

Reflection as Pedagogy in Action Research

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Abstract: In this paper we attend to the pedagogical role of reflection within action research practices. We discuss educational considerations of the complex process of improving curriculum, while undertaking collaborative research in which reflection within the iterative process of action research became pedagogical. We draw upon our reflections from an action research project on research-based learning in course-based, professional graduate programs. In particular, our purpose was to think about our reflections from diverse roles and viewpoints, from associate dean, academic coordinator, instructor, and co-researchers, to explore the various ways in which our collaborative understandings informed graduate program design. Our narrative reflections allowed us to learn about our individual and collective beliefs about action research, and the ways in which our beliefs and practices shaped graduate students' experiences learning about and conducting action research. In drawing on our critical reflective processes, we show both the tensions and possibilities of collaboration in action research. We conclude, after reflecting on our collective processes engaged in this paper, that documenting researchers' experiences can be vital in action research for addressing complex educational challenges in the improvement of curriculum and programs, and in creating the conditions for enhanced student learning experiences.

Keywords: reflections, action research, student research, graduate programs, curriculum review

In this discussion, we draw from our collaborations in an action research project aimed towards enhanced understandings of curriculum improvement. As educators who work within different interpretive frameworks, we are each committed to researching our teaching practices and student experiences in higher education (Niemi 2019; Norton 2009). Our study focused on a sequence of four required research courses in a Master of Education (MEd) program. In this course-based graduate program, students learn about educational research, conceptualize and conduct action research projects, and report on their findings and experiences for knowledge mobilization in academic and professional publications as a capstone project (Jacobsen, Eaton, et al., 2018).

For this paper, we attend to the pedagogical role of reflection within our action research practices. Our action research study involved four distinct components involving (1) planning, observing and acting, (2) thinking through critical reflection, and (3) continuous iterations of the process over a 12 month period; the action research process also involved (4) formal and informal team meetings to participate in collective and individual reflections, action steps and documenting the ongoing process. Data were collected from team meetings, administrative documentation, narrative reflections, communications and teaching journals. Team meetings were conducted online, in-person and in hybrid blends, with participation being through face-to-face and other virtual forms of communication. Independent teaching journals noted learning tasks concerns and questions, challenges and student successes. Administrative documents about the curriculum review and management of the program and resources were reviewed. Research team members kept individual narratives of their reflections regarding their teaching journals, experiences with program alterations and instruction, calendars, and curriculum review

documentation which were analysed during team meetings. We find generative possibilities in centering personal narrative reflections that integrate our teaching experiences in the four required research courses and our collaborative work as co-researchers. Our narrative reflections allow for a pedagogical approach wherein we learn about our individual and collective beliefs about action research, and the ways in which our beliefs and practices can reflexively shape students' experiences learning about and conducting action research. By positioning reflection as pedagogy embedded within our action research, we explore the prospects for thinking about the complexities of teaching and learning about action research in a professional graduate program. Reflection as pedagogy allows for a reflexive approach that enables one to nurture and elucidate their own ways of knowing and acting through recursive and collaborative instances of reconsidering and building their articulations, social and pedagogical practices with peers.

By drawing on our critical reflective processes, we show both the tensions and possibilities of collaboration in action research. We believe, especially after reflecting on our collective processes engaged in this paper, that documenting researchers' experiences can be crucial in action research for addressing complex educational challenges in the improvement of curriculum and programs, and in creating the conditions for enriched student learning experiences. This discussion highlights the iterative and complex processes which emerged through, and because of, reflection – individually and collaboratively. Within our ongoing action research cycles, we interrogated our own learning from the tensions that emerged in our formal and informal team meetings to engage in a process of reflection over a 12-month period. Through analyzing our reflections on the experience, we have been better able to notice some of the tensions and challenges within the collaborative commitments of the program that shape

MEd students' experiences of doing action research within a course-based professional program (see Jacobsen, Eaton, et al., 2018; Jacobsen, McDermott, et al., 2018).

By way of critical reflection as pedagogy, this study highlights the entangled processes of teaching and learning within a graduate program through an action research inquiry. The significance of our critical reflections speaks to the importance of researchers' experiences-as-data, as well as how collaborative course design and teaching can be simultaneously creative, and intellectually challenging for the scholarship of teaching and learning and the reflective practitioner (Schön, 1983). Overall, we contend that the experiences of researchers, enhanced through critical reflection, can serve to more fully understand educational research, curriculum and graduate program development. We explore the broader action research context to position where, when, and how critical and collective reflection came into play. We do this in two parts, first by way of inviting the reader into narrative points of view and second by delineating our particular mode of inquiry in relation to the reflections woven throughout the collaborative action research project.

Perspectives on Reflection in Action Research: Modes of Inquiry, Data Sources and Data Analysis

This research highlighted the importance of reflecting on our action research approaches (Goodnough 2003; Hendricks, 2016; Kemmis, McTaggart, & Nixon, 2014; McNiff, 2013, 2014, 2016), for program improvement within a research-intensive course-based MEd degree. Critical reflection is a constructivist mode of inquiry that qualitatively situates one's experiences as data (Denzin & Lincoln, 2017). Documented experiences can be interpreted to address complex educational challenges such as improvement of curriculum programs in higher education. Action research is a form of self-reflexive practice (Carr & Kemmis, 1986). Reflection allows one to be

cognizant of how different ways of knowing and action manifest in education. Reflection allows researchers to consider the limitations and possibilities of complex relations, as well as, what is necessary for change in a multitude of educational settings. Reflection can produce many approaches to document the ongoing implications regarding improvement of graduate programs. In this sense, reflection is a way to consider the diverging and converging relations of theory and practice. Reflection can lead to improved understandings of action research. It accounts for the use of knowledge by practitioners in ways that are fluid, incommensurable, uncertain and constituted through their different pedagogical values.

Action research requires a commitment to reflection which may include “becoming aware of what you need to do to improve your practice in your work-place, doing it, and then describing and explaining what you have done, how you have done it and why you have done it” (McNiff, 2016, 51). This reflective process takes on a cyclical form instead of a linear progression. We used phases adapted from Lewin’s (1946) action reflection cycle to frame our commitment to reflection during course planning, teaching and continuous iterations of analysis and critical reflection over one year.

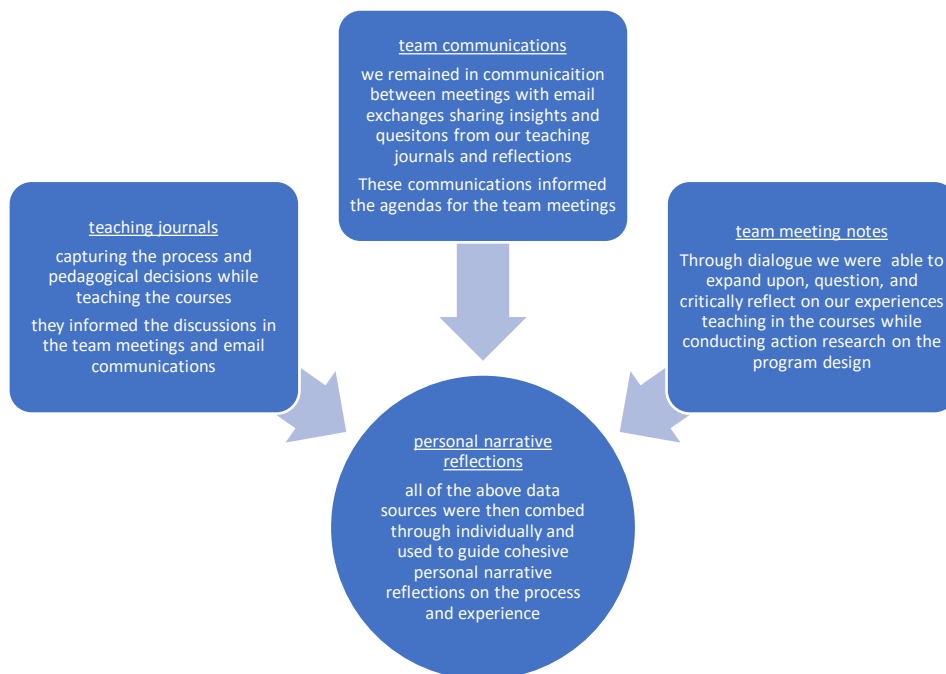
Reflection is an essential part of action research and can be defined “as the act of critically exploring what you are doing, why you decided to do it, and what its effects have been” (Mertler, 2014, 13). We drew upon our individual reflections from our diverse roles of associate dean, academic coordinator, instructors and co-researchers. By contextualizing excerpts from our narrative reflections, we share what we have learned from individual and group reflection within our action research. Narrative reflections allowed for a holistic approach; one that provided a generative framework for thinking about the complexities of teaching and learning and action research for graduate program improvement in higher education. Writing through narrative

reflection allowed us to individually and collectively draw on the incommensurable process of action research, and helped us to simultaneously produce insights less understood about the role of reflection within the purpose of action research.

In situating reflection as a central aspect of our action research process, our data sources for our reflections included: teaching journals, communications between research team members, notes from team meetings, and personal narrative reflections. Figure 1 shows a snapshot of the relationship between these data sources.

Figure 1

Centering Layers of Reflection in Action Research



Each member of the research team maintained autonomous teaching journals with details about planning for asynchronous and synchronous learning designs. Our reflections included notes about activities designed to develop a community of inquiry when meeting synchronously with students using web conferencing software. Teaching journal reflections included

pedagogical approaches for asynchronous discussion forums, as well as thoughts on how to address the students' concerns in the future. We shared excerpts from our teaching journals in team meetings, and noticed that many of the items addressed in our journals related to our perceptions about student engagement and challenges with learning about and conducting research during the online courses.

We reviewed and reflected upon the electronic communications between research team members that took place between meetings. Email messages with the associate dean, academic coordinator and instructors were discussed with the research team. These communications provided a record of ongoing conversations among our team that occurred during the planning stages of the course, when the course was taught, and afterwards when the team reflected on the successes and challenges. We archived notes from monthly team meetings in a shared online folder so all team members could collaboratively edit and update the notes to document ongoing conversations and reflections. Then, we prepared individual narrative reflections to synthesize overall experiences in planning and teaching the research courses and identify key insights that evolved through the ongoing reflections as a team. Key to reading and interpreting critical reflection practices through narrative is the delineation of important relations that shape students' and educators' perceptions and dispositions as contextualized within the entangled details of program improvement.

The analysis of the data included two phases. In the first phase we engaged in: (1) coding for themes to reflect on how our collaborative understandings informed graduate program design (Miles, Huberman, & Saldaña, 2014); (2) researcher cross-checks for trustworthiness and relevance; (3) visual representation of data in matrices; and (4) overlaying of themes from analysis with action items from the curriculum review. In phase one, we assembled and

organized all sources of data. Once the team agreed that the narrative reflections were complete, two researchers coded the data for themes and then reviewed the narrative reflections and individually identified emerging and reoccurring themes. We reassembled the data, which involved examining themes emerging from the narrative reflections in relation to the action items from the original curriculum review, for synthesis and further reflection. This approach to synthesis allowed us to refine core themes and identify an emerging theme or area for improvement that was not previously amplified in the original curriculum review action plan. Themes from the initial coding process were cross-checked and discussed by the research team to: a) triangulate similar interpretations, b) establish trustworthiness and relevance and, c) synthesize the analysis into primary themes. Emerging themes, reported elsewhere (see, Jacobsen, Eaton et al., 2018) included: 1) program understanding, 2) program commitment, 3) student challenges, 4) design team challenges and 5) community of practice. Once the five key themes were identified and all narrative reflections coded, the data were reassembled for phase two.

In the second phase, matrices were created that listed the themes and excerpts from the narrative reflections. In the next section, we draw out our narrative reflections from the analysis to explore how critical reflection within our action research project became pedagogical and assisted us in conceptualizing our own collective learning in our subsequent approaches towards ongoing program improvement. As such, we describe the ways in which our individual and collective reflections informed our teacher and researcher practices and compelled further program improvements. These narrative reflections matter. Within the scope of our action research project, this writing makes salient the reflection process, which often enough saturates

the literature, though is not necessarily amplified and made comprehensive within the writing process.

Context and Purpose of Broader Action Research Inquiry

The broader action research study focused on educational development and program improvements for a MEd degree pathway. With a specific focus on the action items resulting from a curriculum review and mapping process, four research courses introduced students to educational research broadly, three of which specifically focused on action research (see Figure 2 below). The study (Jacobsen, Eaton et al., 2018) gave detailed attention to the iterative process, which emerged from the curriculum review and mapping process for the four research courses for the online MEd Interdisciplinary degree pathway (Jacobsen, McDermott, et. al., 2018; Dyjur & Lock, 2016; McNay, 2009; Uchiyama & Radin, 2009).

Figure 2

Four Research Courses



The Emergence of Reflection

As educators who research our teaching practices, we worked closely with staff and students, along with recommendations that emerged from a curriculum review of professional graduate programs in education to inform curricular improvements in four required research courses. These required research courses were sequenced with the overarching goal of supporting students in understanding (course 1 – *Research Methodology in Education*), designing and enacting (course 2 – *Collaboratory of Practice*), and reporting on action research (courses 3 and 4 – *Writing Educational Research; and Program and Practice Evaluation*) (see also figure 2). We drew on critically reflective practices, which opened transformational possibilities for conducting action research while teaching action research in a series of courses for MEd students. Our purpose was to think about our reflections from diverse roles and viewpoints, from associate dean, academic coordinator, instructor, and co-researchers, to explore the various ways in which our collaborative understandings and reflections informed graduate program design.

In our first team meeting, we had a chance to connect with the other members of the research team comprised of an academic coordinator, instructors and co-researchers, as well as the instructional team. Taking time to reflect and dialogue collectively about our ideas and experiences collectively opened up space for all members to better understand the sequencing and purpose of the four courses within the program and our relationships within it. One team member explained how the four courses in the MEd Interdisciplinary program were aligned with each other and also traced what the students would have done in the previous two steps of the

laddered MEd Interdisciplinary program (four topical courses leading to a certificate and another four leading to a diploma before embarking on the four required research courses).

Some team members had previously taught the research courses focused on the action research inquiry, and were involved in the program redesign. These team members explained some of the collaborative changes in making a revised course outline that more explicitly allowed each course to build on the previous one(s) to new team members. We realized that even if we were only teaching one of the four courses, an instructor had to think three steps ahead, to know where each of the courses led, and how one course connected to the next. As such, we found ways to write that trajectory into the course outlines, and also to trust that certain concepts and activities were introduced in previous courses for scaffolding purposes. For example, course instructors needed to understand what the learning objectives were in the first research methods course, to be able to enhance student learning and engagement in the following courses. This collaborative reflective dialogue in our first meeting presented us with two major needs: 1) adding another text focused on Action Research to the required readings (we selected Hendricks, 2016); and 2) changing the timeline for opening the possibility for students to engage Institutional Review Board ethics processes and research with human participants. By the end of the meeting, we were tasked with focusing on the course outline redesign, thinking about enfolding another text into an already packed course, and revising some of the learning tasks. We agreed to pass the course outline around for input from every team member, go away and reflect on the implications of the new design, and then meet again in two weeks.

At this initial meeting, we determined that it was important for the research team to meet monthly and maintain notes of our reflections on teaching and coordinating the MEd Interdisciplinary program. The reflective writing and group discussion processes allowed us to

focus on both the collaborative experiences and reflections, as well as our individual experiences teaching action research while embarking on an action research project together. As an instructional team we had diverging and converging attitudes, values and expressions with our educational practices. This allowed for a critical approach to our inquiry within the action research study, as well as to our teaching and learning within the MEd Interdisciplinary program. The tone of open dialogue within our synchronous online and face-to-face meetings allowed for dynamic feedback that flattened the hierarchical positioning embedded in academia when individuals hold different ranks (within our team, we ranged from sessional instructors to Associate Dean at different times in the research). This paper reports specifically on our process of reflection over a 12-month period within our action research study.

Narrative points of view: Transformative possibilities through critical reflection

In this section, we describe the pedagogical moments propelled by our reflection practices in the broader research study. Working collaboratively, as a research team and also as an instructional team, can be a challenge when power dynamics and differing discursive orientations are at play as we noted above. Reflecting individually and then as a group allowed us to surface these tensions and work through them in generative ways, rather than having them percolate under the surface. Ultimately, the reflective process served to build cohesion, trust and a community of practice that allowed us to work with and through the tensions and keep our focus on the broader goal of program improvement for better research-based learning by students. As a stylistic choice, we present the reflections from our team meeting notes and personal narrative reflective journals collectively and in solidarity, rather than distinguishing them as separate voices. We do this to show the ways in which our reflections were both individual and collective, and how we cultivated a cohesive approach to the program design and delivery.

Reflecting on student challenges in the courses

We reflected on how learning from and with students over the semesters allowed for many reflexive discussions concerning students' challenges in the required research courses in the MEd program. During one meeting, a research team member shared notes from their teaching journal on how students had struggled with the shift from the content area courses (e.g., learning about a specialization topic) to their first research course. Broadly considered, the first research course is an introductory course that charts an overview of the educational research process across a continuum of quantitative and qualitative approaches to inquiry. The instructor shared how some students expressed frustration with their inexperience in educational research and the uncertainty in conceptualizing and planning a study. The MEd students struggled with ontological and epistemological ideas, such as what is knowledge, where and how does knowledge reside in the world, what knowledge counts, what can we know, how do we come to know something, how do different paradigms conceptualize knowledge, how do we come to know and understand through different interpretive frameworks, what are my assumptions about knowledge and how it is represented and who has the authority to determine what counts as knowledge?

We collectively discussed and reflected on student learning in the first research course, the challenges of being faced with recognizing one's interpretive framework, understanding how one comes to make sense of their subjective concerns, and engaging with how one comes to know a particular way of knowing, brought many new ideas forward with students. Many students sought order and a clear layout of what the expectations would be for preparing a research proposal. In responding, one team member remembered sharing in class, stories regarding the metaphor of a novel, where the research writing process was likened to that of

writing a novel, to having to write your story without knowing some definite end point, without knowing one's research interest with fixity, without having some clear absolute picture of the final product, or how many chapters would be written, where the data would be situated and how the data should be collected. The team member discussed how students' struggled working through the incommensurability of the research process through inquiry-based learning, which was the signature pedagogy (Shulman, 2005) that informed the original design of the sequenced research courses. A signature pedagogy "consists of concrete, operational acts of teaching and learning, of showing and demonstrating, of questioning and answering, and interacting and withholding, of approaching and withdrawing" (Shulman, 2005, 54-55).

In response to this team member's feedback, we collectively explored and shared some of the challenges with supporting students' inquiry-based learning in our scheduled team meetings and as part of our reflections, and thus realized that the pedagogical implications of designing inquiry-based learning experiences were common challenges we experienced. Our diverging and converging understanding of the incommensurable process of educational research helped to inform changes to the design, structure and organization of the research courses. For example, altering the sequence of the courses ensured the first research course supported students in conceptualizing their research interest by framing their concerns through philosophical paradigms, to get a sense of whether they wanted to approach their work through a quantitative, or qualitative, or a mixed-methods approach. In the second and third research courses, students were able to carry out their research plans, based on several options for disciplined inquiry which were collaboratively discussed and detailed by the regularly scheduled instructional team meetings and in the courses. Informed by their different approaches to research, the students

engaged in academic writing and peer review in the final course of the four-course research sequence and each produced a publishable paper to report on their results.

In our meetings, team members discussed how students expressed benefits in working with a cohort (same group of students in all four courses), and also noted the challenges in working with different instructors for each of the four research courses. Sharing our reflections helped us realize that students preferred an uninterrupted flow to the student-instructor relationship by working together through multiple courses to support the design and enactment of a field-focused research project. We recognized the importance of students working with the same professor or instructor with a given philosophical framework and pedagogical approach to nurture their engagement and enhance their learning experience, across several of the research courses in a course-based program. Having a previous relationship with the instructor allowed students to build relationships steeped in trust as well as being open to sharing from those private, confidential and vulnerable moments regarding personal stories and their situatedness to their topic of inquiry. Similar to a supervisor-student relationship that is paramount in a thesis-based program, the students noted the value with having an instructor who understood their research agenda and could offer tailored guidance and mentorship throughout the research process. Previous relationships with instructors also allowed for a particular expectation or know how, about the ways students interacted and communicated with each other and with the instructor. Needless to say, we also discussed some limitations of students working with the same instructor over several semesters as well, such as limited opportunities to learn with and develop relationships with multiple faculty members. It is also a challenge to guarantee students can work with the same instructor for the required research courses that are taught in sequence, as many faculty members are assigned at least one non-teaching semester as part of their

collective agreement. In our research meetings we adopted a belief in the necessity and value in supporting the continuity of faculty engagement and care of students when working with the sequencing of cohorts and assigning instructors in the four required research courses.

We worked through a process of dialoguing and sharing our reflections in our team meeting to explore how students worked to understand their recursive interactions in the context of online learning. We discussed students' challenges in developing a social presence in online courses as they worked to make the learning experience 'more human' as they put it. Garrison (2017) argued that social presence is a complex facet of online courses and necessary for an effective community of inquiry. For some students, social presence was a struggle. Yet in the midst of challenges with engaging in an online community of inquiry, stories emerged of graduate students and instructors coming together and becoming co-constructors of knowledge, co-builders of variant online learning communities, co-learners and writers through peer review feedback and through different processes of communication. We were left wondering how future offerings of the four required research courses in the MEd program could allow for learner flexibility that engages the capacity for students to come into different self-organizing modes in the online context. Our team meetings, teaching journals, and narrative reflections helped us to think about several elements: how the courses became situated within the graduate program; the necessity and rationale for students to be placed within these courses as cohorts by design; how the sequence of courses related to each other; and, how the teacher and learner interactions foster social presence in online courses.

Action Research Team Meetings as Community of Practice: Reflections on Students' Course Evaluations and Feedback

As our meetings progressed throughout the year, we developed a better understanding of our assumptions, our pedagogical approaches and the ontological and epistemological underpinnings regarding our educational practices. As we continued to share and reflect on our experiences teaching in the program, we discussed a variety of topics regarding methods of assessment, signature pedagogies and instructional practice. We drew on students' course evaluations, mid-point feedback that presented themselves in our teaching journals. We also drew on anecdotes from students to make sense of how academic staff could benefit from having more training and understanding of formative assessment and what signature pedagogies are, as well as how these approaches can be incorporated effectively to influence and guide instructional practice. As a result of the feedback, and the team member's reflections and dialogue within the research team, we added resources to the courses, including additional readings related to action research. Our purpose with assigning extra readings was to provide an extensive understanding of action research, to be inclusive of different theoretical foundations, to provide ideas on how to incorporate action research in everyday teaching practices, to expand the overview of educational research, as well as to delineate some of the ongoing challenges of action research. Mid-point feedback from students provided by one of the instructional team members, invited all of us to reflect on the broader context of the program. We noticed that our attention turned to the location of action research within our individual practices as situated within the program. As such, we were able to recognize a continued theme in student feedback (more often tacitly articulated) indicating learning intentions and resources related to action research should also be included *earlier* in the program.

Through our analysis we were able to draw out our underlying assumptions about action research and where it needed to be situated within the learning intentions in the program. What

we took for granted concerning our knowledge of research, particularly action research, needed to be presented to students earlier in the research courses. Without the collaborative reflections through ongoing dialogue, we may have otherwise interpreted the students' feedback as a personal affront on our teaching capacity. Instead, we were able to position a gap in the program as experienced by our students. As such, when we revised the first course, we added the following learner outcome and used this statement to guide the revision:

Learner Outcome: Understand how action research applies to educational settings and contexts.

We also included an emphasis on action research in the second course to provide scaffolding towards student inquiry in the third course. Students also provided feedback noting that content from the first course needed review and it would be helpful to revisit some of the content during the second course. This feedback suggested continuity exists between the four research courses; however, it also suggested the interval between the courses may require students to review readings from earlier coursework. This is something we considered as we continued working on course revision and course sequencing (e.g., re-reading texts from earlier courses or other ways to reconnect with ideas from previous courses). Team members made clear the value of students' feedback to their teaching and learning practices and they let students know how they planned to use their feedback in future courses or how the feedback would be shared with the team to inform future program changes. Importantly, we learned more about how we teach and how we embody principles of action research than we might have otherwise in casual and individual reflections on our teaching, which emphasized the value of intentional individual and collaborative reflective practices that we engaged in throughout the action research.

We developed a collective awareness of our own parallel and intersecting paths alongside the students' experiences learning about action research. Listening deeply to the students' feedback on how working alongside peers as part of cohort and the structuring of the courses supported their confidence and belief in themselves as student-researchers, and dialoguing through our reflections on the feedback, supported our own confidence in the program, in our teaching practices, and in our action research. We came to recognize how the reflective phase of our research cultivated an action research community of practice that strengthened our methodological and pedagogical approaches to teaching and learning through action research.

Conclusion

In this analysis of our narrative reflections through this action research study, it became evident there were challenges that arose as a result of working in collaborative design and teaching teams; yet through the process of analyzing our reflections on the experience, we have been better able to attend to the tensions within the collaborative focus of the program through our action research. As our critical reflection processes drew from multiple sources over time, such as curriculum review documents, teaching journals, electronic communications, notes from team meetings and narrative reflections noted earlier, we organized themes to help with our meaning making approach within this action research inquiry.

Learning Continuity was found to play a crucial role in increasing overall instructor and student understanding of the four sequenced research courses and also the nature of students' needs. Instructors frequently reflected on the possibilities that surfaced when they taught the same cohort of students several times during the four-course sequence. Staying with a cohort for several of the required research courses allowed the instructor to take on a supervisory role within a non-supervisory, course-based MEd program and allowed for insights into students'

needs through the ebb and flow of “uncertainty” when learners first delve into educational research. Furthermore, the opportunity to teach more than one of the courses within the program was found to enhance instructor comfort and knowledge with the ways the courses were designed to connect and build upon each other, particularly when one knew the students they were going to be working with. Whenever possible, instructors worked with the same cohort of MEd students from inception of research project to enactment to reporting and knowledge dissemination. Instructors developed a relationship with students in a way that allowed for deep and personalized, research-based learning (Willison, 2012). Through the later courses in particular, the reflections indicated that we had a real sense of where each student could go in their writing, thinking, being, and doing educational research. At the beginning of each course we could build upon established communities of inquiry and trusted relations in the cohort and, as such, move seamlessly into the objectives of each course, intentional processes of research-based learning, and provide continuity from course-to-course.

Each instructor interpreted the course revision and engaged in pedagogical activities in unique and personalized ways, yet through our collaborative reflections in the action research, we were confident that each instructor and each section of students was ultimately reaching towards the same program goals. Even when using the same syllabus, two instructors enacted the course in different ways and through our reflections, we were able to both note and attend to the differences. We noted that although differences existed, being able to share them with one another through the reflection processes allowed us to develop trust as individuals within a team. In education, people often work collaboratively, and in order to be effective, we need to know how to actualize the theory-practice relationship. Reflecting during our action research process

and collaboratively reading and analyzing those reflections both embodied and served the emphasis on community that we aim to enact in pedagogical signatures of the program.

Program & Academic Support proved to be a condition for understanding how to support students' difficulties with learning about, designing, doing and reporting research. From analysis of reflective data, it became clear that it may not be feasible to have the same instructor teach four courses offered in sequence throughout one academic year. Academic coordinators or program administrators offered support by connecting colleagues who were teaching the same courses during one term and connecting incoming and outgoing instructors between terms in order to share and negotiate ideas, to deepen collective understanding about the learning intentions, learning tasks and assessment strategies in the four courses. This academic support and intentional networking was valued by individual instructors for strengthening their own practices, for strengthening student experiences with research, and also valuable for informing program wide improvements. Academic coordinators or program administrators can support colleagues by connecting instructor teams. For example, we noted design teams can work together to revise the learning intentions and syllabus; teaching teams can share practice and work together while teaching the course during the same semester; course (pairing) teams comprising of incoming and outgoing instructors can provide transition and continuity for new instructors teaching the research courses (Jacobsen, Eaton, et al., 2018).

The final theme we retrieve in this paper is that of *signature pedagogies* (Shulman, 2005). Part of the intentional design decisions chosen to develop research active practitioners were grounded in signature pedagogies, particularly the deep and implicit structures of learning educational research, such as making provisions for inquiry-based learning and peer review processes used in the courses. Our reflexive journaling revealed both the ways in which our

various collaborations supported our innovative enactments of research-based learning across the courses, and the ways in which being able to share and discuss our approaches to teaching educational research shifted our own confidence in leading students' inquiry-based learning. By each of us committing to these signature pedagogies, we found in our reflections an ability to be able to better assess the response to the curriculum review. We found that the signature pedagogies created a consistency from which to make the assessment while also leaving us room to take up the courses in a way that was pedagogically meaningful in our individual teaching practices, and, through the reflections we created space to become critical friends of one another's practices. The intentionality and space provided by the reflections within the action research drew this point out, whereas initially we were concerned about the boundaries of academic freedom in teaching from a common course outline.

Our reflections allowed us to further highlight the challenges and possibilities of collaborative action research on courses intended to introduce MEd students to action research as a key educational research methodology and practice. Our research highlights the value of individual and group reflection in an action research approach to collaborative design and enactment of actions for graduate program improvement and teaching to support research-based learning (Willison, 2012). Ongoing research is still needed on how to support collaborative design and teaching teams to address challenges such as additional scheduling of meetings, knowledge negotiation, and redesign advancement. The significance of our critical reflection on and in action research speaks to the importance of researcher's experiences as data, how collaborative work can be innovative for educational research, and that the experiences of researchers are relational and can serve as a reservoir to understand implications for reflection as pedagogy in action research.

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