

Knowledge Networks in Higher Education

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INTRODUCTION

The theme of knowledge creation is approached by focusing on the link between creation of knowledge and the relations among actors. This article aims at conceptualizing and discussing knowledge networks in the field of higher education.

BACKGROUND

The role of social networks for the creation of knowledge has been studied outside the educational field, highlighting the crucial role of formal and informal networks in organizational learning by stimulating new knowledge and new practices (Ahuja, 2000; McGrath and Krackhardt, 2003). However, less is known about the role of social networks in the field of education. In fact, up to this point there is only one book published on social networks and education (Daly, 2010).

A social network is a collection of individuals (commonly called actors) and an enumeration of the relations (or ties) among such individuals (Kindermann, 2008). The term social network is depicted from Barnes' work (1954), when he used it to designate the social relationships found in a community in Bremmes, Norway. Since then, the term has been associated to many different types of relations among many different types of individuals. Contemporary networks, unlike local communities, are not only centered on place-based affiliation, but more based on niche cultural affiliations and knowledge communities. These new ways of sharing culture and knowledge have broad implications on the relations between production and consumption and the traditional sources of authority for culture and knowledge. Standards

are continuously being reshaped as networks have become the dominant cultural logic (Varnelis, 2008). "Today, network culture succeeds postmodernism. It does so in a more subtle way. No new 'ism' has emerged: that would lay claim to the familiar territory of manifestos, symposia, definite museum exhibits, and so on" (Varnelis, 2008, p. 149). As it happens in other spheres, universities are made of networked actors¹ and, thus, the cultures that emerge are varied.

In this networked society, the creation and production of knowledge and expertise rises the likelihood that current knowledge will be retained and multiplied in new knowledge and practices. Recent educational studies stressed the importance of strong social networks among teachers for the spread and depth of policy, reform, innovation and change implementation (Coburn and Russel, 2008; Moolenaar, Daly and Slegers, forthcoming; Penuel, Frank and Krause, 2007, Brown and Duguid, 2000; Chiffoleau, 2005; Carre et al., 1989).

Forman and Markus (2005), Drejer and Jorgensen (Drejer & Jorgensen, 2005), and Hkopic et al. (2002), have studied knowledge creation and the role of collaboration. They identified the need for further research on social network characteristics relating to the creation of knowledge in a collaborative research environment. Also Drejer and Jorgensen (2005), and Hkopic et al. (2002), have observed the need for further research integrating the domains of social networking and knowledge creation. These researchers recognized that although collaboration and interdisciplinary research are often recommended, there is still a lack of empirical or theoretical research that validates the role of network sociology in the context of knowledge creation. Forman and Markus (2005) also recognize the value of an area of further

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empirical quantitative exploration of their own existing qualitative research on this subject.

Moolenaar and Sleegers (2010) tried to find out more exactly to what extent the characteristics of teacher's social networks affect schools' innovative climate, when this is mediated by trust. The authors used a whole network approach, i.e., they focused on specific network characteristics, such as density, reciprocity and centralization, of the social network of the school team as a whole. Findings suggested that the density of the network related to work discussions was significantly associated with school's innovative climate and trust.

Diane Crane (1972) developed a seminal work in trying to understand where the knowledge learnt at universities come from. Who is responsible? Who should wield it? The author argues that the problem of the relationship between the internal structure of a particular cultural institution and the cultural products developed and accepted within has been neglected by the sociology of knowledge. The tendency to view social groups as abstract entities rather than as collections of individuals whose modes of interaction can be precisely observed was probably responsible for this gap. This task requires, as Diana Crane already pointed out back in 1972 (Crane, 1972), the analysis of the development of belief systems of these groups as well as sociometric analysis of the relationships between their members, of the relations between such groups and of the relations of such groups to the larger social structure. The development of social network analysis has been giving a relevant contribution to fill the gap identified by Crane.

In fact, the subsequent development of network theory represented an important contribution to deal with the issue of knowledge as it combined what is intuitively known with a growing body of network research suggesting that relationships within a system matter in enacting change, flows, diffusion strategies, implying both formal and informal networks of social relations that create nets of understandings, influence, and knowledge prior to, during and after any implementation of a change strategy (Daly, 2010).

Gamble and Blackwell (2001) defined knowledge as "a fluid mix of framed experience, values, contextual information, expert insight, and grounded intuition that provides an environment and framework for evaluating and incorporating new experiences and information. It originates and is applied in the mind of the knowers. In organizations it often becomes embedded not only in documents or repositories, but also in organizational routines, practices and norms". Embeddedness in social networks has been considered as a major cause of scientific achievement and scientists' behaviour (Crona & Parker, 2011; Gilsing, Nooteboom, Vanhaverbeke, Duysters, & Oord, 2008). The literature about academic knowledge focuses particularly on how actors' embeddedness within larger structures of co-authorship networks and collaborations in patents and projects is related to individual knowledge outcomes. Less is known about what properties of these networks affect knowledge creation. Knowledge creation studies have mainly focused on the influence of the networks on the efficacy and efficiency by which individuals transfer and apply knowledge (Botero & Cuartas, 2012; Cross, Parker, Prisak, & Borgatti, 2001; Fritsch & Kauffeld-Monz, 2008), but not on how they create new knowledge. This literature provides mixed evidence about the role of relational properties in knowledge creation and dissemination.

Knowledge creation on the other hand, and particularly social knowledge creation, refers to the knowledge that is increasingly created through interactions among the different members of a specific network (or a series of them). It is not only about input/output but rather about the relationship that the individual has with knowledge itself and how that relation is spread through his/her social relationships. Conceptually, creation is linked with creativity and it is known that creative people think and expresses themselves in a relational way (Quintás, 2003). Knowledge creation typically has the forms of ideas, practices, research papers and inventions (Phelps, Heidl, & Wadhwa, 2012), but also, we add, the capacity to create new

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