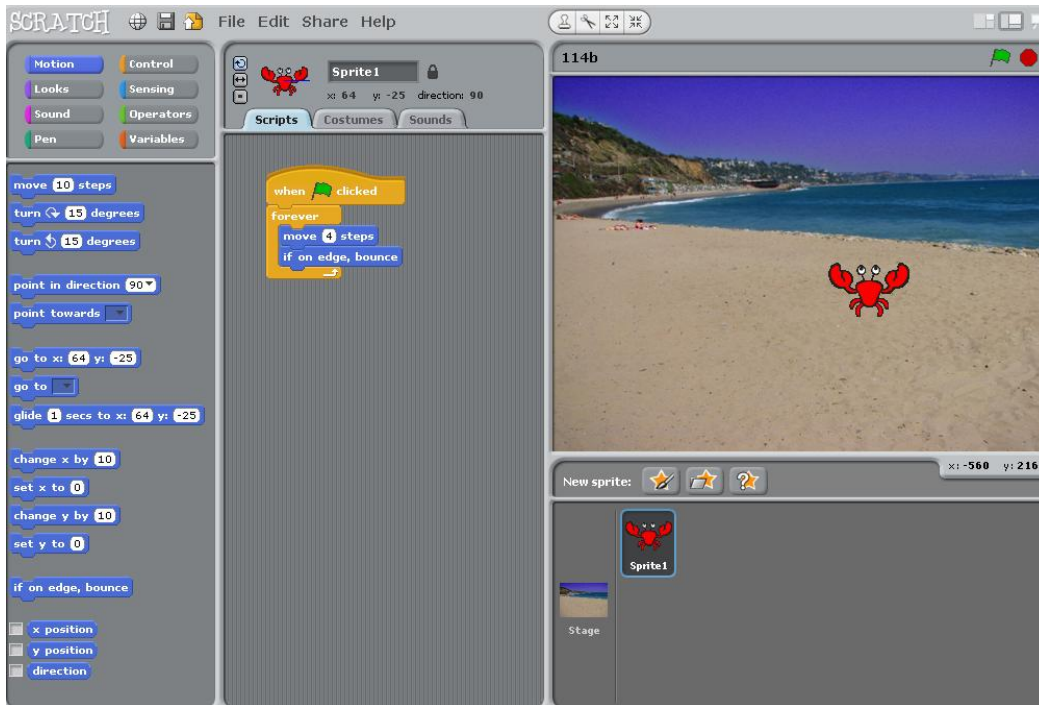
Created own sprite: 1 = yes, 0 = no

Created storyline/narrative: 1 = yes, 0 = no

Included dialogue: 1 = yes, 0 = no

Appendix D: Study 2 Task 2 Sample Projects

Sample project coded as low on complexity and creativity variables



Sample project coded as high on complexity and creativity variables

