Sink or Swim: Understanding the Evolution of User Behaviors in an Online Educational Community

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Abstract: Online educational communities provide spaces for teachers to find resources, create instructional activities, and share these activities with others. Engagement with such online communities can be affected by how participants were initially recruited and supported. But what happens when these support and dissemination are removed? This study investigates the evolution of user behaviors after dissemination activities are completed. The results suggest that once dissemination activities ended, users' consumer behaviors continued while their contributor behaviors decreased.

Introduction

Teachers are increasingly turning to online resources to customize lessons, update their lesson plans, and provide additional materials to meet their students' varied needs (Charles & Rice, 2012). In tandem, tools have been developed to facilitate teachers' selection and usage of online resources, and to establish online educational communities (OEC) around these resources (Windle, 2000). In an OEC, teachers can engage in different activities, such as actively designing instructional activities with selected resources, voluntarily sharing their designed activities, or learning from others (Nonnecke, Andrews, & Preece, 2006).

Studies of the long term patterns of activity in OEC show that some communities exist and thrive with growing number of users, while other communities shrink with fewer users and less participation (Iriberri & Leroy, 2009). Research has suggested that appropriate support and dissemination activities (e.g., workshops) can well keep users' interests and encourage their participation, and thus enhance online communities' development (Schlager, Fusco, Schank, 2002).

Different user types have also been identified based on their practices in an online community: "lurkers" generally take a non-participatory role and simply view other members' contributions. "Non-lurkers" take on a more active role by creating and sharing their content within the community (Bishop, 2006). Clear understanding of the usage pattern trends for different users in an OEC, especially their behavioral changes during and after dissemination activities, will add to the knowledge of how to attract new users, to increase the loyalty of existing users, and to improve the overall health of existing communities (Panciera, Priedhorsky, Erickson, & Terveen, 2010).

The purpose of this study is to understand the evolution of teachers' behaviors based around a free, web-based tool called the Instructional Architect (IA.usu.edu) (Recker, 2006). Within the IA online community, teachers can access online resources to create, publish, and share instructional activities (called IA projects) while also viewing contributions from other teachers. In particular, this study aims to identify what types of behaviors in the IA community are most affected when dissemination activities end, thus providing suggestions for how to sustain OEC.

Research Design and Methods

This study addresses the following two research questions:

1. What were the usage pattern trends for *IA users* after dissemination activities ended (called the *no-dissemination period*)?
2. How did the *IA non-lurkers'* behaviors change between the *active-dissemination period* and the *no-dissemination period*?

The active-dissemination period (July, 2009 – June, 2011) refers to the time period with active support and dissemination activities (e.g., workshops) in the IA, while the *no-dissemination period* refers to the same length of time after dissemination activities ended (July, 2011 – June, 2013). IA's visitor traffic data were collected from Google Analytics and the IA database.

Results

RQ1: Usage trends for all IA users within the IA online community during the no-dissemination period are shown in Figure 1. As can be seen, IA usage continued despite the end of active dissemination activities. Also, note the trough in usage happened during the summer break when teachers had fewer teaching responsibilities.

RQ2: The non-lurkers can be actively involved in the IA online community in the following ways: logging in, creating IA projects, publishing IA projects, copying others' IA projects, and using online resources. Table 1 compares non-lurkers' behaviors between *active-dissemination* and *no-dissemination periods* in terms

of these five activities. As can be seen, non-lurkers show declines for all five activities, with the largest drop in the "number of IA projects copied from others" and the smallest drop in the "number of IA public projects created".
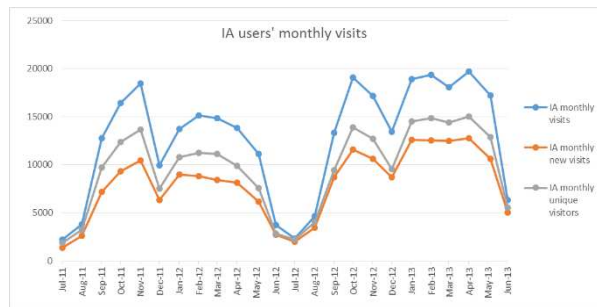

Figure 1. IA users' monthly visits during the no-dissemination period (July, 2011-June, 2013).

Table 1: A comparison of non-lurkers' monthly behaviors.

	Active-dissemination period			No-dissemination period			Percentage of change
	Mean	Median	SD	Mean	Median	SD	(%)
# of Logins	594.38	486.00	360.55	314.88	250.50	269.45	-47.02
# of IA projects created	263.13	239.00	152.38	181.33	137.50	171.53	-31.09
# of IA public projects created	92.58	82.50	64.85	81.46	49.00	95.15	-12.01
# of IA projects copied	51.13	54.50	36.76	19.83	8.50	28.05	-61.22
# of online resources used	803.46	698.00	497.10	455.42	350.50	408.96	-43.32

Conclusions and Contribution

This paper describes the differences in activity and behavior of users in the IA online community during and after active dissemination activities. With the end of active dissemination, users' consumer behaviors continued, which can be seen in the monthly visits data. However, users' contributor behaviors decreased, such as creating and sharing fewer IA projects. These results suggest that support and dissemination play a role in keeping non-lurkers' interest and loyalty. Future work will address the varying degrees of decline in non-lurkers' behaviors, examine lurker's behavior in more depth, and identify possible dissemination mechanisms to encourage active participation, thereby retaining the non-lurkers' interests and turning lurkers into non-lurkers.

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Acknowledgements