Teacher Reflection on their Agency for Change (TRAC) - A tool for school-based social network learning

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Abstract

This short paper introduces an on-line log for Teachers' Reflection on their Agency for Change (TRAC) designed to collect data and provide automatic visual feedback on teachers' social networks. The TRAC tool was developed within a research project 'Making SENse of Teacher Agency for Change with Social and Epistemic Network Analysis'. The project aimed to understand how teachers exercise a form of relational agency defined as a capacity to work purposefully with others within and beyond schools, to support all learners, especially those at risk of exclusion, underachievement or other forms of marginalisation. Teachers' reaching out to others and mobilising their social networks is an essential part of such agency. The study used Social and Epistemic Network Analysis to examine simultaneously the structural properties of teachers' social networks and the nature of content that flows through them. It also provided network visualisations and feedback to facilitate teachers' professional reflection on how they use their relational agency to build inclusive school communities. The aim was to support teachers' professional development by raising awareness about their individual and school network properties and nature of interactions within these networks. Part of the project was the development of the TRAC software that enabled teachers who engaged with a web-based reflective log to receive automatic feedback on their individual networks, as well as on thematic school networks, which were presented by the researchers in school development sessions. Network awareness – one's knowledge of the resources embedded in their social ties – empowers teachers to improve the social environments of their schools. Provided alongside with the summary of research-based features of social network properties (degrees, diversity and intensity of ties), network feedback was used to facilitate professional and school development towards building inclusive communities. During the project, the TRAC tool was tested in partnerships with teachers and other staff in two schools in Stockholm. The project also had a knowledge exchange component to support relational and collaborative learning resulting from engagement with the network feedback. Network feedback based on the data from these sites was used to make adjustments to the prototype feedback tool. This short paper discusses the implications for future uses with a view towards rolling out research-informed professional reflection to larger numbers of schools and teachers anywhere, through dissemination in network learning community.

Keywords

Teacher agency, Social Network Analysis, Epistemic Network Analysis, School-based Learning Communities, Professional Development, Network Learning.

Research Background

Teacher agency has been defined as a capacity to critically shape their responses to problematic situations (Biesta & Tedder, 2007), which is partly informed by the underlying sense of purpose and beliefs about their professional roles (Biesta et al., 2015; Pantić, 2015; 2017). Teachers might perceive their roles as implementers of their school or authorities' policies, as well as 'step up' above and beyond the perceived expectations of their roles (Buchanan, 2015, p. 710). Villegas & Lucas (2002) regard teachers' beliefs about schooling and their roles as a continuum between views of teachers as 'technicians' who apply rules and procedures uncritically accepting standard school practices, and those of teachers as 'agents of change' who see schools as potential sites for promoting social equality (Villegas & Lucas, 2002, p. 54). We used this framework to code the nature of teachers' interactions as aligned to 'role-implementer' and 'agentic' views of teachers' professional roles.

In a socio-cultural perspective, teacher agency is understood in terms of its interplay with the work context in which it is embedded (Eteläpelto et al, 2013). One of the key aspect of teacher agency is the support they are able to mobilise within their social contexts (Lane & Sweeny, 2018; Pantić, 2017). Sense of professional purpose and relationships with other actors within and beyond schools are key components of a relational

agency – teachers' capacity to work purposefully and flexibly with others and become aware of the resources they could bring to bear to take forward what really matters to them (Edwards, 2010). On the one hand relationships with students, families, colleagues and other professionals such as health or social workers are key for building 'protective networks' around vulnerable students. On the other hand the relational structures, or social networks, mediate the opportunities and constraints for exercising agency within given context, e.g. through the levels of trust and influence teachers have within their school communities, which makes relationships both a function of and condition for teacher agency (Pantić, 2017). Social networks, while not deterministic, provide teachers with opportunities to access critical resources by mobilizing their social connections. Research indicates, for example, that frequent interactions with close colleagues foster an environment conducive to change and improvement by reinforcing constructive school norms of formal support, mutual help, and shared responsibility for students (Penuel, Riel at al., 2010). In this view, school-based social networks are dynamic and, at least in part, dependent on the relational agency of teachers. Teachers' interactions with others for a specific purpose are thus conceptualized as building blocks for creating more stable social network structures over time, which in turn shape future interactions.

Aims and Objectives

In this context, TRAC tool is designed to facilitate teachers' professional reflection on their relational agency by raising network awareness that can facilitate network learning and intentionality towards building inclusive school communities. The aim of the short paper is to introduce and promote this new piece of research software and discuss its potential uses with the members of network learning community. The objectives are:

- To introduce the TRAC tool for study of relational teacher agency and its theoretical assumptions
- To present the uses of network feedback features in a study conducted with two schools in Stockholm
- To discuss potential adaptations and future uses of the tool with the network learning community

Design

The study combined Social and Epistemic Network analysis to understand how teacher agency exercised towards particular purposes (collaborative working for inclusive practice) shapes school relationships and community building. Derived from the basic assumption that change towards more inclusive educational practices is a socially embedded process the study examined the content and structures of teachers' social networks. In particular, we used 'egocentric' network analysis to map teachers' social ties with various 'alters' within and beyond school to uncover intentionality in teachers' networking as part of their relational agency. For teachers, ego networks are a critical source of information, social support, access to resources, but also their sense-making processes (Coburn & Russell, 2008). The analysis combined the 'ego-network' approach with the epistemic network analysis to gage the nature of the content that flows through teachers' interactions with their colleagues, students, families or specialists and other actors within the school communities.

Data was collected using an on-line log (TRAC tool) which asked teachers to reflect on specific situations in which they interacted with others. The log allowed teachers to name as many alters as they approached and give reasons why they reached out to them and how these alters supported them. This allowed us to examine simultaneously the purposes, types and impact of teachers' interactions. The project involved data collection and network feedback in two schools which had initiatives to promote teacher collaboration. Teachers from each school (23+32) completed the total of 124 logs, three times at roughly two-month intervals during the 2018-2019 school year.

The content of each log was coded for underlying themes as well as with the 'Agency' and 'Role-implementer' codes reflected in the theoretical framework (described above). The log also provided teachers with automated feedback on their personal networks, which included visual representations of their ego networks with guidance for interpreting their network properties, such as degree (number of ties), diversity (of alters' roles), and intensity of interaction (e.g. one-off exchange of information or advise, or collaboration over a period of time). After the completion of three logs we organised a workshop in each school to present anonymised school network visualisations based on the data from each site. The data from these sites was used to make adjustments to the prototype tool, as well as to help teachers understand their relationships and discuss their practical implications for school community building. The paper presents examples of teachers' reflection and discusses the opportunities and challenges of school-based network leaning for research and professional development.

Preliminary findings

The analysis of teachers' ego networks showed that teachers who displayed higher levels of agency (based on the content coding) also had higher degrees, more diverse and more intense networks in both schools. We identified four broad themes in the content of the interactions: (1) student learning and well-being, (2) lesson planning and professional learning, (3) program improvement and logistics, and (4) working conditions and learning environment. Examination of the frequency of occurrence of agency and role implementation codes within the four themes (Table 1) revealed that agentic interactions occurred most often in situations that involved student learning and well-being. In contrast, the most common type of context in which role implementation took place was lesson planning.

Table 1. Content of interactions for agency and role implementation

Context of Interactions	Agency	Role Implementation	Total Count
Student Wellbeing	33 (46%)	11 (21%)	34
Lesson Planning	13 (18%)	20 (40%)	33
Working Conditions	8 (11%)	8 (16%)	16
Program Improvement	18 (25%)	12 (23%)	30
Total Count	73	51	124

Teacher agency for change is also associated with higher degrees of ties and more diverse and intense interactions, especially when teachers focused on students' learning and wellbeing (see, e.g. Figure 1).

Figure 1. Comparison of model ego-net for agency and role implementation
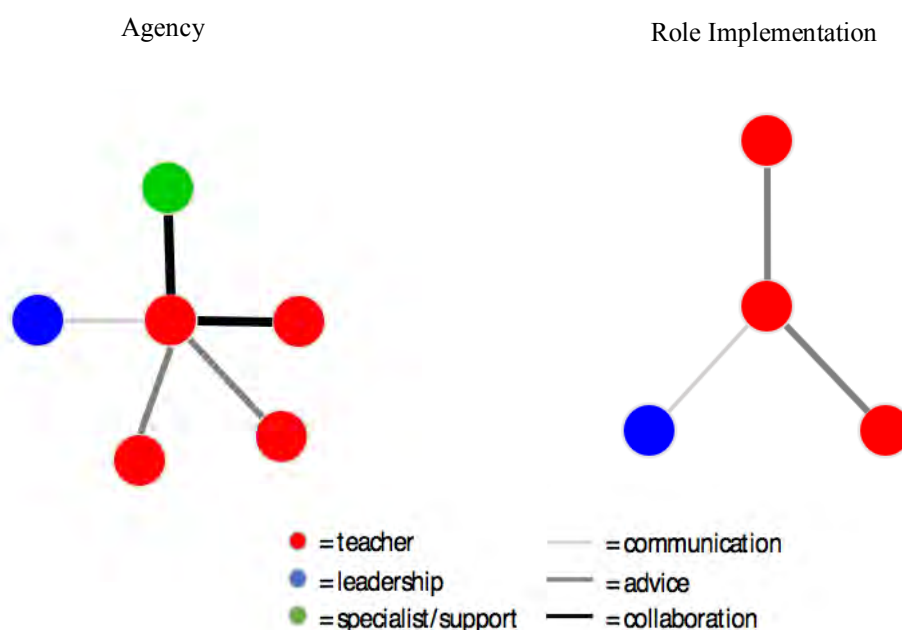
These findings suggests that teachers' agency for inclusive practice is characterised by their working with various others in a way the implies more intense collaboration (e.g. over period of time) in contrast to role-implementation situations in which teachers tended to have more one-off interactions, such as going to their manager or colleagues for advice while focusing on lesson-planning and programme improvement.

Methodological implications

Epistemic and Social Network Analysis have previously been combined to study collaborative learning using data produced in massive on-line courses (Gasevic, et al., 2019). Our study has demonstrated the potential of applying this learning analytic approach in studies set in real setting contexts. Previous studies of teacher agency have predominantly been designed as qualitative case studies to capture the complexity and context-embeddedness of agency in particular locations. Combining Epistemic and Social Network Analysis allowed us to capture a great deal of such embeddedness by analysing situational data report by teachers, while also enabling us to quantify this contextual data to identify patterns in teachers' relational behaviour across school contexts. In the future this approach could be used to study teacher agency at a larger scale, e.g. to distil the essence of agency for change across different policy contexts or study its impact on particular change outcomes.

Network learning

The findings also have implications for teachers' professional learning and school development. The idea that learning and change are better thought of as a social practice, rather than something within the mind of an individual has become commonly accepted. In teacher learning for inclusive practice traditional ad hoc courses had little effect on change in teachers' practices and more embedded learning that involves other colleagues might be more beneficial. Teacher collaboration is seen to be a fruitful setting for developing knowledge and social capital that can stimulate teacher learning and innovation. Importantly, collaborative structures and cultures are malleable through teachers' interactions with others. Some of the participants in our study reported such efforts in their logs – creating the kind of relational structures that improve conditions for their individual and collective practices. In this context, our study provided insights (and feedback to teachers in two schools) about the content and nature of their micro-level interactions that can be useful for understanding how their practices help shape the very relational patterns that enable or constrain their agency for change.

In March 2019 we held workshops in the two schools to present and discuss these findings. The school staff and leadership discussed how the data from their site reflected school policies on collaboration and inclusive practice and potential improvements. For example, some teachers though the feedback would be more directly useful if school network data was not anonymised for participants to be able to locate relevant expertise, which raised discussion around ethical issues and how comfortable levels of disclosure could be agreed between researchers and participants. The participants also expressed views about the potential for cross-school learning.

References

Biesta, G., Priestley, M., & Robinson, S. (2015). The role of beliefs in teacher agency. Teachers and Teaching, 21(6), 624–640.

Biesta, G., & Tedder, M. (2007). Agency and learning in the lifecourse: Towards an ecological perspective. Studies in the Education of Adults, 39(2), 132–149.

Buchanan, R. (2015). Teacher identity and agency in an era of accountability. Teachers and Teaching, 21(6), 700–719.

Coburn, C. E., & Russell, J. L. 2008. District policy and teachers' social networks. Educational Evaluation and Policy Analysis, 30(3), 203-235.

Edwards, P. A. (2010). Relational Agency: Working with Other Practitioners. In Being an Expert Professional Practitioner (pp. 61–79). Springer Netherlands

Eteläpelto, A., Vähäsantanen, K., Hökkä, P., & Paloniemi, S. (2013). What is agency? Conceptualizing professional agency at work. Educational Research Review, 10, 45–65.

Gašević, D., Joksimović, S., Eagan B. R. & D. W. Shaffer (2019). SENS: Network analytics to combine social and cognitive perspectives of collaborative learning, Computers in Human Behaviour, 92, March 2019, Pages 562-577.

Lane. J. L. & Sweeny S. P. (2019). Understanding agency and organization in early career teachers' professional tie formation, Journal of Educational Change 20 (1), pp 79–104.

Pantić, N. 2017. An Exploratory Study of Teacher Agency for Social Justice. Teaching and Teacher Education, 66: 219-230.

Penuel, W. R., Riel, M. Joshi, A., Pearlman, L., Kim, C.M. & K. A. Frank (2010). The Alignment of the Informal and Formal Organizational Supports for Reform: Implications for Improving Teaching in Schools, Educational Administration Quarterly, 46(1) 57–95.

Villegas, A. M., & Lucas, T. 2002. Educating Culturally Responsive Teachers. Albany, NY: State University of New York Press.