The Good Samaritan Effect:
A Lens for Understanding Patterns of Participation

Carla van de Sande, Gaea Leinhardt, LRDC, University of Pittsburgh, Pittsburgh, PA
Email: carlacvds@gmail.com, gaea@pitt.edu

Abstract: We examine patterns of participation in an educational environment that exists solely for the purpose of providing help to those in distress. FreeMathHelp.com is a free, open, online homework help forum that is staffed by volunteers worldwide to help students to complete homework assignments in mathematics. We focus our attention on tutoring exchanges that concern related rates problems, a topic taught in introductory calculus that is often difficult for students. From social theory, the bystander effect has been used to explore online participation between members of a classroom. We propose a variant of the bystander effect in order to account for tutor participation patterns in online exchanges between anonymous participants. The Good Samaritan effect, named to capture the spirit of volunteers who come to the aid of strangers in distress, has four underlying mechanisms: self-awareness, social cues, blocking/inviting, and responsibility. The way each of these contributes to participation is discussed.

Introduction

Heroism and helpfulness have long been a source of intrigue for sociologists, psychologists, and anthropologists. Indeed, Darwin's theory of evolution was not restricted to physical characteristics of individuals but extended to behavioral characteristics of a group. According to this view, human kindness could have evolved as a result of lethal warring between neighboring groups as unity and cohesiveness triumphed over division and discord. A century later, William Hamilton (1964) provided an explanation of how generosity can evolve and outlined its fostering conditions. More recently, as technology itself has evolved, evolutionary biologists have begun to explore the possibility of a genetic underpinning for friendliness (Judson, 2007).

Without taking a stance on the "origin of kindness," we would like to draw attention to an environment in which kindness abounds. The purpose of this paper is to propose a lens for understanding patterns of participation in an environment that exists expressly for the purpose of providing help to those in distress – educational distress due to homework assignments. Students from across the world who face difficulties, reach impasses, or who simply wish to confirm their understanding of select problems now seek help in free, open, online homework forums. These forums are staffed by volunteer tutors who recognize that they are in a position to provide homework assistance to students and are willing to donate their time, energy, and knowledge to this cause. Access to such forums depends only on the presence of an Internet connection, which allows participation (both help-seeking and help-providing) from a large sector of the population. We wish to understand the mechanisms that contribute to the helpfulness proffered on these sites.

Because calculus, and mathematics in general, is universally known to cause high levels of student anxiety and success in such a course often depends on the completion of homework assignments, we chose to explore the issue of helpfulness in a free, open, online, calculus homework forum. We selected a challenging and intricate mathematical topic, namely related rates, as the context for investigating tutor participation patterns. Finally, in order to observe complex patterns of participation that might arise between multiple tutors, we chose to focus our attention on forums that allow any member to respond to queries (Spontaneous Online Help, or SOH), rather than forums that assign incoming queries to a select tutor (Assigned Online Help, or AOH).

The research reported here is part of a general research program to explore open, online homework help forums (van de Sande & Leinhardt, 2007a, 2007b). The questions investigated include: What are the effects of different site participation structures? Do these sites promote instrumental help-seeking? How do these sites constitute a learning community? How can we characterize the complexity and quality of the exchanges? In this paper, we propose a social psychological lens for examining participation patterns in open, online homework forums, namely the Good Samaritan effect. We draw on research that uses a well-established social psychological phenomenon, the bystander effect, as a way of characterizing student participation patterns in online discussions.

The Good Samaritan effect

The finding that individuals are less likely to offer assistance in an emergency when other witnesses are present has been termed 'the bystander effect' (cf. Latané & Darley, 1969; 1970). Although classroom events are generally not perceived as crises or emergencies, Hudson and Bruckman (2001) found that the bystander effect provides a useful lens for explaining differences in face-to-face and online patterns of student

participation for discussions in foreign language instruction. The same four mechanisms that fuel the bystander effect in emergencies (self-awareness, social cues, blocking, and diffuse responsibility) contribute to the behavioral differences of students in the two instructional settings (see Table 1).

Our study of tutor participation patterns in open, online, homework forums has led us to posit a corresponding effect, that we term the Good Samaritan effect. The biblical account of the Good Samaritan, who overlooked cultural differences and provided aid to a complete stranger in desperate need, is legendary. While recognizing the obvious differences between the details of this account and the educational context we are exploring, we find the characterization of a volunteer helping those in distress appropriate. As Hudson and Bruckman (2001) emphasize with respect to the bystander effect, it is important not to reify the notion of the effect and attribute causality. Similarly, we do not argue that the helpful behavior we see in these online forums is *caused* by the Good Samaritan effect. We propose rather that the Good Samaritan effect may provide a useful way of making sense of tutor participation in a particular environment and has potential for informing the design of tutoring systems. Table 1 summarizes the four mechanisms that contribute to the Good Samaritan effect and contrasts these with the mechanisms that underlie the bystander effect.

Table 1. The Good Samaritan effect contrasted with the bystander effect.

	The bystander effect	The Good Samaritan effect
Self-awareness	Individuals do not participate because they do not want to appear foolish in front of others.	Individuals participate because they want to appear helpful in front of others.
Social cues	Inactivity of others is taken as a cue and discourages participation.	Activity of others is taken as a cue and encourages participation.
Blocking/Inviting	Action of one bystander blocks others from taking action for fear of worsening situation.	Action of others encourages individual to take action in hopes of improving situation.
Responsibility	Each individual feels only limited responsibility for negative consequences of inaction.	Each individual feels substantial responsibility for negative consequences of inaction.

Methods

Vocabulary

There is a vocabulary associated with interaction in online environments that we have adopted for our discussion of online tutoring. A *post(ing)* is a contribution that is published on the site, either to initiate a discussion or in response to another's contribution. As in verbal discussions, participants generally take turns contributing to the conversation. The set of contributions pertaining to a single request for help constitute an *exchange* or *discussion*, sometimes referred to as a *topic* or *thread*.

Site

For our investigation of tutor participation patterns, we chose a representative SOH site. FreeMathHelp.com is an advertisement-supported mathematics help portal established in 2002 by Ted Wilcox, an enterprising high school junior. In addition to the discussion forum, the site includes lessons, games, a graphing utility, and worksheet pages. There are nine homework help forums, organized by subject area (such as algebra, differential equations, calculus). Forum members can contribute or respond to these postings and have access to user profiles that include self-volunteered information on occupation, residence, contact information, as well as amount of discussion board activity. Each member is characterized by total number of contributions to distinct threads: new (0-49), junior (50-249), full (250-999), senior (1000-2499), elite (more than 2500). There are several elite members who have contributed to more than 2500 threads, four of whom have contributed to more than 4000. Each forum has assigned moderators who may lock topics and move or delete postings. In addition, members can edit their own contributions after they have been posted: If this is done *after* the member has logged off of the forum, then a message is appended to the altered contribution: "Last edited by [member] on [date and time]; edited [number] times in total." If editing takes place *while* the member is still logged on to the forum, then there is no official evidence of the modification although the general practice is to indicate that the contribution has been edited.

The prescribed etiquette for participation is located in a "sticky" that is the lead posting within each help forum. This covers administrative issues (e.g., posting to an appropriate category) and politeness (e.g., patience while waiting for response). In addition, there are three rules that specifically address the content and framing of posts: include problem context ("Post the complete text of the exercise"), show initial work ("Show

all of your work [including intermediate steps that may contain errors]"), and attend to clarity ("Preview to edit your posts [to minimize errors]").

The computer window for constructing posts contains traditional icons for highlighting text (e.g., italics, boldface, underlining, and font size and color), inserting material (e.g., external links and images), and organizing text (e.g., forming lists). A large selection of graphic "emoticons" (faces) is available for expressing emotions and attitudes (such as gladness or perplexity). In addition, there are format capabilities more specific to mathematical discussions since it is tedious and often impossible to create mathematical symbols and expressions using keyboard characters. Using LaTeX, a document preparation system designed to typeset mathematical text, participants can use command strings and code to produce mathematical symbols (such as ∞) and vertical expressions (such as $\frac{dy}{dx}$). In order to encourage the use of this software, FreeMathHelp includes a tutorial for LaTeX, as well as a link to a free equation editor that generates the LaTeX code, which, although powerful, can be difficult for the novice. It is important to note (particularly with respect to our discussion of related rates problems) that there are no drawing tools available, so diagrams must be externally created and inserted as images or text-based (e.g., pieced together using ASCII characters).

Sample

In order not to interfere with existing participation patterns, we intentionally chose a purely observational, non-intrusive approach for the investigation. Because the tutoring exchanges in this site are open to public observation, we chose to cull existing information that reflects social interaction, rather than risk disrupting member participation.

As a context for investigating participation patterns, we selected the mathematical topic of related rates. Related rates problems represent a practical application in calculus instruction and are traditionally used to illustrate implicit differentiation and show the derivative as a rate of change. These problems are usually presented as word problems in which the rate of change for certain quantities is given and the rate of change of related quantities is sought. The following is an example of such a problem:

> Water is leaking out of an inverted conical tank at a rate of 500 cubic centimeters per minute at the same time that water is being pumped into the tank at a constant rate. The tank has height 10 meters and the diameter at the top is 4.5 minutes. If the water level is rising at a rate of 26 centimeters per minute when the height of the water is 1.0 meters, find the rate at which water is being pumped into the tank in cubic centimeters per minute.

The problems provide a good context for studying participation patterns since they are challenging for students (and therefore the subject of frequent queries to the forum), require a multiple-step solution process (and are therefore more complex than the implementation of a simple algorithm), and can be solved using different perspectives (whether the general chain rule or the functional relationship is the focus of the model). In sum, these problems are sufficiently complex to generate discussion and present opportunities for tutor participation.

We made use of the search mechanism in FreeMathHelp.com to identify tutoring exchanges on related rates problems by searching for the keywords "related" or "rates" or "rate." This search captured postings that involved related rates but did not contain the exact phrase "related rates," as well as problems that involved rates (but not related rates per se). The 433 postings resulting from the search were then examined for relevancy to the related rates concept. 254 were classified as false hits (i.e. not pertaining to related rates) and were discarded. From the remaining exchanges, 176 were classified as discussions of solutions for related rates problems.

Population

FreeMathHelp.com features participants' profiles that include information on occupation, location, and interests. Whereas many student participants do not provide this information, the participating tutors in the calculus forum are self-reportedly students, educators, professionals, and retired mathematics professors. The most frequent tutor participants are from the U.S., although there are representatives from Canada and New Zealand as well.

Most participants of open, online tutoring forums select names or "handles" (such as *ihatecalc* or *Skeeter*) that do not disclose personal information (location, knowledge level, etc.), and we refer to such participants using these self-designated handles.

Although some tutors and students post more frequently, numerous tutors and students frequent MathHelpForum.com. Our sample contained exchanges between 116 different students, with responses from 31 different tutors.

Results

Self-awareness

Self-awareness is an individual's conscious awareness of the judgments of others about that individual. That is, self-awareness is based on an individual's perception of the thoughts and attitudes of others. In the exchanges we observed, we saw evidence that tutors patterned their participation according to their perception of how helpful they might, in consequence, appear to others. This feature of the Good Samaritan effect was manifest when tutors vied to be "the first on the scene," offered reassurance to students, and responded to criticism.

Given the average latency of the first response to a query (only two hours and 16 minutes in this sample), the influence of self-awareness of tutors on participation is especially noteworthy. In order to be the first to respond, a tutor must be extremely attentive to incoming postings and efficient at preparing responses (even to lengthy, involved problems such as related rates). Yet being viewed as a quick tutor was clearly a determining factor in tutor participation. Thus, when a tutor discovered that another tutor had responded more quickly to a student's request for help, it was not unusual to find a quip, such as "You beat me, Soroban!," appended to the response. It is also a mark of self-awareness that, even in cases in which two responses were extremely similar, tutors chose to leave a record of their help and not remove their contribution.

Another indication that self-awareness shaped tutor participation came from tutors' reassurances to students. For example, when one student was involved in a lengthy back-and-forth exchange with a tutor, the student ended one posting apologizing: "Thanks for your help! Sorry to keep bothering you!" The tutor replied, "You're not bothering me. I wouldn't be here if I were bothered." Tutors made it clear that they were participating in order to be helpful and wanted students to be aware of this. Thus, tutors often encouraged students to continue a dialog by ending a posting with an invitation, such as "Write back if you need more help." One tutor, *Gene*, routinely included the message "I hope this helps. If you need more, come back with a post-reply" with his signature.

It is worth noting that tutors' sense of self-awareness extended beyond efforts aimed at receiving public recognitions of thanks for their helpfulness and involved the desire to be sincerely perceived as helpful. For example, when a tutor, *tkhunny*, and two other tutors responded to a student and only they were thanked by the student ("galactus and soroban- thank you very much on your thorough replies"), *tkhunnny* posted a reply to the exchange: "That really hurts." In response, the student apologized to *tkhunny* and made explicit mention of *tkhunny*'s contribution: "tkhunny- i'm very sorry. thank you for pointing out that the angle is fixed." The fact that this explicit expression of appreciation was clearly not *tkhunny*'s intent was evident in his/her reply to the student: "No worries. I'm just messing with your head." Thus, although tutors may wish to receive recognition for their helpfulness (and some discussion forums have instituted a packaged "thank you" message to encourage students to express appreciation), the sense of self-awareness stems from a larger desire to appear helpful.

Finally, there was evidence that tutors wanted other forum participants to view them as competent sources of help as providers of accurate mathematical information and clear pedagogical expositions. When an error made by a tutor was discovered (either by the author or another forum participant), the tutor who had erred often edited the posting to replace the incorrect information with a correct solution formulation. In many cases, the tutor not only edited their postings to make them mathematically correct but also publicly acknowledged their mistake: for example, after one student queried a tutor's solution, the tutor replied, "I changed my post. I had an error. I differentiated incorrectly." Thus, tutors appeared to want the helpfulness of their actions (providing accurate information as well as a willingness to amend contributions) to be part of the public record.

The following exchange shows how a tutor responded when criticized by a student for being unhelpful. Although such exchanges were not common, the interaction reveals how self-awareness influences the participation of both tutors and students in this environment:

Subject: please help Author: matt Posted: Mon Nov 14, 9:02 pm Status: Junior Member	the question is. A car traveling at 40 ft/s crosses a bridge over a canal 10s before a boat traveling at 20 ft/s passes under the bridge. the canal and the road are straight and at right angles to each other. At what rate are the car and boat seperating 10s after the boat passes under the bridge. THis is how I did it but it turned out worng. First I made a right triangle. Sinse the car was traveling at 40 ft/s and would travel for 30 sec I multiplied them to get 1200. I did the same for the boat and got 400. I then used the pathogream theorem to get the distance to be 1264.9. I then differentiated the theorem to get X dx/dt + Y dy/dt = Z dz/dt. I then plugged the numbers in and got dz/dt to equal 38.58 and it is the wrong answer.

Author: Eliz Posted: Mon Nov 14, 9:05 pm Status: Elite Member	matt wrote: "...Sinse the car was traveling at 40 ft/s and would travel for 30 sec...." Your general methodology looks good, but where are you getting the thirty seconds?
Author: matt Posted: Tue Nov 15, 12:08 am Status: Junior Member	because it had been traveling for 10 seconds longer but is that correct?
Author: Eliz Posted: Tue Nov 15, 12:16 am Status: Elite Member	matt wrote: "because it had been traveling for 10 seconds longer but is that correct?" Because *what* had been travelling longer than *which*? Is *what* correct? The thirty seconds? No.
Author: matt Posted: Tue Nov 15, 1:36 am Status: Junior Member	Im not trying to be rude but I do not appreciate the way that you answer the questions that I ask. Please, if you are not going to answer them dont make me sound stupid. I stated right in thr problem that the car had been traveling faster. You are always the one who responds to my questions but you never answer them. So please stop.
Author: Eliz Posted: Tue Nov 15, 1:56 am Status: Elite Member	I never argued with the stated rate of the car; I'm sorry I somehow gave you the impression that I thought you'd copied the exercise incorrectly, and would have no reason to think that you had. You had asked where you had gone wrong in working the exercise, I complimented your methodology and gave you a hint (how did you go from "10 + 10" to "30"?) to help you find the slight error. I apologize.
Author: matt Posted: Thu Nov 17, 1:06 am Status: Junior Member	no problem I found the answer to the problem, and the mistake. Sorry I became frustrated.

The tutor, *Eliz*, responded to *matt*'s proposed solution by complimenting his "general methodology" but, at the same time, hinting that there was an error: "…but where are you getting the thirty seconds?" After *matt* responded with a justification "because it had been traveling for 10 seconds longer", *Eliz* criticized its vagueness: according to the problem statement, the car had indeed been traveling for 10 seconds longer than the boat, but this information does not provide an account for *matt*'s use of 30 seconds in the solution. Instead of more closely examining the origin of the 30 seconds, *matt* responded with frustration directed at *Eliz*'s lack of helpfulness: "…I do not appreciate the way that you answer the questions that I ask." Following this public denouncement, *Eliz* continued helping *matt* discover his mistake with a more explicit hint ("how did you go from '10 + 10' to '30'?") and apologized, asserting that the intent of her contributions was "to help you find the slight error." The end result of this exchange, following *matt*'s apology in turn ("Sorry I became frustrated"), was a picture of *Eliz*, trying earnestly to be viewed as helpful by other forum members (including *matt*) and *matt* trying not to appear to others as belligerent.

Social cues

In addition to the desire to appear helpful, tutors also responded to cues from others – tutors as well as students – that served as encouragements to participate. Often tutors cued other tutors "by name." For example, a tutor, *galactus*, ended one of his contributions with "Soroban? Whatcha think?," a direct invitation for a fellow tutor to participate in the exchange. Although students did not generally direct queries to a particular tutor (e.g., by name), they did provide cues that encouraged increased participation. When one tutor's response was not productive, a student might request additional help. For example, when a tutor, *tkhunny*, provided a response that was not helpful for the student, the student replied: "still unclear. could you or someone else explain it in a different way." In this case, two other forum tutors responded to this cue and provided the student with additional help. Participation, in both cases, was directly cued by requests from others.

There were also less direct cues that may have influenced tutor participation. For example, it was not uncommon for tutors to compliment fellow tutors (e.g., "Nice job!"), especially following the introduction of a solution that reflected an alternative perspective or showed particular insight. This positive feedback, together with the expressions of thankfulness from the students and the politeness with which errors and disagreements are handled, can be seen as cues that stimulate tutor participation.

One of the most distinctive features of this online forum as a learning environment was that disagreements and evaluations were invitations to further participate. As the following exchange illustrates,

instead of treating expressions of doubt as a *negative* cue to withdraw participation, tutors responded to disagreement in a *positive* manner:

Subject: Another related rate Author: sigma Posted: Sat Feb 25, 1:45 am Status: Junior Member	Just had this one on an exam. The surface area of a cube is increasing at a rate 4 meters squared/sec. How much is the volume of the cube increasing when the length of the cube is 10? So a picture of a cube with a side labeld as 10. Then figuring out what rates I have and what I needed, there's what I did. Am I right? I don't think so. So a picture of a cube with a side labeld as 10. Then figuring out what rates I have and what I needed, there's what I did. Am I right? I don't think so. dsa/dt = 4 m^2/sec dv/dt = ??? da/dt = ??? ⇒ s a = 6 a ⇒ dsa/dt = 6 da/dt ⇒ 4 = 6 da/dt ⇒ da/dt = 2/3 ⇒ v = a^3 ⇒ dv/dt = 3 a^2 da/dt ⇒ when a = 10x10x10 = 1000, ⇒ dv/dt = 3(1000)^2 (2/3) ⇒ dv/dt = 1000^2 (2) ⇒ dv/dt = 20,000,000 !!! Dear god I messed up on this question! How do you figure out related rates involving cubes? One of the only types of questions we did not go over before the exam. The only real probelm is I couldn't remember what the surface area or volume of a cube was (the formulas). I semi guessed the surface area was equal to 6 times the total area because a cube has 6 sides and that the volume of a cube is equale to the area cubed but then again, I don't think thats right. Then trying to figure out how to relate surface area to volume I could not remember.
Author: galactus Posted: Sat Feb 25, 2:32 am Status: Elite Member	Let's give this a try sigma. [Original contents of this posting were deleted by galactus and replaced with the following text.] Sorry for the flub up. After I posted I thought something was amiss, but it was too late to log back on. [Last edited by galactus on Sat Feb 25 10:46 am; edited 1 time in total]
Author: sigma Posted: Sat Feb 25, 5:10 am Status: Junior Member	In other words, this has nothing to do with the area at all. I almost had the equations set up right for surface area and volume. Oh well, half to quarter marks I guess. Just for fun (or a redundant question) galactus, if you were marking this question and the question was

	worth 8 marks, how many marks would you give me for my work?
Author: daon Posted: Sat Feb 25, 6:39 am Status: Full Member	galactus, I'm curious how you've done this... Maybe if you explained your steps a bit more clearly? Especially the 3(S/6)dS/dt. Not sure where that came from... Thanks.
Author: Gene Posted: Sat Feb 26, 8:35 am Status: Elite Member	I'm not sure, LaTex looks so convincing! I would do it as $S=6x^2$ $dS/dt = 12x\ dx/dt = 4$ $dx/dt = 1/(3x)$ V=x^3 dV/dx =3x^2 dV/dt = dV/dx*dx/dt = 3x^2*(1/3x) = x _____ I hope this helps. If you need more, come back with a post-reply. Gene
Author: galactus Posted: Sat Feb 25, 2:51 pm Status: Elite Member	I'm back to fix my previous mistake. I made a bad substitution. Find dV/dt given dS/dt = 4; S = 6x^2; V = x^3; x=sqrt(S/6) V= (sqrt(S/6)^3 = (6S)^(2/3)/216 dV/dt = 6^(3/2)sqrt(S)/144 * dS/dt = sqrt(6S)/24 = x/4 * dS/dt x/4 * dS/dt = (10/4)(4) = 10 m^3/sec This is what I was getting at originally and messed up. I believe it agrees with your more efficient method, Gene.

In this exchange, *galactus* was the first tutor to respond to *sigma*'s query. However, an error in *galactus*'s response was subsequently caught by two other forum tutors, *daon* and *Gene*. It is notable that *daon,* who had a lower status in the forum (full member), appeared comfortable questioning a member of higher status, *galactus* (an elite member): "I'm curious how you've done this… Not sure where that came from…". Together, these two objections were a cue that led *galactus* to further action: s/he removed the incorrect solution, posted an apology in its place ("Sorry for the flub up."), and later returned to the exchange and posted a revised solution: "This is what I was getting at originally and messed up. I believe it agrees with your more efficient method, Gene."

Blocking

Instead of blocking action, the action of others in this online forum appears to stimulate actions aimed at providing further help using multiple voices as well as acting in concert. Following the contribution of one tutor in response to a student query, other forum tutors posted alternative methods or perspectives in order to help the student understand the problem. For example, after tutor, *pka*, had provided initial help to a student, *soroban* posted a reply that contained an alternative way of viewing the problem situation, prefacing his/her presentation with: "pka's suggestion is the best: the Law of Cosines. I would apply it differently." This activity was not only evident when it was obvious that previous help was ineffective (e.g., the student expressed continued confusion) but reflected the general tendency of participating to tutors to help students by producing alternative ways of viewing and solving problems.

Tutors also worked in concert, for example by following up on each other's actions. For example, after a student responded to help from *Eliz*, another tutor, *wjm11*, joined the exchange: "Eliz has steered you quite close. Here's a bit more: …" The contributions of the first tutor in this case, stimulated a second tutor to participate and provide further assistance.

Diffuse responsibility

The response rate and initial response latency in the forum speak to the degree of responsibility felt by forum participants for the consequence of inactivity. In our sample, there was only one unanswered query, and the average latency for an initial response was 2 hours and 16 minutes. One gets the sense that participating tutors feel jointly responsible for providing students with quality help delivered in a timely fashion. This sense of duty is also evident from the apologies tutors offer for delays in response. In one memorable posting from a different sample, a tutor detailed an encounter with a deer that smashed up his car to explain why he was prevented from posting to the forum at an earlier time as he had wished.

Discussion

Socially altruistic behavior is a common characteristic of virtual communities where individuals join together to meet the needs of the community. For instance, many wikipedia.org participants voluntarily commit considerable amounts of their time, effort, and expertise to produce a product (a reference) that is intended for the public good. Free, online, homework help forums are instances of virtual communities in which the defining goal or purpose is to respond to requests for help from unknown individuals (students). The "product" in this case is a service, and one that addresses a vital need in the educational system. Without this service, many students may not have the opportunity to engage in mathematical conversations outside of the classroom, much less to participate in discussions with "experts."

In this paper, we have drawn on research in online instructional participation between participants who are familiar with one another and extended this work to anonymous participation. We propose that the Good Samaritan effect – named to capture the spirit of individual volunteers who come to the aid of strangers in distress - provides a useful lens for examining the behavior of tutors in free, open, online, homework forums. We observed how mechanisms analogous to those that underlie the bystander effect (self-awareness, social cues, inviting, and a sense of responsibility) contribute to patterns of participation in such a forum. The tutoring communities that we have observed are rife with displays of altruistic behavior and exploring this behavior and its consequences is at the heart of our research efforts.

The Good Samaritan effect offers a new way of looking at volunteer efforts in educational settings and may also shed light on the design of tutoring programs. How can a tutoring environment be supported so that participants are enthusiastic and readily contribute, question, challenge, and revise mathematical ideas? Characteristically, university-sponsored academic help centers are arranged so that individual tutors "man" tables and incoming students select a table based on space availability. This arrangement encourages students to dialog with a single tutor during a visit and, at the same time, discourages tutors from interacting with one another. The Good Samaritan effect calls this design into question by suggesting that help can, in some conditions, be contagious. The research reported here represents part of our effort to understand complex social interaction in an educational setting. Clearly, much remains to be done.

References

Hamilton, W. D. (1964). The Genetical Evolution of Social Behavior. II. In George C. Williams (Ed.), Group Selection. Chicago: Aldine Atherton, Inc.

Hudson, J. M. & Bruckman, A. S. (2001). The bystander effect: A lens for understanding patterns of participation. *The Journal of the Learning Sciences, 13*(2), 165-195.

Judson, O. (2007). The Selfless Gene. *The Atlantic*, *300*(3), 90-98.

Latané, B. & Darley, J. M. (1969). Bystander "apathy." *American Scientist, 57,* 244-268.

Latané, B. & Darley, J. M. (1970). The unresponsive bystander: Why doesn't he help? New York: Appleton-Century-Crofts.

van de Sande, C. & Leinhardt, G. (2007a). Help! Active student learning and error remediation in an online calculus e-help community. *Electronic Journal of e-Learning. 5*(3), 227-238, available online at www.ejel.org

van de Sande, C. & Leinhardt, G. (2007b). Online tutoring in the Calculus: Beyond the limit of the limit. *Éducation et Didactique, 1*(2), 115-154.

Acknowledgments

This research was partially supported by a grant from the William and Flora Hewlett Foundation.