# Building Social Capital in Higher Education With Online Opportunistic Social Matching

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## ABSTRACT

Recently, colleges and universities have been forced to utilize distance learning. With students spending less time on campus, their sense of community may decrease because they would be less likely to participate in the community. This puts higher education commuter institutions at a disadvantage in terms of generating and maintaining social capital. The authors investigate the possibility to counter this disadvantage by actively promoting participation in a mobile online social network (OSN) supported by a context-aware notification and recommender system (NARS) to achieve opportunistic social matching, which mitigates information overload by considering each user's relational, social, and personal context as predictors of match opportunities. The results suggest that introducing a purposefully designed OSN has the potential to facilitate the creation of structural and relational social capital, but that it might not have an effect on cognitive social capital.

## KEYWORDS

Human-Computer Interaction, Mobile Application, Notification and Recommender Systems, Online Social Networks

## 1. INTRODUCTION

This study focuses on the design of a recommender system in an Online Social Network (OSN) and the potential effects that an opportunistic social matching application that uses push recommendations can have on a scholarly community. Informed by the Design Science approach of Hevner et al. (2004), the artifact design serves as a starting point for exploring the following questions: How would it affect the sense of community amongst the members of an OSN? In what ways would it affect the level of social capital in student and alumni communities? What would be the effect of such an app on the ability of students and alumni to harness the social capital that exists in their social network?

## 1.1. Problem Description

Higher education commuter institutions may have lower social capital because fewer students stay on campus. If students spend less time on campus, their sense of community (i.e., the feeling that one is part of a social structure) may decrease because they are less able to participate in the network. This is an especially timely concern given that colleges and universities have been forced to embrace online learning, which will increase the number of students who will participate in a scholarly community, yet with limited access to accrue the social capital benefits of that participation. Previous studies suggest that a properly deployed IT artifact can strengthen the sense of community in a higher learning institution (Ractham, 2008), that a strong sense of community will lead to an increase in social capital in a scholarly community (Suthers, Kar-Hai, & Joseph, 2009), and that this could further strengthen the intellectual output of that community (Tsai & Ghoshal, 1998).

As many universities become commuter institutions, information technology has stepped in to extend their geographical reach. Peter Drucker (1993) predicted that the traditional model of the university-as-a-residential-institution would quickly become an anachronism as colleges begin to deliver courses off-site via streaming content. As many educational institutions have been clumsily forced to universally adapt to remote learning in light of the ongoing COVID pandemic, learning to translate scholarly community to these new forms of social interaction is especially critical. Technology has the potential to extend an educational institute's sense of community beyond its physical brick and mortar structures to ensure that its social capital can still be leveraged by remote learners in the form of knowledge combination and exchange.

Though websites such as ResearchGate and LinkedIn share similar functions, the novel system design reported here focuses on a customizable app to build social capital within a single institution, with a high level of artifact mutability such that it can be modified and deployed at other higher education institutions with similar effects. Furthermore, whereas other universities have apps that provide similar services, their goals are usually geared more towards enabling simple social networking (Farrow & Yuan, 2011; Haythornthwaite & de Laat, 2012; Ellison et al. 2014), whereas this study's artifact aims to facilitate social networking with a stronger emphasis on academic, scholarly, and professional networking. Additionally, facilitating scholarly connections through social media networks open to those outside an educational institution's purview has inherent risks. Facebook has been criticized in recent years for the social, political, and psychological fallout of its online network (Feinstein et al., 2013; Sagioglou & Greitemeyer, 2014; Shakya & Christakus, 2017, Silverman, 2016). Snapchat is far too casual for use in an educational setting. LINE, Kakao, and WeChat do not possess cachet outside international student communities, and WhatsApp and (especially) WeChat possess security risks (Griffiths 2019) that should give any educational institution pause before adoption. Educational institutions may want to limit participation to a single online social network that they possess full administrative control over, and that is limited solely to students within that scholarly community without interference from outside.

The current study's design artifact, a mobile app named "Claremont Connection," was designed to connect alumni and facilitate professional transdisciplinary networking between alumni and current students at a higher education institution and to enhance the value in its social networks. The app was designed to facilitate the creation of new connections and strengthen existing ones, which could, in turn, increase the social capital of the alumni and students. It enables alumni to find other community members with similar research interests or complementary skills and to provide career opportunities or advancement for current students. A Notification and Recommender System (NARS) sends push notifications to users, notifying them of other students or alumni with similar research interests or of professional opportunities based on matched skillsets.

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