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Mentoring Graduate Students through the Action Research Journey Using Guiding Principles

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Abstract

Our department has adopted action research (AR) projects as the culminating task for our master's degree candidates. This paper presents our work on mentoring our graduate students towards the completion of their final AR research projects and details the deliberate structures we have put in place to guide them through the AR process. These structures include a full-semester course, individual meetings with an AR Chair, and collaborative faculty-student feedback sessions. These collaborative conversations (between students and faculty) have allowed us to clarify our understandings (as a department) of AR, set standards and goals for AR, and raise our expectations on the quality of final AR projects. We hope that the discussion in this article will give students assigned AR new insights and understandings as they conduct their research. As well, we hope that the guiding principles that we have derived through our efforts can inform others who currently use or plan to assign AR to their students.

I. Introduction

Our department began the move to Action Research as the culminating task for our students about 8 years ago. At that time, we wanted to provide our students (almost all future K-16 instructors) with a more rigorous culminating task- one that helped them to develop their future instructional practice. Initially, our Masters students' culminating project consisted of a final portfolio. This portfolio included artifacts from assignments that they had completed throughout their time in our program as well as a written paper where they reflected on the learnings they had derived from the program. While they were generally few in number, other students wrote theses as their culminating tasks. Many in our department saw theses as a more academically rigorous option than portfolios (i.e. they required a review of literature, documentation of methodologies, and analysis of data). However, most thesis projects lacked the focus on classroom practice improvement that we desired for our students. Through numerous discussions, our department decided that students needed a final task that better prepared them for the complexities of classroom practice. As opposed to a task where students looked retrospectively at their course of study (as with the portfolios), or where they looked at issues unrelated to practice (as we saw with the theses), we wanted a culminating task that would give our students the tools and preparation for assuming the full responsibilities of a classroom instructor. With that goal, we moved to requiring each student to conduct original, classroom based research using an AR methodology and began working on processes and procedures for its implementation.

From the limited exposure our faculty had with it, AR offered a promising methodology for helping students to develop their teaching practice. When we began, however, AR was a brand new research methodology to us. The vast majority of our faculty completed traditional theses. Taking on AR as the

final student task across our department required us to educate ourselves on AR as a methodology. Unexpectedly, the efforts we made to learn about AR on behalf of our students have given us a more clarified understanding of our work as teacher-educators. AR, then, has been a lens through which we have re-envisioned teacher preparation from a change in the individual cognition of our students to a shift in the practice of novice teachers. This is a crucial shift as schools of education are being called upon more and more to demonstrate their graduates' readiness for the dynamics of classroom practice (Darling-Hammond, 2006). Likewise, as many teacher preparation programs move to fast-tracked one-year teacher certification and Master's degree models, the need for tools to improve the practice of novices increases.

Over the years we have revised and refined our processes for mentoring students through their AR work-making adjustments in student supervision, structures for providing feedback, and processes for writing and revising their work. For example, when we began, students took an AR course where their course-professor also served as their AR advisor. Over time, this has been revised so that students' AR advisors are professors with expertise in the area that students are conducting research. Other structures (such as feedback sessions) have also been added to provide our students with support in the process of conducting their AR projects. As well, the rubric used for scoring final AR projects has been revised multiple times in an effort to reflect our goals and support our students' development. These modifications have led us to new understandings of action research. In turn these new understandings have led us to adopt new processes and approaches in supporting our students in being successful in this task. The goal of this paper is to share where our AR program currently stands including its practices and policies. While what we present here seems linear and final, it is important for the reader to know that our conceptualization has been fluid- adapting to our new understandings, contexts, and challenges. Just as we emphasize with our students the inherent complexity and unpredictability of AR, we have come to understand that our work with mentoring our students in AR is complex and dynamic. That said, we do embrace some foundational conceptualizations of AR and specifically its use as a tool for informing and transforming practice.

Review of the Literature: Action Research & The Apprenticeship Model- Teacher Professional Development/Pre-service teacher preparation

Conceptions of Action Research

Action Research can have numerous goals. In 1999, White discussed action research as falling into three categories: explanatory- related to testing hypotheses, interpretive- related to understanding phenomena within context, and critical- concerned with the transformation of politics, society, and individuals (to name a few). These delineations are similar to Berg's (2001) action research distinctions of technical/scientific – related to testing hypothesis based on an established theoretical framework, practical mutual collaborative/deliberative – related to improving practice, and emancipating/enhancing/critical science – related to critically reflecting on problems and contributing to raising collective consciousness about these fundamental issues. While our students are exposed to each of these forms of action research, we have observed that the majority of them choose studies situated in the practical mutual collaborative/deliberative category.

While both Berg (2001) and White (1999) delineate categories, where conducting emancipatory research is separate from classroom research, we do not agree that this must be the case. The same argument can be made for conducting technical/scientific AR that is also collaborative or emancipatory in nature. In other words, we do believe that it is possible to conduct emancipatory action research in the context of classroom practice and instruction. Our faculty has engaged in conversations about why students tend to choose practical/mutual projects exclusively. We believe that this is the case because our students are preparing for careers as instructors and as such this category speaks most to them. As well, their choices clearly reflect our department's overall focus on practitioner preparation. We are continuing to engage in conversations about how to support students in choosing projects that address more emancipatory goals as we see social justice as a large part of our department's mission.

Action Research Methodology

Action Research is a response to critiques that traditional research does not meet the needs of marginalized communities or the questions of practice (**Creswell- add others. Very Important!**). Instead of being rooted in the interests of the researcher, Action Research questions originate from the problems presented within contexts. For example, a group of immigrant women might engage in action research to address the lack of access they have to community resources (Okigbo, Reiersen & Stowman, 2009). Similarly, a teacher might engage in action research out of a desire to address the low participation rates of certain students enrolled in her classroom.

Action research involves a series of targeted interventions implemented in subsequent phases. An intervention, such as providing information about community resources in an immigrant's mother tongue or allowing students to complete assignments with peers, is implemented during the initial stage of the action research study. The researcher then collects, and analyzes data to understand the impact of the intervention. Subsequently, the researcher reflects closely upon the impact of the intervention, designs and then implements a second intervention. This reflection is a hallmark of action research, one that we capture in dimensions four and five of our rubric. This second intervention could be a modification of the initial intervention (i.e. providing resources in an array of immigrant languages and dialects) or a more dramatic change such as designing a transportation network to help immigrant women gain access to community centers and other resources. What is important is not the level of modification, but that subsequent phases are the results of careful, close reflection on the earlier phases. Action research is cyclical. As such, an ending point is reached when the problem has been resolved. In the case of our students and the natural timelines of semester breaks and graduation dates, their projects often end with projections of interventions that they would implement next were they to have the time.

Apprenticing Preservice Teachers to Practitioner Researchers

We conceive of AR as a process of guiding students from “pre service teacher” to “practitioner researcher.” Our work with students supports the notion of a cognitive apprenticeship (Collins, Brown & Newman, 1991) i.e. where students are “developing cognitive skills through participating in authentic learning experiences” (Dennen, 2007). Student-teaching and practicum sites serve as these authentic learning experiences. There is a large body of research devoted to the preparation of apprentices (such as pre-service teachers) for practice. For example, Rose (1999) discusses preparation for physical therapists. Simpson (1979) addresses the development of nurses while Foster, Dahill, Golemon & Tolentino (2006)

study the preparation of clergy for the pastorate. Grossman, Compton, Igra, Ronfeldt, Shahan, and Williamson (2009) bring together research related to the preparation of clergy members, teachers, and clinical psychologists for practice. Specific to teaching, there is a body of research on “learning to teach”(Carter, 1990; Shulman 1986, 1987; Lampert, 2010; Wideen, Mayer-Smith & Moon, 1998). Grossman, Valencia, Evans, Thompson, Martin & Place (2000) followed preservice teachers into their first years of teaching to understand how they made use of what was learned during their teacher education programs. Their analysis demonstrated that teachers made use of pedagogical and cognitive tools learned during their teacher education programs. Germane to our work, Grossman and her colleagues found that those pedagogies and conceptualizations learned and subsequently applied in structured context (such as student teaching) had the greatest influence on the teaching of these early-career educators. Our goal is for our action research program to serve as a structured opportunity for students to try out pedagogies and theories learned in their preparation program and to reflect upon them under the support and mentorship of their professors and peers.

Apprenticeships take as central the notions of authenticity, and embeddedness. Applying these ideas to school subjects (such as reading, writing and mathematics) Collins and his colleagues employ the term “cognitive apprenticeship.” Cognitive apprenticeships emphasize two ideas. First, the method is focused on “the *processes* that experts use to to handle complex tasks (p. 3) (emphasis added).” Second, “cognitive apprenticeship refers to the fact that the focus of the learning-through-guided -experience is on *cognitive* and *metacognitive* rather than on physical skills and processes (p.3) (emphasis added).” As with traditional apprenticeships, the need for transferability in cognitive apprenticeships is minimized, as learning has already taken place in authentic (cognitive) environments.

One of the limitations of graduate training in education is that far too much of it occurs in the university classroom- outside of actual K-12 (and in our case K-adult) classrooms. Such models can lack transferability, as they are not embedded in the actual, complex context and work of teachers. Efforts that are embedded in K-adult classrooms (such as practicum and student teaching courses) lack the close guided cognitive mentorship (i.e. the focus on processes and metacognition) called for in cognitive apprenticeship models. For example, in student- teaching placements, pre-service teachers may have a teaching supervisor who meets with them a few times throughout a semester. Likewise, pre-service teachers observe their classroom mentor teacher throughout their student-teaching placement, but often have limited time to debrief, and thereby learn from, their experiences.

While we have not moved our graduate training completely out of the university setting (our students have a mix of university coursework, practicums, and student teaching placements), we see AR as a bridge between university-based instruction and the K-adult classrooms that they will one day teach in. Through their AR studies (and the experiences that we have organized to coincide with their research), our students receive close cognitive apprenticeship- focused on the processes of improving their teaching practice. During their final semester with us, students are placed into K-adult classrooms where they conduct needs assessments, and design learning interventions. These interventions are fashioned alongside an AR course instructor and chair whose goal is to push students to reflect on what they are seeing and experiencing in their classroom placements. Students are required to discuss their research experiences and findings during designated course sessions. Later in the semester, we hold feedback

sessions-where students give practice presentations of their studies to experienced AR faculty. Each of the activities (discussed in detail below) are designed to apprentice our students into fuller participation as classroom instructors.

Conducting Action Research in our Department/Our Department's Conceptualization of AR

Action research requires the researcher (in this case our students) to engage in a number of simultaneous cognitive and metacognitive processes. Our pre-service teachers are at the same time: 1) learning how to conduct research (how to ask appropriate research questions, employ appropriate methodological tools for investigating the question, and analyze data in relation to the research question); 2) learning how to teach (understanding student-learning, reflecting *in* and *on* teaching (Schön, 1983)), and 3) collecting, organizing, and subsequently analyzing research. Not an exhaustive list, this richness provides tremendous opportunities for growth, but can also leave the student researchers exasperated and overwhelmed. Our department works to manage this exasperation through numerous support structures which have evolved over the years to meet the needs of our students. We detail these structures below, beginning with a discussion of our Action Research Rubric.

Our Action Research Rubric

Our AR rubric, designed and written by department faculty, is one of the cornerstones of our AR programming. Over the years, it has served dual purposes. It serves as a measuring tool of our students' final AR write-ups and a reflection of our ideals in relation to conducting AR for novice practitioners (our students). Numerous meetings provided opportunities for focused conversations and revisions of drafts. As a result, the rubric reflects our conceptualization of AR and the aspects of AR that we find most important to supporting our students' growth. Students' final AR projects are scored based upon this rubric. These scores ultimately decide whether or not students complete our program and receive their degree. However, when student's work does not meet the criteria set forth in the rubric, it provides us with feedback on where we need to strengthen our practice with mentoring these students. This type of reflection has pushed us to revise our teaching, to rethink our one-on-one meetings with our students, and to reconsider the cut-off scores necessary for passing.

There are 9 dimensions to our current AR rubric. Student work is evaluated based upon four performance levels (SEE 1.1).

Table 1.1 Action Research Rubric Scoring Levels

- Level 1 Not Acceptable
- Level 2 Beginning
- Level 3 Competent
- Level 4 Exemplary

Level 1 signifies that the performance on that dimension is not acceptable. Level 2 signifies that the candidate is at a beginning performance level. A Level 3 signals that the candidate has demonstrated the performance of a competent novice on the given dimension. This score anchors our rubric and signifies our, "hoped-for/ideal score for a research novice" (Department of Learning and Teaching, AR Guidelines, Spring 2012). Level 4 signifies exemplary performance on the given dimension. Such levels of

performance typically apply to teachers who have been engaged in years of reflective instructional practice. In addition to the four levels of performance, the individual dimensions are weighted on a scale of one to four. We believe that our weighting helps to tell our students what we value. Using this system, dimensions that we have signified as having greater importance bear more heavily on students' final score. To compute the final score for a particular dimension, the performance score is multiplied by the dimension's weight (SEE Example 1.2 below).

1.2 Example Dimension Score Calculation

Performance Score-3	Weight-3	Final Dimension Score-9
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Exemplary scores on each of the nine dimensions yields a final score of 100 points. Competent scores on all nine dimensions yield a final score of 75 points. Over the past 5 years (since our weighting system was implemented) the minimum passing scores for AR studies have ranged between 62 and 75 points. This fluctuation has reflected department discussions about what we consider to be acceptable novice performance. Below we outline the nine dimensions in hopes that it makes our expectations and values around action research more transparent for ourselves and for our students.

Dimension #1: Statement of Problem, Understanding of Context & Research Question (Weight = 2)

Level 1 Not Acceptable	Level 2 Beginning	Level 3 Competent	Level 4 Exemplary
<ul style="list-style-type: none"> · No or unclear description of the context · Question is not researchable · Question does not reflect a problem related to a specific site · Question does not reflect the philosophy and guiding principles of the program 	<ul style="list-style-type: none"> · No or unclear description of the context · Question is not researchable · Question does not reflect a problem related to a specific site · Question does not reflect the philosophy and guiding principles of the program 	<ul style="list-style-type: none"> · Description of the context for the question is clear. · Question is researchable · Question is timely and relevant to the issue or problem · Question is clearly guided by needs assessment conducted in the context · Question reflects the philosophy and guiding principles of the program. 	<ul style="list-style-type: none"> · Question is researchable and could potentially resolve a clearly identified problem or issue · Question is relevant, timely and grounded in practice and supported by thoroughly conducted needs assessment conducted in the context · Needs assessment was conducted in collaboration with other professionals in the area

The Statement of Problem dimension asks students to delineate the purpose of their research, to articulate the relationship between what they have identified as the problem and the actual needs within their research context, and to craft an initial research question. Initially, many of our students approach action research from a top-down perspective, meaning they come into the project with a specific interest on what they would like to research and practice. Such an approach is counterintuitive to the nature of action research. This first dimension, then, asks students to assess the needs in their placement and to then determine a problem statement based upon that assessment. This “grassroots” process serves as a

signal to the importance of placing the needs of the context above their own as well as the importance of making evidence-based decisions in their teaching.

Based upon the needs assessment, students must also determine a research question to guide their study. Student-researchers often underestimate the nature of devising a research question. Their initial research questions often reveal inherent biases and expectations. As well, these questions are often loaded or leading; or they are phrased in ways that yield “yes” or “no” responses. Students must work to develop researchable questions that are exploratory in nature. Questions such as, “How might student created avatars impact adult English language learning?” or “What do science teachers learn from their participation in Professional Learning Communities?” warrant nuanced investigation and suggest that answers to the questions of teaching are rarely simple.

Dimension #2: Action and Assessment Plan- First Iteration (Weight = 2)

Level 1 Not Acceptable	Level 2 Beginning	Level 3 Competent	Level 4 Exemplary
<ul style="list-style-type: none"> • Action and assessment plan for studying research question are not clear and systematic • Description of action/intervention is not present or unclear • Process of data collection is not explained thoroughly • Initial design would not permit recursive action • No plan to triangulate data 	<ul style="list-style-type: none"> • Action and assessment plan for studying research question are clear or systematic but not both • Methods chosen are not well thought through in terms of the research question(s) • Description of action/intervention is clear • Plan for triangulation of data has gaps and/or triangulation of data is cited but not evident • Data triangulation is planned but not clearly articulated 	<ul style="list-style-type: none"> • Action and assessment plan are clear and systematic • Process of data collection is systematic and thorough • Clear description of action/intervention • Data analyses are appropriate and accurate • Plan for recursive action redesign/implementation is clear and possible • Data triangulation plan is evident or underway 	<ul style="list-style-type: none"> • Data collection demonstrates responsiveness to emerging issues • Data analyses are exceptional and provide in-depth examination of the question(s) • Design phases are or could be thoroughly substantiated by data

The Action and Assessment Plan dimension asks students to design an action plan that is firmly grounded in the literature, the research context, and the needs of the students. As such there is an interplay between dimensions 2 and 3 below, where students identify emerging issues or problems within their classrooms while simultaneously consulting the literature and understanding their student needs through observations, interviews, surveys, and/or other forms of data collection methods used for the needs assessment. For their action plan, students are asked to provide a clear rationale for the intervention and make explicit connections and reference to the sources and data that led the student to take this particular action. At this point in the process, it is important for students to delineate the question or components of the question that is under study and demarcate how data is going to be collected and how it is going to be assessed for each construct within the research question. For example, if a student asks the following research question, “In what ways can I improve student engagement with reading through literature circles?” the constructs that need to be operationalized for assessment include “improve” and “engagement.” In other words, the student needs to present how students are going to be assessed in order to obtain data on their “improvement” of “student engagement” with reading through literature circles.

Dimension #3: Literature Review and Theoretical Framework (Weight = 4)

Level 1 Not Acceptable	Level 2 Beginning	Level 3 Competent	Level 4 Exemplary
<ul style="list-style-type: none"> · Literature review doesn't cite relevant theories and research in terms of the question(s) being asked · Literature reviewed does not include major theories and research in the area · Literature review is not written in the way that can guide the action planned in the study · Literature is not linked to action and assessment plan · Literature does not reflect the context of the research (i.e., the research setting) 	<ul style="list-style-type: none"> · Literature review cites major theories and research in the field of study that is related, but does not make clear connections with the research questions(s) · Literature reviewed includes some major theories and research in the area · Literature review is written in the way that can somewhat guide the action and assessment plan · Literature is marginally linked to action and assessment plan · Literature minimally reflects the context of the research 	<ul style="list-style-type: none"> · Literature review cites major and contemporary theories and research that seem relevant to the contextual needs and the action research question(s), and clear connections with research questions are made · Literature review includes major and contemporary theories and research in the area · Literature review is purposefully written in the way that can meaningfully guide the action and assessment plan · Literature purposefully guides action and assessment plan <p>Literature review reflects the context of the research</p>	<ul style="list-style-type: none"> · Literature review cites comprehensive research and theoretical knowledge of the field in the way relevant to the contextual needs and the action research question(s) · Literature review is synthesized purposefully (appropriate connections are made) · Connections substantiate this research · Literature review is organized around and guides action and assessment plan comprehensively · All literature is reviewed in the context of the research

The Literature Review and Theoretical Framework dimension asks students to consider the literature in the field that speaks to their research question. In more traditional studies, the research literature (theoretical and empirical) holds the highest level of authority. In fact, student research studies such as theses, are generally expected to respond to deficiencies in the literature. In other words, researchers decide what to study based upon research gaps. Because action research places practice and the problems of practice centrally, research literature plays a consulting rather than leading role in their projects. Students are expected to design studies that address problems and questions related to and emanating from their instructional practice- not necessarily those that address gaps in the literature. This does not mean that the extant literature is not important. Rather, the student as practitioner looks to the literature to find guidance and wisdom related to the problems and questions that they have encountered in their practice. The literature also helps them to understand how others have studied similar issues, assists them in crafting stronger research questions, and operationalizing constructs within their research question. In crafting the literature review, students are asked to present a holistic understanding of the research that pertains to their study and demonstrate how these concepts meaningfully and concretely manifest in their own teaching practice, approach, methodology, and/or action. It is important for students to also recognize key theories that undergird the larger problem or the social and historical context in which their study is situated. While the Literature Review and Theoretical Framework dimension appears only once on the rubric, scores are based on reviews of literature that appear throughout the action research study. It is not uncommon for students to consult with the research literature on several occasions while conducting their action research studies.

Dimension #4: Evolution of Research Question, Identification of Problem, Rationale and Significance (Weight = 3)

Level 1 Not Acceptable	Level 2 Beginning	Level 3 Competent	Level 4 Exemplary
<ul style="list-style-type: none"> • No description for the context of the new or revised question(s) • Second phase research question does not reflect a relationship to the first iteration of the research design • Second phase research question does not address the needs of the site 	<ul style="list-style-type: none"> • Context is mentioned but not well described • Second phase research question development refers to the first study but does not arise from it • Second phase research question is somewhat researchable • Second phase research question is timely or relevant to the issue or problem, but not both • Question relates to the site or the problem, but not both 	<ul style="list-style-type: none"> • Description of the context for the question is clear • Second phase research question reflects a clear evolution from the first study and its findings • Second phase research question is researchable • Second phase research question is timely and relevant to the issue or problem • Second phase research question clearly addresses a need of the site where research will be conducted 	<ul style="list-style-type: none"> • Second phase research question is researchable and could potentially resolve a clearly identified problem or issue • Second phase research question evolves from first study and reaches beyond the expected next step • Second phase research question is relevant, timely and grounded in practice

Evolution of Research Question, Identification of Problem, Rationale and Significance

The Evolution of Research Question, Identification of Problem, Rationale and Significance dimension asks students to demonstrate their ability to evaluate student learning and reflect on their teaching.

Evolution of the Research Question

It is presumed that students will reconsider their original research question in light of their learning from the first phase. These adjustments might include expanding or narrowing their research question/s, providing more precision in defining constructs within their research question, or reconceptualizing their research question/s altogether based on the results from Phase I.

This entails that they revisit the original problem or need identified and evaluate their instructional practice from lesson conceptualization, delivery, and assessment, and consider potential ways in which to address emerging problems or new insights that emerged from the first phase.

Identification of the Problem

The evolution of the research question is dependent upon the process of redefining the problem and/or addressing the emerging issues encountered during the first phase of their study. For example, if a student worked on developing vocabulary for kindergarten students and found that they all did not perform well on the assessment, this dimension asks the student to reflect on their understanding of student needs and their intervention to determine the underlying issue. If these kindergarteners were unable to recognize sound-symbol relationships, then it is imperative that the student reconsiders the research question and intervention and focus on supporting students in developing an understanding of sound-symbol relationships prior to emphasizing vocabulary development.

Rationale and Significance

For this dimension, the student should provide a clear rationale for the evolution of the research question grounded in theory and practice and the potential significance of this research question to understand the problem or issue more deeply.

Dimension #5: Action and Assessment Plan- Second+Iteration (Weight = 4)

Level 1 Not Acceptable	Level 2 Beginning	Level 3 Competent	Level 4 Exemplary
<ul style="list-style-type: none"> • Action and assessment plan for studying research question are not clear and systematic • Plan for data collection does not relate to previous data collected. • Justifications are given for modifications to the original plan of study for new phases • Recursive action redesign/implementation, data collection is not implemented 	<ul style="list-style-type: none"> • Action or assessment plan for studying research question is clear and systematic, but the other is not clear • Data collection relates to first data gathered but not specifically • Justifications are given for any modifications to the original plan of study for new phases • Recursive action redesign/implementation, data collection is not implemented 	<ul style="list-style-type: none"> • Action and assessment plan for studying research question are clear and systematic • Data collection is informed by first set of data collected • Justifications are given for any modifications to the original plan of study for new phases • Recursive action redesign/implementation, data collection is implemented (at least 2 phases) 	<ul style="list-style-type: none"> • Data collection demonstrates responsiveness to emerging issues • Design phases are thoroughly substantiated by data • Problem solution is reached in an innovative way

Action and Assessment Plan Second Iteration

The Action and Assessment Plan Second Iteration dimension addresses the steps a student takes in response to the first phase of their research. Guided by the revised research question, students are asked to present a compelling rationale for the adjustments made to their first phase action and assessment plan. Instead of designing a completely new study, this section asks of our students to present a thoughtful plan based on evidence gathered in phase one that contributed to a deeper understanding of the problem or emerging issues encountered within their classes. Their action and assessment plan is designed to respond to these emerging needs through the process of revisiting their original plan and providing a rationale for any modifications made in their interventions, data collection and data analysis process.

Dimension #6: Data Analysis, Reflection and Presentation of Findings (Weight = 4)

Level 1 Not Acceptable	Level 2 Beginning	Level 3 Competent	Level 4 Exemplary
<ul style="list-style-type: none"> • Analysis techniques are not appropriate for the data • Results from raw data are not well summarized • Results are not clearly articulated • Invalid or incomplete interpretation of data • Trends or patterns in data not clearly identified • Assessment data (results) are not used in recursive design 	<ul style="list-style-type: none"> • Analysis techniques used are minimally appropriate for the purpose and scope of the project • Results from raw data are summarized but needs a more clear and systematic format • Partial interpretation of data • Trends or patterns in data marginally identified • Results section include graphs or tables without APA style • Assessment results are presented for recursive design but they are not clearly presented 	<ul style="list-style-type: none"> • Analysis techniques used are appropriate for the purpose and scope of the project • Results from raw data are summarized in a clear and systematic format • Valid interpretation of data • Trends or patterns in the data clearly identified • Results section includes clearly articulated graphs or tables in the APA style • Assessment data (results) are presented effectively for recursive design 	<ul style="list-style-type: none"> • Analysis includes techniques beyond normal scope of action research • Presentation of results suggest analytical interpretation • Interpretation of data shows synthesis of previous and current research • Trends or patterns clearly identified in the data • Relationships among data are presented graphically

Data Analysis, Reflection and Presentation of Findings

The data analysis, reflection and presentation of findings dimension asks students to organize, interpret and then reflect upon their findings.

Analysis of Data

Though action research lends itself to subjectivity, particularly in how the student came to the study and how the student has grown in their understanding of themselves in relation to their work, in this section we ask students to be transparent and objective in their interpretation of the data. As such, students are required to triangulate data and to look at the question under study from various perspectives. Students are encouraged to consider a variety of analytical approaches as needed to understand and interpret their findings. Because of the inherent value of action research, which is the iterative process of analysis, reflection, planning, and intervention, students are asked to present all of the findings, including those that did not go as they had planned or where students may not have shown improvement. If things did not go as planned, they are asked to consider why they did not go as planned and what can be done in the next iteration of the study.

Findings and Reflections

After students have had a chance to go through at least two cycles of the study and present an action plan for the third phase, they must come to a preliminary close for the time being and present their findings and reflections from what they have learned thus far from their action research study. After analyzing data for each phase, students will need to interpret the data they have collected in the context of their research question and present their findings. The findings should be presented in a clear and systematic manner. For example, the findings can be organized around the constructs in their research question, sub-questions, or themes that evolved out of the study that respond to the research question. Students can interpret the data, by discussing trends and patterns they observed from multiple data points. However, for each claim made, it is important to provide the evidential data in the form of quantitative data (e.g. scores, tally marks) and/or qualitative data (e.g. student work, quotes). After presenting the findings from each phase, students will then need to consider next steps for their action plan. Sometimes, the findings may not reveal a clear picture because the student may find that the original research question was not clear or the methodology did not generate the data the student was looking for leading to some evolution of the research question or plan. Again, students need to make sure that their plans for the next phase are grounded in the data and thoughtful reflections about what went as planned and what did not go as planned and why. The purpose of the reflections is to have students assess their dispositional stances. Rather than looking at their students as not meeting their expectations, it is important for candidates to realize their role in student learning. In other words, we encourage our candidates to face the mirror to themselves and really look deeply about their preconceived notions, their assumptions, biases, and dispositions as playing a crucial role in what transpires in their classrooms.

Dimension #7: Discussion (Weight = 2)

Level 1 Not Acceptable	Level 2 Beginning	Level 3 Competent	Level 4 Exemplary
• Inadequate description of	• Marginal description of	• Adequate description of	• Description of meaning of

meaning of results • Assessment of impact of intervention is missing • Results not tied to research	meaning of results • Assessment of impact of intervention is valid but minimally explained • Results not tied well to research	meaning of results • Assessment of impact of intervention is valid • Results confirm or refute previous research	results pushes knowledge and understanding of the subject
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Discussion

The discussion dimension asks students to consider the the meaning of their results from the two phases. These include a thoughtful description of the meaning of the results they obtained from their interventions and a reflection of their role in student learning. In addition, students are asked to present how their study is situated within the larger literature they reviewed for their action research. In particular, this segments asks students to consider their study in terms of whether it aligned with or deviated from what was presented in the previous literature and possible reasons for any gaps. The purpose of this dimension is to have the students step back from their own classrooms and interpret how their work might be anchored to the larger problems and issues addressed within the field of education.

Dimension #8: Overall Reflection and Conclusion (Weight = 2)

Level 1 Not Acceptable	Level 2 Beginning	Level 3 Competent	Level 4 Exemplary
<ul style="list-style-type: none"> • Little or no reflection • Reflection offered is superficial 	Reflection on action research process address some of these or does not adequately explain: <ul style="list-style-type: none"> • what the study has shown, how the problem or issue has been resolved • limitations of the study • ways the research study could be improved • suggestions for future research • ways future teaching/practice is informed 	Reflection on action research process includes: <ul style="list-style-type: none"> • what the study has shown, how the problem or issue has been resolved • limitations of the study • ways the research study could be improved • suggestions for future research • ways future teaching/practice is informed • how the action researcher was transformed to be a wiser and more effective practitioner through the research experience 	Reflection ties the study to new potential directions in the field Reflection on action research includes: <ul style="list-style-type: none"> • how the action researcher was transformed to be a wiser and more effective practitioner through the research experience • how the action researcher could initiate leadership in the field • critical reflection of the transformative experience at personal, social, and cultural levels

Overall Reflection and Conclusion

In the Overall Reflection and Conclusion dimension, students are asked to present what their study has shown and how the identified issues or problems have been resolved. If students identify areas that have not been resolved, students present considerations for the limitations of their own study and how their study could be improved in the future. The assumption is that after this project, students will continue to improve upon their teaching practice that will contribute to a better understanding of the issues they attempted to address during the course of the present study. A central component of action research is the growth and development of the practitioner and therefore, in their reflections, students are asked to thoughtfully and critically present their learning about themselves and their practice through participating in this action research from not only a personal stance, but from the larger social, cultural, and historical perspectives that may have influenced the teaching and learning process within their classrooms. Lastly,

through the process of engaging in this research project and in learning the tools of action research, we hope that the students are encouraged to consider ways in which they can share their research with their peers and take on leadership roles within their schools by supporting their colleagues and institutions to understand educational issues and problems through the process of action research.

Dimension #9: Quality of Writing (Weight =2)

Level 1 Not Acceptable	Level 2 Beginning	Level 3 Competent	Level 4 Exemplary
<ul style="list-style-type: none"> • Citations not correct • Academic language not used • Poorly organized • Unclear 	Some but not all of the following: <ul style="list-style-type: none"> • use of proper citations • demonstrates ability to use academic language • clear focus, well organized • conceptual clarity 	<ul style="list-style-type: none"> • Use of proper citations • Demonstrates ability to use academic language • Clear focus, well organized • Conceptual clarity 	<ul style="list-style-type: none"> • Clearly developed analysis and argument that shows relationships between all the components of the research

Quality of Writing

This dimension is focused on paper formatting, use of academic language, organization, and clarity. Because this is a graduate program, students are expected to use academic language, organize their paper, and present their work with conceptual clarity so as to be accessible to a wider audience. The APA style guide is employed to measure student competence in referencing academic work.

Structuring Student Success within the Program

In tandem with our rubric, we have deliberate structures embedded within the program to support the students in achieving success with their action research projects. There are the 6 processes/elements that structure AR for our students: AR Seminar, etc., etc. . In the proceeding sections we delineate these processes/elements in detail. Some of the elements are simple and straightforward and therefore receive limited attention in our write-up. Others are more entailed and we therefore provide a more thorough description of them.

I. General Research Methods Course

Students begin their journey with a general research design and methods course. Not focused specifically on AR, this course provides students with a view of the larger landscape of educational research designs and methodologies. Here they examine the connections between research questions and the methods used to examine those questions. They explore more traditional means of conducting qualitative and quantitative research and are given the opportunity to consider the contributions of practitioner research such as AR. By the conclusion of this course, students have conducted a needs assessment at the site where they will carry out their AR study. (Students use these general research methods in conducting their AR studies. This,

II. AR Seminar (Guided/Scaffolded Support)

Subsequently, are enrolled in an AR seminar. This course is designed to walk students step by step through the process of conducting, writing up and finally presenting their AR before a panel of

educational professionals. Students receive close guidance as they conduct their AR projects through a semester-long seminar. Each week of the course, enrolled students complete a series of guiding questions designed to support them as they conduct their AR projects. These guiding questions are aligned to the major portions of the final AR project. For example, students must complete a set of questions related to their review or research as well as first phase of their AR. These guiding questions help to focus students on the central pieces of what constitutes a good AR project and are aligned to our AR rubric. Because conducting research can be so overwhelming for novice researchers and practitioners, we see these questions as means helping them to hone in on what is of importance amongst all that they are seeing and experiencing with their students.

In the AR Seminar, we scaffold students through a series of guided questions. We do not expect our students to simply meet the demands of the rubric. We have prepared a series of guiding questions related to each of the 9 sections of the AR rubric. Students respond to and think about these questions as they conduct their research in the field. The questions are designed to serve as mediation tools to help them focus in on those elements of AR that we conceptualize as being of importance in our department. These questions also help our students to notice what we would like them to notice. As novice teachers, they do not know what to see or how to see what is importance. These questions help them to narrow their focus and not be so overwhelmed with all that they are seeing. The questions also provide a timeline for our students. They have to work within the confines of 1 semester and these questions help them to do that.

Dimension	Guiding Questions
Statement of the Problem	What is the reason why you chose this profession? What is the nature of your context? What do you think your students need? Why do you think so? How do you think you might be able to address these needs?
Needs assessment: Understanding the needs of students and planning a course of action	What are the needs of your students? How do I know? What did you find and how did you interpret your findings? What do you plan to do based on your understanding of your students' needs?
Research Question	Is your research question grounded in the needs of your students? Is your research question answerable in a deep and thoughtful way?
Guiding Theories and Literature Review	What are some theories that speak to the particular problem you are experiencing? What are some theories that provide some insight into the experiences of the students and/or the context in which you are teaching? What does the previous research literature state about the problem that pertains to your research question?

Action Plan and Intervention	What data sets are you planning to collect? How do they respond to the various constructs within your research question or questions? How will you interpret the data?
Analysis of Data	What data did you collect? What does your data reveal about student learning? How can you organize and present your data in a clear and concise way? How did your data answer your research question/s? What was your data unable to answer? What were some unexpected outcomes? What do these mean for your study? What have you learned about yourself, your approach, and your students? What can you do next?
Findings and Reflections	What you think the findings mean for your own teaching practice? What do your findings mean in relation to your student’s learning and your research question? How have you transformed as a result of partaking in this action research study? What were the limitations of your study?

In the following sections, we present on the learning we have derived from the feedback sessions students have been required to participate in over the past five years. This learning has informed our own understanding of action research and our approach to mentoring our graduate students through their action research journeys.

III. Learning Community

This seminar includes a combination of in-class and individual instructor meetings. During in-class sessions students report out their progress, share their responses to the guiding questions, and read samples of AR studies. As well, each enrolled student has a peer who operates as their critical friend. During in-class sessions, specific time is set aside for critical friends to listen to their partner’s progress, help them to problem solve around challenges, share resources, and act as an all around shoulder to cry on.

AR Chair

Enrolled students also attend individual meetings with an AR chair. This chair serves as a content expert for the student. Chairs guide students on important literature to read, their study design, and how to make sense of their findings in the given content area. The numbers of in-class sessions are reduced so that students have adequate time to meet with their AR chair.

Mentor Teacher

We encourage students to work with a site-based mentor teacher.

In class peers/critical friends

IV. Feedback session

Near the end of the semester, enrolled students are required to attend a faculty feedback session where they give a presentation of their study and its findings. Faculty both in and outside of our department (we are a multi-department school¹) are invited to these rather intense sessions where students receive thoughtful, candid, and constructive feedback. Attendees generally include the student's AR chair, AR seminar instructors, students enrolled in the seminar, and other faculty throughout the school who are interested in supporting and participating in this learning process. Because AR is embraced throughout our school faculty who attend the sessions are quite familiar with the process of AR. These sessions are designed to provide a "safe" space for our students to practice their presentations before formally presenting their work to a public audience at the culminating action research symposium or alternative public presentations.

V. Professional Panels & the Action Research Conference

Subsequent to our in-house feedback sessions, each student is required to present their work at our annual Action Research Conference. The Action Research Conference invites proposals from researchers and practitioners engaged in action research. Averaging 200 attendees, conference presenters have included practicing counselors, teachers, and school administrators; as well as researchers, professors, and graduate students in these fields. The conference has attracted both local (San Diego, Imperial Valley and Los Angeles) and international (Japan, England, and Mexico) attendance. As part of the conference, over the past 3 years, students in our department present their Action Research studies before a group of faculty-selected and invited panelists. Similar to "promotion by exhibition" each student's panel consists of educational professionals-many of whom have expertise in their given area of study- and their advisors. For example, the panels of students working towards a Masters degree in TESOL will include professionals in ESL or TESOL education.

After listening to student presentations, invited panelists fill out a simple rubric and provide written and oral comments to students. Categories on the four-point rubric included, 1. Student communication, 2. Relevance and significance of the study, 3. Alignment of the project's research question and study design, 4. Strength of evidence and data analysis, and 5. Discussion of limitations and next steps for the study. A score of four coincided with, "Highly skilled/strong competence," while a score of one signified, "Significant need for improvement."

¹ Our School includes a department of Leadership Studies; School, Family, and Mental Health Professions; and Learning and Teaching. Together, our school prepares students for organizational leadership, non-profit work, K-12 and higher education administration, school and career counseling, marriage and family therapy professions, and K-16 teaching.

There were 14 students in our sample. These students presented their AR projects in Spring 2013 and presented them before a panel of outside educational professionals as well as their advisor. Panelists scored student presentations on a simple 4-point rubric. As well they were encouraged to provide written feedback on the rubric form. These feedback forms were then emailed to students. Students were required to address the feedback from their panelists in 1-2 paragraphs in their final AR write up.

VI. Submitting the Final Paper & The Scoring Process/Scoring of the AR Projects

Students submit a final write-up of their Action Research study about a week after the conference. Faculty score each action research study along nine dimensions: Statement of Problem, Review of Literature, Action and Assessment Plan Part I, Evolution of Research Question, Action and Assessment Plan #2, Data Analysis and Presentation of Findings, Discussion of Study Results, Overall Reflection and Quality of Writing. In the proceeding section we will discuss in detail our AR rubric.

After students have submitted their AR projects they are scored by two faculty members. Students must receive a score of 69 or 72 or better. Those who score at or above pass. Those below the cut off must meet with their advisor, review the feedback and strengthen the sections that were perceived as weak. Students have one additional week to make these changes. Once made and submitted, the paper is scored by a 3rd faculty member. This is the end of their journey.

Discussion

Preparing teachers to teach requires a deep investment in their development. As we have taken up this work, it is like we have engaged in action research ourselves. Designing and crafting interventions for our students, reflecting on the success of these revisions and revisiting our initial interventions has pushed us to grow and learn.

Faculty development-

In our search to improve student learning through action research, we as a faculty engaged in numerous development activities. From year to year, we revisited our initial scoring rubric making consensus based revisions. Revisions were made both to the content of the scoring guide (i.e. what qualifies as a high versus a low score for the first phase of implementation) and also to the procedures used to implement the guide. For example, the dimensions of the scoring guide are weighted based on the importance we assigned to a given dimension. The decision to assign the second phase of research with a higher weight than the first phase resulted from numerous conversations and guided faculty discussions. At every step, decisions were deliberated upon and justified through our burgeoning understandings of action research and its purposes for our students.

Calibration meetings

Faculty engaged in calibration activities to ensure a measure of inter rater reliability. A student action research study would be chosen, read and scored across the department. We would discuss discrepancies in scorings.. On many occasions these discussions would lead to new scoring policies and guidelines.

What began as an alternative to a traditional thesis soon became a permanent agenda item in our faculty meetings. Continuing to talk about and revise the course sequences that prepared students to conduct action research and the process of supporting them while they are engaged in this research required prioritization and (rethinking our placements and our course work, redesigning research courses and embedding research throughout each of the courses. Making research more deliberate throughout students' coursework.

Developing Teacher Identity/Supporting the Transition to Becoming a Professional Educator

The action research process has revealed to our students the complexity of teaching by showing them how complex teaching is and to think about student learning in light of their teaching. Our students have increasingly learned to hold up a mirror to themselves in order to understanding that learning is a function of their teaching, which has pushed our students to reconsider deficit perspectives they may have inadvertently or unconsciously brought into the classroom.

This is emblematic of the process of lesson study

Linn, Lewis, Tsuchida, & Songer, (2000) argue that lesson study aids teachers in the development of "professional authority" (p. 3). Like

Through the process of action research, we help our students not only familiarize themselves with the microcosm of their classroom context, but we help them gain a wider perspective on larger, macrocosm of educational issues that impact their classrooms at the same time. Candidates begin to see shift from the "I" focus of their classroom to the "We" focus, where they begin to see that what they are experiencing in K-adult classrooms are shaped by larger issues including political, social, cultural, and historical factors. They begin to understand that learning is not simply an input, output process. Likewise, it is not only a cognitive process. Rather it is also shaped, constrained, and pushed forward by social, political, economic, cultural, and historical forces. Educators must understand these factors and learn to instruct effectively in the midst of them.

As part of the process of learning to teach and teaching to learn, teachers engage in the development of their identity from that of a student teacher to a professional educator. They begin to see that they are central to the meaning-making process, where they construct meaning and make sense of their knowledge and experiences as they interact with the broader contexts, which influence the practice of learning and teaching (Kumaravadivelu, 2012). Teacher realize that they are not only enacting what has been transmitted to them, but they take part in the knowledge generation based on their learning from their instructional practice. They also begin to understand that "one size" does not really "fit all" and that they need to tailor their methods and strategies to one that suits their students individual and collective needs. According to Molina (2014), this shifts the practice of using learned methods to empowering teachers to theorize about the value of these methods within their own classroom, through the cyclical process of understanding the needs that continually manifest within their own teaching contexts, integrating changes to support those needs, analyzing their teaching practice and student learning and finally reflecting on the impact of their teaching and necessary adjustments that need to be made. Essentially, this shift in identity is from acquiring pedagogies and practices and employing them directly in the classroom, to considering the appropriateness or effectiveness of these pedagogies in light of their students, their classroom context

and the multitude of external factors. Teachers, for example, engaged in Lesson Study conceive of educational issues that they want to address, enact interventions, reflect upon them and formalize them. They take the lead on enacting change and defining the problems of teaching and learning. Teaching, then, is about taking up the identity of a professional practitioner.

Action research aids in the development of agency. Because the teaching profession has been “de-professionalized” for such a long time, researchers began to look at conditions that need to be present in order to empower teachers to enact change (Priestly, Edwards, Miller and Priestly, 2012;) Emirbayer and Mische (1998) found that teacher agency is influenced by their perception of their students, themselves as teachers and the understanding of the teaching profession, the purpose of education, and the professional relationships embedded within the social structure of their environment. Priestly, et al. (2013) state that “While agency can be defined as the way in which actors ‘critically shape their responses to problematic situations’ (Biesta and Tedder, 2006, p. 11), it is important not to see agency as a capacity residing in individuals, but rather to conceive of it as something that is achieved through engagement with very specific contextual conditions (Priestley et al., 2013, p.188). We believe that AR allows teachers to theorize about their teaching practice and at the same time have their teaching practice inform their understanding of theory. It allows them to begin to make meaningful instructional decisions.

Conclusions

AR is a tool for transforming practice – with no ‘hard and fast rules,’ and no step-by-step “how to.” It is neither simple, nor easy, and there is no one single road map that students can follow. Just as the practice of teaching is dynamic, complex, changing, and evolving, so is research conducted on one’s teaching. The knowledge needed for teaching is complex and multidimensional (Ball, 2002; Shulman, 1986) AR is an opportunity for our students to gain beginning experience with the rigors of teaching in the classroom context. As we reflect back, we recognize that while many of our students produced sophisticated, well researched theses or portfolios; they were pedagogically underprepared. Watching our students’ a-ha moments unfold as they design and implement their AR studies provided us with a glimpse of the complex, consistent work necessary to truly prepare novices to teach. As future K-12 and TESOL instructors, we knew that the majority of our students would spend their careers engaged in the practice of teaching.

In this paper, we established the complex, non-routine and therefore cognitively challenging nature of practitioner work. This complexity demands moving beyond models where information about teaching is simply delivered. Because such models do not illuminate the complexity of teaching, they could not begin to prepare a teacher for his or her future work. Novice teachers need structured opportunities to understand the complex and dynamic nature of teaching. This, then, is the goal of teacher education: to help novices both see and work through the dilemmas and complexities of their future work. Activities such as practicals and student teaching, which have for years been embedded in teacher preparation courses, expose students to the complexities and challenges of teaching. These structures help future educators to see the day-to-day, non-routine, environment that is the classroom. AR, in contrast, provides these novices with tools to work through the dilemmas of teaching. As such, AR carries great potential for apprenticing novice teachers.

This richness can be uncomfortable for students who express feelings of exacerbation, being overwhelmed, uncertain and anxious. In some ways, our feedback sessions with our students serve as their *holding environment* (Kegan, 1994), where support and challenge are purposefully negotiated for student learning and development. We have found that students who adopt a growth versus fixed mindset fare best with the challenges of action research (Dweck, 2002) because the feedback received through this process becomes problematic when viewed from a linear sense of finality, rather than a cyclical approach to the learning process.

We think this has caught on across the departments of our school because it aligns with our beliefs about the development of practitioners. Our work transcends boundaries in our school and beyond.

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Appendix A
Action Research Rubric





