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Just plain peers across social networks: Peer-feedback networks nested in personal and academic networks in higher education

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ABSTRACT

Peer feedback (PF) is often referred to as a socially mediated learning process. Nevertheless, the surrounding social networks, within which PF interactions are nested, are often neglected. This study examines PF, personal, and academic networks in higher education to identify any peer centrality pattern. Additionally, the PF content is examined to identify any content-related pattern across PF networks. Participants were 47 master students in a German university. A subsample of 32 students, who voluntarily participated in two learning communities, so called Communities of Learning Practice (CoLP), was further examined in terms of PF networks and content of provided PF. Data were collected from social network questionnaires (cohort level) and video recordings of community events (CoLP level). Data analysis involved (a) contextual SNA of questionnaire data to identify participants' centrality in personal and academic networks, (b) SNA of video data to identify CoLP members' centrality in PF networks, and (c) content analysis of video data to identify the content of PF provision. Findings indicate a heterogeneous centrality pattern across networks and a homogeneous content-related pattern in the provided PF across CoLPs. This study aims to contribute to the reconceptualization of PF as a web of socially nested and multiplex learning interactions.

1. Introduction

From a social network perspective, learning constitutes a relational process that depends on and involves interactions (e.g., information exchanges, discussions, dialogic feedback, questioning) through an ongoing meaning negotiation process between individuals, who build a joint social learning experience (Haythornthwaite, 2008). The examination of social network interactions constitutes a prerequisite for comprehending how learners engage with each other towards jointly building a learning community (Haythornthwaite, 2008). By viewing learning as being socially constructed and mediated within learning communities, the embedded social relationships and social dynamics among individuals, who participate in any dialogically constructed and socially mediated learning practice, constitute important learning components.

Several researchers extensively examined social networks and learning communities from a social network theory/analysis perspective in educational and/or broader learning settings with predominant interest in computer-supported social networks and communities (e.g., Cho, Gay, Davidson, & Ingraffea, 2007; Dawson, 2008; Haythornthwaite, 2001, 2002). More specifically, researchers investigated the relationship between pre-existing social networks (e.g., interpersonal relationships) and student or group performance and found a positive relationship (e.g., Jehn & Shah, 1997; Shah & Jehn, 1993). Others focused on the role of pre-

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existing social networks in information sharing and learners' actions in computer-supported collaborative learning environments and found a positive relationship likewise (Cho et al., 2007; Cho, Stefanone, & Gay, 2002). Haythornthwaite and Wellman (1998) examined the role of strength of friendship ties and work ties in individuals' frequency of interactions and kinds of information exchange and found that individuals with strong ties, either friendship or work ties, interact more frequently and exchange more kinds of information than those with weak ties. Finally, Dawson (2008) examined the relationship between students' network positioning and their sense of community and found a positive relationship. Dawson (2008) further claims that the identification of students' positions in pre-existing personal networks may inform students' positioning in the co-construction of knowledge in social learning environments. These studies indicate that the examination of social networks in relation to social learning situations is a worthwhile endeavor.

A learning practice that is highly associated with the view of learning as being dialogically constructed and socially mediated is that of peer feedback (e.g., Carless, 2013; Nicol, 2010; Strijbos & Müller, 2014; Villamil & De Guerrero, 1996, 2006; Yang & Carless, 2013). Peer feedback, as a branch of feedback that involves peers as information sources on one's performance, has attracted considerable interest, mainly in the field of higher education, due to its perceived contribution to assessment practices and students' learning outcomes and skills (see Evans, 2013). Despite the widespread acknowledgement of the social dimension of peer feedback and its potential contribution to assessment and/or learning practices in higher education, the role of peers as social actors in social networks that surround and penetrate peer-feedback interactions in higher education and subsequently the role of these networks in peer-feedback interactions has been overlooked. This gap potentially lies in the predominant association of peer feedback with assessment practices that rarely extend to the socio-structural elements of peer-feedback interactions and interactants. Moving beyond any association of peer feedback with formally designed assessment practices, this study aims to address this gap by examining the relationship between peer feedback providers' centrality in peer-feedback, personal, and academic networks within the context of higher education.

The following subsections provide a brief overview of the (1) social network paradigm, (2) dominant perspectives on peer feedback in educational contexts, and (3) current peer feedback (re)conceptualizations that move beyond traditional assessment practices in higher education and shift the focus to peer feedback as an inherent social learning practice. The last subsection presents (4) how all these ideas are brought together in this study, and finally, the aim and research questions are formulated.

1.1. The social network paradigm: an analytical and theoretical framework

Social network analysis (SNA) originated in the 1930s—with earlier antecedents that can even be traced back to the 1920s (see Freeman, 1996)—and was further systematized in the 1950s–1960s to become a recognizable paradigm in the 1970s (see Carrington, 2014; Freeman, 2004). Yet, only since the 1990s, interest has mounted in SNA across disciplines (e.g., mathematics, sociology, physics). In recent years, SNA has progressed dramatically and is vigorously promoted by current theoretical, methodological and technological advancements, constituting SNA highly popular across disciplines (Borgatti & Halgin, 2011; Crossley, Prell, & Scott, 2009; Wölfer, Faber, & Hewstone, 2015) (for a detailed historical review on SNA see Freeman, 2004).

SNA moves beyond a mere methodology or analysis technique to represent a network theory. Although the theoretical principles of SNA are rooted in relations, matrix algebra, and graph theory (i.e., branches in mathematics), they extend to a network theory of its own (e.g., Burt, 1992; Granovetter, 1973), which emphasizes the role of relationships among actors in explaining actors' and network's behavior and moves beyond actors' individual attributes (Borgatti, Brass, & Halgin, 2014; Borgatti & Halgin, 2011).

In general, a social network consists of a set of actors/agents (i.e., nodes or vertices) and their relations (i.e., ties or edges) (Wasserman & Faust, 1994) that is typically visualized as a sociogram (see Moreno, 1934), graph, or matrix. A social network represents a relational structure, which expresses the linkages between actors/agents (Scott, 2013). Social networks may be asymmetric (i.e., A to B does not by definition equal B to A) represented with a directed graph (i.e., A → B, A ← B) or symmetric (i.e., A to B equals B to A) represented with an undirected graph (i.e., A–B) (Carrington, 2014). The nodes in a social network may be individuals, groups, organizations, societies, or other. The ties may fall within one level of analysis (e.g., individual-to-individual ties), in one-mode (or monopartite) networks, or may cross levels of analysis (e.g., individual-to-group ties), in two-mode (or bipartite) networks (Grunspan, Wiggins, & Goodreau, 2014). Ties are classified in several ways including communication ties (e.g., who talks to whom), formal ties (e.g., who reports to whom), affective ties (e.g., who likes whom), material or work flows (e.g., who gives resources to whom), proximity ties (e.g., who is spatially closer to whom), and cognitive ties (e.g., who knows who knows whom) (Katz, Lazer, Arrow, & Contractor, 2004). Borgatti and Halgin (2011) classified ties even more inclusively as states and/or events. Examples of state-ties include affective ties and cognitive ties that can be characterized in terms of strength, intensity and duration. Examples of event-ties include communication ties and material or work flows that can be characterized in terms of frequency of occurrence. Yet, networks are multiplex, implying that actors are connected to each other with various tie-constellations, which may vary in direction (e.g., unidirectional, reciprocal), content, frequency, medium, and sign (e.g., positive, negative) (Katz et al., 2004). For example, in an educational context, students might be classmates (i.e., role-based ties) and friends (i.e., affective ties) and neighbors (i.e., proximity ties). Ties have been also classified as strong or weak (see Granovetter, 1973, 1983). Strong ties may refer to family and friendship networks, whereas weak ties may refer to acquaintance networks. The issue of tie strength, originating in Granovetter's work (1973), has attracted considerable interest by a vast number of scholars investigating weighted social networks, i.e. networks that involve ties that apart from being present or absent represent some sort of weight (e.g., intensity, duration, exchanges) (Opsahl, Agneessens, & Skvoretz, 2010). By considering the presence or absence of ties as well as the weight of the ties in a social network, the complexity of the network can be represented more concretely (Opsahl et al., 2010).