Using Social Network Analysis to Understand Online Homeschool Network Interactions

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Abstract: With the rise in Internet use in recent years, homeschoolers have been able to connect with each other across vast distances. This connectivity has opened avenues to various resources, and for ways to build and utilize social capital. This study provides a description of how one online homeschool network communicates, shares resources, and responds to the needs of its members through a social network analysis.

Introduction

Advances in information and communication technology have given homeschoolers more access to educational resources, such as lesson plans and curriculum, as well as social and emotional support, including online social networks and homeschool groups. These resources have prompted homeschoolers to redefine the experience – where once it was a mother with her children going through a textbook, now groups have collaborated to form co-operatives, virtual charter schools, and support groups. Not only do these new approaches to homeschooling challenge popular myths about isolated and unsocialized children (Basham, 2001) and weak or overly religious curricula (Apple, 2000), but they represent a new problem – information overload. Any time spent on an Internet search engine looking for educational resources and one is confronted with hundreds or thousands of sites offering lesson plans, activities, text and workbooks, games, videos, standards, assessments, and more. Given the vastness of the terrain, it is no wonder that homeschooling families have begun to self organize into online social networks. It would reasonably follow that these groups offer access to opinions about the quality of resources from others who are actually using them. While many researchers have studied the outputs of this connectivity, such as SAT scores (Belfield, 2002), and others have examined the motivational factors that led to homeschooling (Collom, 2005; Basham, 2001), there is scarce information on the structures of these networks, how successful ones operate, and how they may be replicated. This study seeks to fill the gap in this literature by applying social network analyses to explore how information is exchanged in a robust online homeschooling network.

Theoretical Underpinnings

Previous research has focused on the individual homeschool student specifically in academic accomplishment (Basham, 2001), and parental motivations for homeschooling (Collom, 2005). Even in studies of homeschooling organizations, such as Collom's (2005) research on a homeschool charter school, the dependent variable is individual achievement. As more homeschoolers organize into collaborative groups, it becomes increasingly important to study the group as the unit of analysis. Recognizing this need in other educational domains, for example in understanding teacher networks (Bidwell & Yasumoto, 1999), social network analytical tools have grown in popularity over the last decade. Social network analysis has been used to describe and illustrate the interactional patterns among groups of learners (Gloor et al., 2006; Yoon, 2008), with the goal of improving access to the group's resources. Gloor et al. (2006) studied intra- and inter-group emails sent by undergraduate students while working on a project to identify patterns in their communication structure that correlated with rates of performance. Similarly, Yoon (2008) used social network analyses in a middle school classroom during a curriculum and instruction intervention in order to determine the nature of information flow.

Methodology

This study focuses on one homeschooling group's online message board, which is used to share information among parents. Many in the group joined via a web search on homeschooling materials or support, which led them to both the message board and a voluntary weekly meeting at a local playground. There are approximately 150 members in this group who are active on the message board, and a small percentage of these members regularly attend the weekly meetings. The data source used for analysis of social network patterns is the message board in which over 2,000 messages were posted over four years,

from March 2005 to December 2009. A sample of 133 of these messages, posted by 34 members from September 1, 2009, through October 31, 2009, was analyzed for structural characteristics of interaction. This two month period was selected due to a surge of activity that appeared to coincide with the beginning of the public school calendar. A sociogram analysis of member participation was conducted to identify patterns of interaction around types of posts, such as announcements or requests.

Preliminary Findings

Initial results of analysis yield simple frequency statistics relating to types of posts and average lengths of threads. Announcements, the most common type of post, receive the lowest number of responses, and requests or questions receive the highest number. Within these categories there also appear to be several key members who respond in greater frequency and with more detail than other members. In Gloor's (2006) terms, this would be the network's COIN (Collaborative Innovation Network), which works because the members feel strongly connected to the work. Those who do not post as often, who tend to soak up the posts and work of others, would be the CIN (collaborative interest network). They benefit from the effort of the core members, and remain most often as lurkers. Examination of the types of posts, in relation to the centrality of members creating them, offers opportunities to better understand the movement of both information and status, such as the path from newcomer, or one who most often posts requests or asks questions, to veteran, or someone who is more likely to respond to requests or advertise services. More in-depth analysis is required and forthcoming with the goals of examining the qualities of individual posts (De Wever et al., 2006) and how those qualities impact response rates, as well as identifying levels of prestige, such as how posts from different members are responded to.

Potential Contributions

Understanding the structure and content of online homeschool networks through social network analysis can provide valuable information to members about how to increase participation to improve access to information. For example, with respect to COINs and CINs, the structure and content of communication patterns can be used to encourage more interaction from less active members. In terms of future research, understanding the structure of this group will allow for a better conceptualization of how access to resources is acquired and used within this group. In addition structural analyses will be combined with surveys and interviews to ascertain member motivations for, and satisfaction with, participating in this online network. This will allow for the implementation of interventions to improve the experience of homeschooling for members of these kinds of networks.

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