Reconceptualizing secondary mathematics teacher education

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Abstract

- Reconceptualizing mathematics teacher education means rethinking the dominant conceptual framework for questions of how, why, and what could be in teacher education.

- This paper describes a research study to explore a multi-dimensional model for field experience (internship) that strengthens theory-practice transitions in secondary mathematics teacher education.

- In attempting to establish an e-advisor mentorship model, traditional notions of teacher education programs as places to ‘train’ and ‘prepare’ teachers are disrupted.

- This research study traces the intersections of identity, agency and reflexivity in mathematics teacher education drawing on concepts of Bourdieu’s social field theory.
Context and Purpose of Research Study

- **Context**: Faculty of Education at the University of Regina, faculty members assigned to the supervision of several student teachers (interns) during their four-month practicum experience (internship) in various schools in the southern part of Saskatchewan (a province in Canada).

- **Research Purpose 1**: to create and sustain a (new) model of professional development for a faculty advisor and her secondary mathematics interns during their internship experience in schools.

- **Research Purpose 2**: to disrupt traditional notions of
  - Teacher education as ‘training’ and ‘preparatory’ work
  - The role of faculty ‘super-vision’ in field experiences
An experimental digitally-enhanced model for internship (field) experience

- This model included: the integration of a co-mentorship learning community model, a lesson study approach to professional development, and a digital ‘e-advisor’ component to intern supervision.
- The experimental internship model required three (3) case study prospective and cooperating teachers to keep a self-study logbook, to engage in lesson study experiences, to video-tape mathematics lessons, to participate in an online learning community and to meet 4 times (one day each) during the 4-month internship semester for interviews and reflective focus groups, as well as professional development activities.
- In this presentation, results of the first three years of this case study will be discussed.
**Research Study**

- **Literature Review:** teacher-directed approaches prevail in secondary math classrooms; prospective teachers’ prior knowledge of what teaching & learning look like; disconnect between university and school theories/practices; blame on prospective teachers for not changing quickly enough

- **Research Question:** What can a teacher educator and faculty advisor can learn from prospective secondary mathematics teachers as they construct (and are constructed by) official discourses for pedagogical change embedded in mathematics classrooms?

- **Methods/Data:** interview and video data over three years from 8 interns; to understand how interns story themselves in their own processes of learning to teach (*through inquiry*) and negotiating spaces in field experience

- **Analysis:** used transcripts to tease out a number of ‘becoming teacher’ discourses; attempt to understand inner workings of these discourses/dispositions (why/how pst take them up or not); how this knowledge may better position teacher educators to address habitus/field mismatches
A Closer Look at Research Purpose 1...

- To create and sustain a (new) model of professional development for a faculty advisor and her secondary mathematics interns during their internship experience in schools.

- Traditional professional development process (PDP): faculty advisor visits school to pre-conference, observe, post-conference (with intern)

- Faculty advisor expected to conduct PDP just 3-5 times during internship semester

- This ‘limited contact’ approach: not conducive to a valuable mentorship relationship between student and teacher educator; leaves most of intern professional development in hands of cooperating teacher; limited opportunity to bridge theory-practice connections.
A Closer Look at Research Purpose 2...

- to disrupt traditional notions of
  - Teacher education as ‘training’ and ‘preparatory’ work
  - The role of faculty ‘supervision’ in field experiences

- Traditional PDP reinforces TE as preparatory work: student leaves the theory behind, breaking preparatory ties and plunging into real classroom practice
  - Field of TE: expectation of practical ideas for immediate use
  - Field of school (internship): negotiations of conflicting habitus-field fits

- Traditional PDP places cooperating teacher as ‘process mentor’ and faculty advisor as ‘product supervisor’
  - Regulative discourses and practices of surveillance
So, what did my self-study study?

- Several stories of how I adapted/modified the traditional faculty advisor role and the PDP

- Briefly, in terms of the purpose(s):
  - **Limited contact approach** addressed by increasing contact: ‘real’ visits supplemented by ‘virtual’ visits using
    - a course management system for e-mail, chat, discussion boards (Moodle);
    - synchronous video conferencing tools (Skype, Adobe Connect)
    - non-synchronous video reflective tools (Flip video camera)
The role of **preparatory work** (and the university-school separation) was challenged by creating a virtual community of practice (Adobe Connect; Skype)

The role of **supervision** was disrupted by

- Extending the PDP process to several days, not the limited 2-3 hour timeframe for pre-con, observe, post-conf
- Interns selecting ‘snippets’ of their lessons for filming and viewing
Discussion of data and analysis

- Year 1 mostly focused on purpose 1 (the blended approach to creating a continuum for PD)
- Years 2 & 3 focused on purpose 2 (disrupting traditional notions of role of faculty advisor and teacher education programs)
  - Disrupt perceptions of ‘super’-vision (classroom observations) (tool: flip video cameras)
  - Understand interns’ perceptions of my role (tool: Adobe connect for video conference)
Implications of Study

• Recall: study’s intent to listen to prospective teachers’ stories in transforming my practice as teacher educator and faculty advisor

• Brief reflections in two areas:

1. The passive act of wanting to change one’s habitus is easier said than done when the rules of the school playing field continue to appear unaltered in any significant manner; carry the voices of prospective teachers back to the field of teacher education and curriculum classes

2. Impact on my own practice as teacher educator (curriculum courses integrate reflexive approach to field experience before and after field experience) and faculty advisor (disrupting traditional roles and practices of faculty advisor in schools; e-advisor project)
General Introduction to Bourdieu’s Social Field Theory

- **Concepts**: field, habitus, capital, doxa, misrecognition, symbolic violence
- The everyday decisions made in a social context (the field) shape, and are shaped by, a set of dispositions or tendencies (habitus) that are formed through the embodiment of an individual’s (or the collective’s) life history.
- In a network of relations, field and habitus are inseparable, mutually constituting, and complicit in each other in all social contexts.
- Bourdieu describes two main forms of capital (economic and symbolic)... cultural capital (a form of symbolic capital) is most relevant.
- **Cultural capital** is basically a synonym for status (or position) and refers to the resources that one brings to (and/or has access to in) the field.

- **Doxa** is the set of core values and discourses of a social practice field that have come to be viewed as natural, normal, and inherently necessary.

- Such an uncritical acceptance of what constitutes normal, natural and necessary is what Bourdieu refers to as **misrecognition**.

- Misrecognition creates conditions for **symbolic violence**: the act of imposing meanings and “impos[ing] them as legitimate by concealing the power relations which are the basis of its force”