What was the purpose of ‘Reconceptualizing Secondary Mathematics Teacher Education: Critical and Reflexive Perspectives’ – a project funded by the Social Sciences and Humanities Research Council (SSHRC) Insight Grant programme?

My SSHRC Insight Grant was awarded to fund my qualitative research programme to strengthen connections between teacher education, curriculum reform and mathematics education research. The objectives of the programme were to challenge traditional images of mathematics teacher education programmes as places that ‘train’ and ‘prepare’ mathematics teachers, proposing instead spaces for a critical exploration of teacher identity and agency. In doing so, the research programme worked to reconceptualise secondary mathematics teacher education.

As part of your work, you designed and facilitated the teacher-intern-faculty advisor (TIFA) learning community. How does TIFA improve on traditional internship models?

In my university’s traditional teacher education internship model, university faculty advisors supervise a number of interns (student teachers) during their four-month internship experience in schools. Each intern works closely with a cooperating teacher in the school for this time, but the faculty advisor only visits the school and observes the intern up to five times. In my view, such limited involvement on the part of the faculty advisor makes it challenging to foster a productive and collaborative relationship within the triad of faculty advisor, cooperating teacher and intern. Thus, one aim of my TIFA community model is to enhance the traditional model by facilitating several professional developments days with cooperating teachers and interns.

What benefits does TIFA offer?

The benefits of the TIFA community according to past participants are numerous, including the value of designated time to discuss and reflect on key ideas in the teaching and learning of mathematics, collaborate on enquiry-based lesson planning and obtain multiple perspectives on interns’ teaching videos. The research points to benefits for both cooperating teachers and interns; that is, in being and becoming a mathematics teacher.

What challenges do you need to overcome?

The challenges can be numerous since, in some ways, the TIFA internship community presents a counter-narrative to the traditional internship model. In my TIFA community model, the faculty advisor serves in more of a mentorship role during the internship. This extra involvement can be seen as signifying a ‘problem’ with the intern and/or the school placement. In fact, one intern noted in a research interview that as long as things are going well in her placement, between her and the cooperating teacher, then having me there as a faculty advisor ‘is just kind of extra’. I face challenges in overcoming some of these storylines that constitute, according to most interns, a ‘normal’ internship experience.

Your research draws extensively on Pierre Bourdieu’s social field theory. Why did you choose his theory to inform your data analysis?

As I look back now on the early stages of research conceptualisation, I see a confluence of factors that brought me to Bourdieu’s social field theory, beginning with the most basic definitions of Pierre Bourdieu’s key ‘thinking tools’ (habitus, field, social practice, doxa and social capital) and their intersections with my efforts to understand and deconstruct theory-practice transitions in mathematics teacher education. With some understanding of his thinking tools – along with the ideas and principles of Bourdieu’s own methodological approach to socio-analysis – I was drawn to initiate a new conversation between self-study methodology and Bourdieu’s social field theory.

Mathematics educator and researcher Dr Kathleen Nolan schools International Innovation on her work towards reconceptualising the education of secondary mathematics teachers.
Who will teach the teachers... and what shall we teach them?

A researcher at the University of Regina in Canada is highlighting the importance of critical approaches to the education of mathematics teachers; her work has implications on both the practical and theoretical sides of the field.

THE COMPLEXITIES OF the modern world confirm that knowledge is power, and the target of providing technical education in STEM subjects is a vital one. However, with this current drive to promote and nurture STEM-related fields, one may well ask the question of whether the field of university teacher education is receiving the attention it deserves.

In teacher education, conformity and compliance are king. In a space where teachers are meant to encourage their students to be inquisitive and reflective critical thinkers, within their own learning, teachers themselves are often encouraged to be anything but. In fact, over the past several decades, teacher education has coalesced into a model in which ‘training’ and ‘preparation’ are two words new teachers often hear, and in which the training and preparation come directly from other teachers already in the classroom. It is a model that many in the field question.

Dr Kathleen Nolan is Associate Professor of Mathematics Education at the University of Regina, and she is looking to offer mathematics teachers an alternative model for learning. Her ambitious research – which is funded by an Insight Grant from the Social Sciences and Humanities Research Council of Canada – takes a qualitative approach to studying different aspects of teacher education. Nolan’s work is diverse; it has both a firm theoretical basis and a great deal of scope in application – which she herself is keen to explore. The innovative outputs of this research include a novel approach to analysing teacher education, a new theoretical model for comprehending it and revolutionary pragmatic methods for pursuing it in practice.

THEORY

“I was drawn to initiate a conversation between a strong theory like Bourdieu’s social field theory and self-study methodology,” Nolan explains – referring to the social models conceived by French sociologist Pierre Bourdieu, upon which her theoretical work is based. Bourdieu placed great emphasis on *habitus*, capital and the rules of certain social fields in his theory – and Nolan has used these conventions to create what she calls Bourdieu-informed discourse analysis (BIDA). In combining social field theory with aspects of critical discourse analysis, Nolan has created a new theoretical framework for self-study research.

BIDA aims to take a holistic view of the self and others by interrogating self-study data through three lenses: firstly, by examining the research object *habitus* and field; secondly, by paying attention to the role of others in the network; and finally, through reflexivity. “I still see my framework as being in its initial stages of conceptualisation and application – but the more extensively I work with my research data, the more I am encouraged by the framework’s potential,” Nolan enthuses. Using mathematics graph theory to help visualise and unpack these interactions, the Canadian researcher continues to develop her framework – with the ultimate goal of making a broad contribution to the field of educational research.

PRACTICE

The creation of such a theoretical framework would be a big enough task for most researchers – but Nolan goes further. Her programme works on the challenge of teaching teachers and on reconceptualising teacher education from three separate aspects. Firstly, there is what she calls the prospective angle: the research aims to serve pre-service teachers by creating a multidimensional model of the internship experience in the context of secondary mathematics teacher education, thereby facilitating the move from theory to practice. Secondly, as part of the retrospective angle, there are elements to support novice teachers by informing and reforming teacher education programmes; this is accomplished by understanding the challenges mathematics teachers face in their initial years and strengthening university-school partnerships. Finally, Nolan’s programme includes critical self-study of her own practices and theoretical enquiry into her own work as a mathematics teacher educator – the introspective angle.

The central practical output of this programme of research has been the teacher-intern-faculty advisor (TIFA) internship learning community model, which puts the faculty advisor more firmly into the picture of teacher education by inviting teachers and interns to participate in several professional developments days along with the advisor. These days are opportunities to cement the triad of agents as a community; they engage in lesson study, analyse videos of teaching and participate in research group discussions together. “I strongly believe in the value of this TIFA internship learning community model for providing a collaborative space (a Bourdieuan field, so to speak) in which to discuss what it means to be and become a mathematics teacher,” Nolan summarizes.

Who will teach the teachers... and what shall we teach them?