The Effects of Conversations with Regulars and Administrators on the Participation of New Users in a Virtual Learning Community

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Abstract: We analyze new users' participation rates on MOOSE Crossing, a collaborative educational environment. New MOOSE Crossing users who conversed with regulars or administrators soon after joining are found to exhibit more social activity and stay involved with MOOSE Crossing longer than new users who did not. We find regulars to be better at eliciting participation than administrators, but also note a synergistic interaction between the groups.

MOOSE Crossing

MOOSE Crossing is a text-based, multi-user, educational online environment (MUD) for children (Bruckman, 1997). The environment and its kid-friendly programming language, MOOSE, were developed to provide a space where children could learn to program and practice creating writing in a social environment. A range of activities is available to MOOSE Crossing users, including exploring different in-world areas, communicating with others, and interacting with in-world objects and places.

MOOSE Crossing came online in 1995 and has been active for over 10 years. Over this time it has attracted over 1000 users. Its target demographic is children between the ages of eight and thirteen, but it has also attracted younger children, older teenagers, and adults. Its younger users come from a broad range of backgrounds – home-schooled children, groups of children in traditional classroom settings, and children enrolled in after-school programs. Project developers and others involved in creating and maintaining MOOSE Crossing also play an active role in its community. These system administrators are often logged in, and work to keep order, welcome new users, and provide help on using and exploring the environment.

Most young users of MOOSE Crossing are self-motivated, and come and go as they please. Among these users, there is a highly skewed distribution of participation and achievement (Bruckman, Edwards, Elliott & Jensen, 2000). A few strongly motivated individuals spend a great deal of time logged in – creating objects, exploring, and interacting with others. Most users, however, are low- or medium-frequency users – logging in only a small number of days and programming few, if any, in-world objects.

Participation in MOOSE Crossing

Our analysis of participation on MOOSE Crossing comes from the availability of approximately 3.7 GB of logs recorded by the system over the period of time between October 1995 and December 2003. During this time, 1204 users logged in to MOOSE Crossing, including kids, system administrators, and other adults. Of these, 856 were minors under the age of eighteen (most distributed between the ages of eight and thirteen). Everything that happens on MOOSE Crossing is logged, with written consent from parents and assent from kids.

For each MOOSE Crossing user, we compiled a list of statistics: the total number of days the user had logged into the service, the total number of communication commands the user had used, and a chronologically ordered list of every conversational partner the user had. As we compiled metrics of participation for MOOSE Crossing users, we looked for its "regulars" – highly active, social kids who were well-known to the other players, and to the administrators (c.f. Oldenburg, 1999). We picked the ten users with the highest numbers of days logging in to be our regulars. These users were also some of the top socializers, as measured by numbers of conversational partners they had and total numbers of communication commands they entered. Each of the users on this list was also recognized as an important participant by one of the study's co-authors, a long-time MOOSE Crossing administrator. Table 1 shows a comparison of the activity levels of different users we consider in this paper. Since the distribution of the data is highly skewed, we find that the mean and median together provide a better description of the data than either alone. We take our two metrics of participation – the number of communication commands

entered, and the total number of days logging into MOOSE Crossing – to be valid proxies for the measure of a user's overall participation. While there certainly isn't a direct, formulaic relationship between our proxy metrics and some measure of "learning," we do suggest that an increase in one or both metrics is desirable.

Table 1: Activity summary for different MOOSE Crossing users.

Group	N	Communication Commands				Number of Days Logging In			
		Median	Mean (St Dev)	Min	Max	Median	Mean (St Dev)	Min	Max
Regulars	10	19653	24583 (19175)	8870	71322	555	670 (245)	397	1154
Other kids	846	20	377 (1327)	0	19724	4	22 (49)	1	393
Administrators	34	214	1816 (3822)	23	16641	130	194 (206)	1	994

Effects of Conversations on the Participation Metrics of New Users

We now examine the relationship between the first few conversations new MOOSE Crossing users participated in, and their eventual level of participation. In particular, we look at the make-up of new users' first few conversational partners, and how it correlates with the metrics of participation we gathered. Are users who initially encounter MOOSE Crossing regulars likely to have greater levels of participation, and if so, in what way? Were administrators, most of whom had the explicit goal of helping and encouraging new users, successful?

In our first set of analysis, we considered only the first three conversational partners of new users. We located the first time each non-regular MOOSE Crossing users were seen on the system, and recorded the first three users they conversed with. In total, 505 MOOSE Crossing users had at least three conversational partners, and we divided these into four groups: those whose first three conversational partners included at least one regular and at least one administrator (group RA, N=31); those whose first three conversational partners included at least one administrator but no regulars (group A, N=86); those whose first three conversational partners included at least one regular but no administrators (group R, N=113); and those whose first three conversational partners included neither regulars nor administrators (group X, N=275). A breakdown of these groups' activity metrics is given in Table 2.

Table 2: Activity metrics for kids with at least three conversational partners.

Group Name	N	Communication Commands		Number of Days Logging In	
		Median	Mean (St Dev)	Median	Mean (St Dev)
X	275	41	446 (1611)	6	26 (53)
A	86	58	824 (1675)	10	39 (54)
R	113	138	733 (1560)	21	47 (70)
RA	31	305	1312 (2296)	18	46 (75)

Trends in Table 2 suggest that talking to either administrators or regulars soon after joining MOOSE Crossing is linked with an increase in participation, both in terms of sociability and the length of time eventually spent on the system. Talking to at least one regular seems to bring about a significant increase in these metrics – the means and medians of both metrics for groups R and RA are much higher than that of group A. Applying an ANOVA and Tukey's HSD post-hoc analysis showed that members of groups A, R, and RA used significantly more communication commands and logged in for significantly more days than members of group X ($p < 0.05$). Also, members of group RA used a significantly more communication commands than members of group A ($p < 0.05$).

To further investigate these effects, we split up new users based on the exact numbers of administrators and regulars they talked to. For this analysis, we considered all users who had at least five conversational partners. There were 457 users who fit this criterion, and we divided them into groups based on how many administrators and regulars there were in their first five conversational partners.

We found that, compared to users who talked to neither administrators nor regulars, users who talked to any number of regulars, but no administrators, had increased participation as measured by both communication commands entered and the number of days logging into the system ($p < 0.05$); the more regulars a new user talked

to, the greater the increase. Talking only to administrators also increased participation over talking to neither regulars nor administrators ($p < 0.05$), but to a lesser extent than talking only to regulars. Here, too, more seems to be better, as users who talked to two administrators performed better than those who talked to only one. Those users who talked to *both* administrators and regulars, however, consistently perform as well as or better than the users who talked to only regulars or only administrators.

Discussion

Invariably, new MOOSE Crossing users who interacted with highly active, social MOOSE Crossing residents – its regulars – were likely to show higher levels of participation, both in terms of the amount of communicating they did, and in terms of how many days they logged into the environment. The trends also suggest that talking to a greater number of regulars elicited more participation – the means and medians for both of our metrics of participation consistently increase as users talk to more regulars. Regulars are especially good at eliciting social participation from the users they meet – the medians for all groups where a user talked to at least one regular are high, suggesting that most of the kids in these groups engaged in long chat sessions. We note from experience that regulars are often excited to talk to other MOOSE Crossing users, and other users (especially new users) come to them for help with various aspects of the system. Often, this friendliness also results in the new users spending more time logging into MOOSE Crossing to play and socialize with her new friend(s) – in all groups whose users talked to regulars, when the mean and median of the number of communication commands are high, the mean and median number of days logged into MOOSE Crossing is correspondingly high.

Talking to administrators is also beneficial – most trends in the data point to this conclusion. On their own, however, administrators don't seem to be as good elicitors of participation, especially of social participation (measured by number of communication commands), as regulars. Administrators aren't as likely to immediately try to friend new MOOSE Crossing users: they are older and often busy with their own work (including back-end maintenance of the site). They don't hang out or look for opportunities to chat as much as the regular kids do. They do, however, serve the important role of providing supervision, encouragement, and technical help to new users.

The result that we found most interesting is the apparent synergistic effect that talking to both administrators and regulars has on the participation metrics of new MOOSE Crossing users. Groups whose members conversed with both administrators and regulars within their first few conversational partners consistently performed well, as judged by both the number of communication commands they entered and the number of days they logged in. The types of social support provided by administrators and regulars seem to be complementary, and together strongly engage and motivate new users.

Conclusion

Practically, the results presented here speak to the importance of supporting, fostering, and rewarding an online community's regulars. In synchronous, self-motivated, collaborative learning environments, like MOOSE Crossing, regulars often act as an unofficial welcoming committee and support desk for new users. In these spaces, other human users command much more attention than tutorials, on-line help, or any other inanimate form of support provided by the system's designers and organizers. The more we understand the informal support provided by regulars, the more we as designers of online systems can help support these key roles.

We encourage readers interested in an in-depth discussion of the issues presented in this paper to view the associated technical report (Medynskiy & Bruckman, 2007).

References

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