

LORTIE'S APPRENTICESHIP OF OBSERVATION REVISITED

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When Lortie's sociological study of teaching, *Schoolteacher*, was published in 1975, it was heralded as

some of the most trenchant, unique, and helpful research ever done on [...] teaching. (Larson, 1976, p. 642)

In the nearly three decades since, Lortie's work has been cited time and again in studies of teaching and teacher education, in both general studies and studies specific to mathematics education. The portion of Lortie's work that has garnered more attention than any other is his notion of the "apprenticeship of observation" (p. 61) and his oft-quoted remark that

the average student has spent 13,000 hours in direct contact with classroom teachers by the time he [*sic*] graduates from high school". (p. 61)

The catchphrase "apprenticeship of observation" has since become synonymous with the claim that "teachers teach the way they were taught" (e.g., Heaton and Mickelson, 2002, p. 51) and has been widely used to explain the apparent lack of influence of teacher education programs on teachers' beliefs and practices. However, we are apt to side with Wideen, Mayer-Smith and Moon (1998), who referred to this frequently cited passage as an example of "snark syndrome" (Byrne, 1993), an idea that takes on the air of authority through repetition, instead of empirical evidence.

We question the explanatory power that has been granted to the apprenticeship of observation by revisiting Lortie's claims and provide evidence that there are ways in which the cultural transmission model can be disrupted. We both revisit Lortie's text and intersperse data from mathematics autobiographies written by pre-service elementary teachers during their first week of a mathematics methods class. The assignment was open-ended, but the students were given several suggestions of topics on which they might comment. Included among these suggestions were an analysis of who/what influenced their views of mathematics and their description of an ideal teacher. The prompt that Lortie gave his participants was to describe an outstanding teacher they had.

Apprenticeship of observation for Lortie

Lortie introduced the term *apprenticeship of observation* in chapter 3, on the limits of socialization in preparing teachers for the classroom, of *Schoolteacher*. He noted,

There are ways in which being a student is like serving an apprenticeship in teaching; students have protracted face-to-face and consequential interactions with established teachers. (p. 61)

He then went on immediately and extensively to temper the use of the metaphor of apprenticeship, noting that his use of the term stands in stark contrast to the traditional notion of an apprenticeship in a trade in which the apprentice is privy to the thinking and reasoning of the master while observing the master at work.

In a traditional apprenticeship, the master coaches the apprentice as he learns to ply the trade. This is absent in classroom interactions because students are not privy to their teachers' reasons for and reflections upon their actions. Rather, students are on the receiving end of what teachers do and are therefore only in a position to notice teachers' actions and their influence on them as students. They are not in a position to be reflective and analytical about what they see, nor do they necessarily have cause to do so. Thus, students are likely to express pleasure, appreciation, dislike or other affective responses toward a teacher or particular practices but not to assess thoughtfully the quality of the teaching they experience.

Despite Lortie's careful analysis of the use of the term apprenticeship, he then went on to make a rather grand claim about the cultural transmission of teaching practices. He speculated that teachers' practices are based on imitation of their teachers, "which, being generalized across individuals, becomes tradition" and "transcends generations" (p. 63). Lortie seemed to be aware that this claim was intuitive but unfounded because he asserted that "It would take complex research to confirm this analysis" (p. 63). Despite Lortie's caution, many an author has invoked Lortie's generalization, thus perpetuating the "snark syndrome". While Lortie's claim is intuitively appealing and sensible (perhaps accounting in part for why mathematics classrooms today seem so similar to schools of days gone by (Romberg and Carpenter, 1986)), this model fails to provide an adequate explanation for how teaching practices get replicated.

Instantiations of apprenticeship of observation

Lortie's use of the term apprenticeship of observation seems to pertain to the general milieu of teaching, rather than to specific instances of teaching and learning. For example, Lortie suggested that students acquire generalized notions of what "good" and "bad" teaching is based on how particular kinds of teaching have affected them. Pre-service teachers often describe good mathematics teachers as those who made mathematics fun, connected mathematics to the real world, and cared about their students. Our data supports this notion of a generalized view of teaching, and many studies suggest that these notions are linked to beliefs about teach-

ing and learning (Thompson, 1992). For example, one pre-service teacher, Mandy, described her high school calculus teacher this way:

Ms. Anderson was the best teacher I have had in the area of getting us to visualize problems and apply them to real life. She also was one of the best teachers I had in general, because she knew each of us personally, and based her teaching off that. [...] Ms. Anderson [is] one of the reasons that I am going into the teaching profession. She made learning fun, and she loved her students, two characteristics I feel are necessary to be a good teacher. [...] The ideal teacher is one who makes learning fun, shows the students that learning applies to real world situations, and cares about the students.

Students often describe bad teachers as those who lack the patience to explain a concept until all students understand it, present boring and repetitious lessons, and teach straight from the textbook. Morgan described her middle and high school mathematics classes (age 11-17years) with disdain:

In middle and high school math classes bored me. I remember sleeping every day in my ninth grade algebra class and still making an A. My teachers just did not make it fun and interesting. All I did was homework that my class went over each day. That is *all* we did. We never did practical word problems or explored math beyond the walls of the school building. When I took classes like geometry, trigonometry, and calculus I really started hating math. Not only was it boring, but it was also harder and more frustrating.

Lortie noted that because students participating in an apprenticeship of observation are not *deliberately* studying their teachers in order to form their own later teaching practices, what students learn about teaching via observation

is intuitive and imitative rather than explicit and analytical; it is based on individual personalities rather than pedagogical principles. (p. 62)

We agree with this statement as it applies to developing generalized notions of mathematics teaching from living in the general milieu of schools and classrooms. However, we have concerns about the robustness of Lortie's model.

The apprenticeship of observation claim has been used primarily to explain the lack of change in teaching and to account for poor teaching. If the model is to be useful, it should also explain how good teaching gets replicated and how the cycle of replication of poor teaching can be disrupted. Rarely, if ever, has this cultural transmission model been used to demonstrate that students who have positive experiences as school learners use these experiences to shape their teaching practices. However, Lortie himself provided such an example. One of Lortie's teachers recalled an elementary school teacher who was especially understanding of her fright at moving to a new school. In her own classroom, she always assigned another child to be a friend to new students to help them feel comfortable.

Ronald provides an example of a pre-service teacher who was thinking about specific aspects of good teaching practice and how he might replicate them:

My ultimate role model is Mrs. Schmidt, my first and second grade teacher [...] She seemed to have a passion for everything she taught us, which made us want to learn what she was teaching. She never followed the creed, "Do what I say and not what I do." She also practiced what she valued and expected the same of us. Her classroom was a safe haven for learners because she made us feel good when we learned something new, no matter how big or little the concept was. In the end, you left Mrs. Schmidt's class with more information than you came in with. When I go into my profession, I want to pass on the same passion for learning Mrs. Schmidt instilled in me because I still use [things she taught me].

The cultural transmission model has not accounted for ways in which the cycle of replication of poor teaching can be disrupted. It has not been used to explain how pre-service teachers are able to transform their negative experiences as learners into positive teaching practices. These negative experiences can be powerful catalysts for future teachers to be explicit and analytical about the influence of former teachers. For example, both Sherrie and Becky related specific actions by teachers that negatively impacted their learning of mathematics and clearly influenced their ideas about teaching. Sherrie had a history of being unsuccessful with mathematics, and she shared an experience from sixth-grade (age 11 years) that she believed led to her placement in mathematics classes for lower achievers where she "continually remained bored and unchallenged." Sherrie described her fear and humiliation in mathematics class:

One day as I worked on a problem at the chalk board she yelled "No, No, No! Sherrie, that is wrong. We have been over this for weeks!" Embarrassed, I sat down in my chair and never volunteered again to go to the board. [...] Through this testimony I'm not trying to put the blame on a bad teacher or the hardships of my Math career. There is a happy ending. Through these experiences I have learned how my knowledge and presentation of math will affect my students. I have realized that my weaknesses will one day be contagious to my students. I am avoiding this at all cost, even if it means graduating a semester late. I have a strong desire to prepare myself for teaching in the best way possible. My desire in education is to enhance the learning of students by encouraging them that any subject is obtainable and within their reach.

We observed Sherrie during her first year of teaching and noted that she was supportive and understanding when students gave incorrect answers. She asked students to explain both correct and incorrect answers and supported students both verbally and nonverbally as they gave explanations. She encouraged peers to assist one another and sometimes allowed children to choose not to carry on trying to answer when they were struggling with a problem. Sherrie's actions suggest that she was deliberately attempting not to replicate teaching practices she had experienced as a student.

Becky, who had been successful in mathematics as evidenced by her participation in advanced calculus in high

school, shared her experiences with a teacher who only accepted answers that were in the format she was expecting. Becky's frustrations with this teacher were captured by the following incident:

I was checking over my test and I saw one question that had the right answer but had received no credit. I asked her why she counted my answer wrong when even the key showed that I had arrived at the correct answer. She responded to me saying, "That's not how they want it solved on the [calculus] exam." Her attitude was what made me cry more than the fact that I had lost points. I thought the whole thing was ridiculous. I felt that I deserved those points because I had discovered an alternate way to solve the problem. I understand her point, but I still do not believe that I should have been penalized for creativity and being able to make connections that had not been taught in class.

Although Becky did not explicitly connect her experiences as a learner to the ways she wished to teach, in observations of Becky's teaching during her pre-service years, we saw numerous examples of her valuing students' thinking and asking for multiple solution methods. She consistently asked students to explain their reasoning in addition to giving the final answer, and she frequently asked, "Did anyone do it a different way?" In one observation, she took a substantial amount of time to have students compare their answers, $16\frac{2}{3}$ and 16.6, to realize that they are the same and either format was acceptable.

These two examples show that some pre-service teachers both recall and are able to reflect on the myriad experiences they have had as mathematics learners and the specific roles that teachers have played in those experiences. In contrast to Lortie's claim that

[s]tudents are undoubtedly impressed by some teacher actions and not by others, but one would not expect them to view the differences in a pedagogical, explanatory way (p. 62)

some future teachers are capable of being analytical about their goals for their teaching practices in light of their prior experiences. In particular, when prompted, pre-service teachers seem to be able to recall specific and vivid instances, both positive and negative, from their own educations, and reflect on them in productive ways. In a similar vein, Zeichner and Gore (1990) suggested that some pre-service teachers

focus more directly on their own learning as pupils and deliberately seek to create in their own teaching those conditions that were missing from their own education. (p. 333)

Ross (1987) also found examples of teachers deliberately enacting practices that were counter to those they had experienced as students. Ross argued that pre-service teachers are "highly selective" in picking and choosing from among the models they have seen in order to meld several practices into the type of teacher that they become. Thus, even when pre-service teachers have had negative experiences as learners, they are able to use these experiences to shape their ideas about teaching practices in positive ways.

Conclusion

Perhaps we have been too quick to dismiss pre-service teachers' prior experiences as simply leading them toward more traditional views and practices of teaching. Invoking Lortie's apprenticeship of observation, as an explanation for the failure of teacher education programs and practices, leads to a downward spiral in which teacher educators are either absolved of all responsibility for making change or are rendered powerless by the influence of prior experience.

Certainly, pre-service teachers have ideas and beliefs about what it means to teach mathematics when they enter a preparation program, but Lortie's apprenticeship of observation is not a sufficient "one size fits all" explanation for the views that they bring to teacher education programs. In fact, Lortie himself said that "[t]here is little reason to expect that any group of teachers-to-be will share common images or proclivities" (p. 66). While teachers' general experiences as learners may, indeed, assert a tremendous influence on who they become as teachers, we believe that this cycle can be broken by specific, vividly remembered incidents from their own schooling.

Feiman-Nemser (2001) pointed to a path that allows us to escape from this vicious cycle. She suggested that we take seriously the notion of teachers as learners, recognizing that they bring experiences and knowledge with them and that their learning is continuous and dynamic. She identified five tasks that are central to the pre-service years, the first of which is "[e]xamine beliefs critically in relation to vision of good teaching" (p. 1050). If we acknowledge that the images and beliefs about teaching and learning that pre-service teachers bring to their teacher preparation programs act as filters for new learning, we must give them opportunities to analyze "critically their taken-for-granted, often deeply entrenched beliefs so that these beliefs can be developed and amended" (p. 1017). This examination of beliefs should be coupled with the formation of new "visions of what is possible and desirable in teaching to inspire and guide their professional learning and practice" (p. 1017). Thus, we need to use pre-service teachers' experiences during their apprenticeship of observation in productive ways in teacher education.

Notes

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References

- Byrne, E. (1993) *Women and science: the snark syndrome*, Washington, DC, Falmer Press.
- Feiman-Nemser, S. (2001) 'From preparation to practice: designing a continuum to strengthen and sustain teaching', *Teachers College Record* 103(6), 1013-1055.
- Heaton, R. and Mickelson, W. (2002) 'The learning and teaching of statistical investigation in teaching and teacher education', *Journal of Mathematics Teacher Education* 5, 35-59.
- Larson, R. (1976) 'Review of Schoolteacher: a sociological inquiry', *Teachers College Record* 77(4), 642-645.
- Lortie, D. (1975) *Schoolteacher: a sociological study*, Chicago, IL, The University of Chicago Press.

[The rest of the references can be found on page 23 (ed.)]

sionally referred to me as a ‘creative teacher’ (usually in supposed contrast to themselves). I have never seen it that way. My lesson ideas are rarely original in the sense of my creating new activities. I have spent a lot of time and energy in my life thinking about mathematical activities that allow me to work in certain ways with classes. It is not surprising that I can draw on that wealth of experience in planning and in the flow of a lesson but this does not mean I have any special gift.

I like Marilyn and Vince’s phrase “practical wisdom” to denote something of what is needed to bridge university and school domains of discourse. Wiliam problematised the issue of how mathematics education research can deliver knowledge that is both widely shared and used in practice:

[...] research results that have widely shared meanings appear to be more difficult for teachers to ‘make sense of’ and to make use of in improving their practice. [...] ‘action research’ addresses this by not even trying to generalise meanings across readers – what matters is the meaning of the research findings for the teacher in her own classroom [...] Put crudely, in action research, the lack of shared meanings are justified by the consequences, while in other kinds of research, the lack of consequences are justified by their more widely-shared meanings. (1999, p. 327)

This echoes Marilyn’s comment that there are “two mathematical education communities”. Four years after Wiliam’s paper, Breen (2003) suggested there had been little movement in terms of finding ways for teacher-research to gain wider applicability:

On the one hand, there is a growing movement for more teachers to become involved in a critical exploration of their practice through such methods as critical reflection, action research, and lesson studies. The contrasting position makes the claim that these activities have done little to add to the body of knowledge on mathematics education. (p. 2)

Vince’s experience on entering university life that “some academics didn’t think the type of research I did should be taken seriously” seems evidence that Breen’s “contrasting

position” is indeed around.

The notion of “practical wisdom” suggests to me knowledge that can both be shared and that has consequences for practitioners. Jaworski (2005) has coined the phrase “co-learning partnerships” to describe working relationships such as Marilyn and Vince’s or my collaboration with Laurinda in which both partners take responsibility for learning and development within their respective roles. She believes such partnerships are one way to add to the body of knowledge:

There is a growing body of research which provides evidence that outsider researchers, researching the practice of other practitioners in co-learning partnerships, contribute to knowledge of and in practice within communities of which they are a part. (p. 2)

The key phrase in this quotation for me is “within communities of which they are a part”. It is perhaps part of human nature that ‘outsiders’ are mistrusted. I know that many teachers I work with will dismiss the findings or suggestions of outsiders if they get a sense that such people, for example, work in a more privileged setting or do not have a similar experience of teaching. This mirrors Vince’s experience of being distrusted in a university setting because of his exclusively school-based background. What is perhaps powerful about partnerships between teachers and university academics is that together there is membership of the “two mathematical education communities”.

References

- Breen, C. (2003) ‘Researching teaching: moving from gut feeling to disciplined conversation’, *South African Journal of Higher Education* **16**(2), 25-31.
- Goos, M. and Geiger, V. (2006) ‘In search of practical wisdom: a conversation between researcher and teacher’, *For the Learning of Mathematics* **26**(2), 37-39.
- Jaworski, B. (2005) ‘Learning in practice from a study of practice’, available from, http://stwww.weizmann.ac.il/G-math/ICMI/Jaworski_Barbara_ICMI15_paper.doc, accessed 31st August, 2006.
- Wiliam, D. (1999) ‘Types of research in mathematics education’, in Zaslavsky, O. (ed.), *Proceedings of the twenty-third annual conference of the International Group for the Psychology of Mathematics Education*, Haifa, Israel, Technion, Israel Institute of Technology **4**, pp. 321-327.
- Thompson, A. (1992) ‘Teachers’ beliefs and conceptions: a synthesis of the research’, in Grouws, D. (ed.), *Handbook of research on mathematics teaching and learning*, Reston, VA, NCTM, pp. 127-146.
- Wideen, M., Mayer-Smith, J. and Moon, B. (1998) ‘A critical analysis of the research on learning to teach: making the case for an ecological perspective on inquiry’, *Review of Educational Research* **68**(2), 130-178.
- Zeichner, K. and Gore, J. (1990) ‘Teacher socialization’, in Houston, W. (ed.) *Handbook of research on teacher education*, New York, NY, Macmillan Publishing Company, pp. 329-348.
- Romberg, T. and Carpenter, T. (1986) ‘Research on teaching and learning mathematics: two disciplines of scientific inquiry’ in Wittrock, M. (ed.), *Handbook of research on teaching (third edition)*, New York, NY, Macmillan Publishing Company, pp. 850-873.
- Ross, E. W. (1987) ‘Teacher perspective development: a study of preservice social studies teachers’, *Theory and Research in Social Education* **15**(4), 225-243.

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