Learning to teach self-study in improving data management practices of student-teachers during an action research course

Khalid Mohammed Idris\textsuperscript{a}, Samson Eskender\textsuperscript{b}, Amanuel Yosief\textsuperscript{b} and Berhane Demoz\textsuperscript{b}

\textsuperscript{a}Department of Social Science Education, Asmara College of Education, Asmara, Eritrea; \textsuperscript{b}Ministry of Education, Asmara, Eritrea

**ABSTRACT**

The article shares collaborating educators (authors') experiences in supporting a group of student-teachers' interventions to improve learning practices as part of an action research course in a teacher education setting. The authors engaged in a series of reflective discussions in making sense of and improving the course process. Facilitation and students' experiences retrieved from course artefacts and written evaluations provided a context for the authors' self-study practices and identifying critical learning experiences. Qualitative data, including practice-based discussion transcripts and students' evaluations, were coded thematically. The two data sets were combined in showing how students' experiences instigated educators' learning in developing contextualised conceptions and practices of self-study. The notion of turning points was also employed in analysing data that significantly influenced conceptions of self-study and shaped the course of facilitations. Framing the experiences within community of practice and self-study of teacher education practices literature, we have discussed changing conceptions and practices of self-study while supporting students engage with data for and during interventions. Course experiences on how intervening to improve practices amplify the relevance of action research in teachers' learning, and the significance of generating evidence from data in action research are discussed.

**KEYWORDS**

Action research; self-study; teacher-educators; community of practice; Eritrea

**Introduction**

This article discusses collaborating educators’ experiences in adopting self-study practices while supporting a group of student-teachers develop similar practices during an action research course in a teacher education setting. Learning self-study practices while teaching it are meant to develop educators “who are not only preparing to be good researchers but also good researchers of teaching and good teachers of research” (Rogers, Jacobson, Allen, Borowski, & Roy, 2018, p. 75). Self-study scholars have shared insights and guidelines on how to teach self-study practices (e.g. Lunenberg & Samaras, 2011; Ritter, 2017). Though much of the contributions are within the context of teaching educators and doctoral candidates, they underline the pedagogical
responsible of self-study research in serving as a “meaningful link between research and teaching” (Ritter, 2017, p. 24). Lunenberg and Samaras (2011), working from two different contexts, develop a set of six guidelines as a pedagogy of self-study that include focus on the “I”, learning, knowledge generation and presentation, critical collaborative inquiry, transparent and systematic research process, and modeling of self-study practices. Similarly, Ritter (2017) shares instructional, relational, and methodological challenges while teaching self-study research that could be basis for developing nuanced pedagogy of self-study.

The authors of this article have been engaged in developing an action research course offered to prospective teachers in two teacher education institutions in Eritrea since 2014. The focus of this article is on the action research course offered in the academic year of 2018/2019 in one of the institutions, College of Education (CoE) at the former Eritrea Institute of Technology for 27 senior undergraduate student-teachers where the first two authors were collaborating in leading the course. Author3 and Author4 were collaborating educators and acting as critical friends (Schuck & Russell, 2005) in learning to develop the course from the outset and throughout the course. Author3 and Author4 have closely collaborated in managing a similar course in a previous academic year at the former Asmara Community College of Education (ACCE) for over 90 student-teachers who were completing their Diploma program in teacher education. Reflective insights and critical discussions of the experiences in facilitating the course at the ACCE has inspired and informed us in developing a more focused course purpose and process. Based on the ACCE’s experience we have designed the course at the CoE in dedicating more time for student-teachers to intervene on their findings, a critical stage of action research. Learning to collaboratively facilitate the course in general and planning and conducting of intervention among the student-teachers in particular created a learning context for the authors to develop essential conceptions and practices of self-study.

We have created an intentional collaborative learning space in facilitating and developing the course among the student-teachers. As part of the action research course design, student-teachers were required to plan and enact interventions to improve aspects of their own learning practices that was of main concern to them. The notion and practice of researching one’s own learning and supporting student-teachers in engaging to research their learning practices were unfamiliar practices to the student-teachers and at least to the first two authors. The authors turned to their collaborative learning space in guiding their practices. We have engaged in a series of reflective discussions throughout the course facilitation period (16 weeks) in making sense of and developing our practices. We have shared this experience in two other articles that focused on pedagogical experiences of the authors during the facilitations (Idris et al. 2020), and course experiences in improving collaborative commitments of the students while carrying out their action research projects (Authors, Forthcoming). The focus of this article is to share collaborative insights in learning to teach self-study while supporting students to engage in data management practices in order to intervene and improve their learning situations in a college setting.

The following section describes the context of the study by briefly introducing salient issues of teacher education in Eritrea and the action research course.
Context

Teacher education in Eritrea

The CoE was offering diploma and degree programs for middle and secondary schools, respectively, in the country at the time of the study. The former ACCE was another teacher education institution that was historically preparing teachers for elementary and middle schools with certificate and diploma qualifications in teaching. While the ACCE used to admit practising teachers for certification, the CoE mostly admitted students who passed through the national matriculation examination. The admission process was centrally managed by the Ministry of Education and the national higher education office. Admitting students with least motivation to teach and lowest academic performance was a major challenge at the CoE which was exacerbated by declining status of the teaching profession in the country (Hailemariam, Ogbay, & White, 2010). Following the national restructuring initiatives of higher education in 2018, programs of the CoE and the ACCE were phased out and a new one-year postgraduate diploma in education was established. Though the admission criteria seemed to be more rigorous in the new program, research was afforded least importance with only 2 credits of the 36 credit hours overall requirement. Processes of learning and teaching at the CoE was generally lecture and examination intensive with least reflective opportunities for students (Idris et al. 2017). Limited college-based professional development opportunities for educators also meant that processes of teaching and learning at the CoE was among the least attended aspects of practice (Posti-Ahokas, Idris, Hassen, & Isotalo, under review).

In this backdrop, the authors of this article intended to model building of professional learning communities in improving learning and teaching processes at the colleges and contribute to the quality of the teacher preparation programs from within. The action research course was the focus of our collaborative initiatives for its strategic role in providing students’ proactive engagement opportunities with processes of learning in a higher education setting (Gibbs et al., 2017), and fostering critical qualities, as inquiry stances, in teachers’ learning (Sagor, 1992).

The action research course

The three-credit hour action research course was offered for senior student-teachers (n = 27) who were in their final year of a degree program in “biology education” in the academic year of 2018/2019. The main objective of the course was to enable student-teachers practice essential stages of action research that include problem development, data collection, developing findings, planning and conducting interventions, and sharing. Issues for action research were intentionally designed to focus on student-teachers’ own process of learning at the colleges. The site of the study was the former Eritrea Institute of Technology, about 25kms away from the capital city. Subject area courses were offered by a college of science within the institute and education courses were offered, including the action research course, by the CoE.

In meaningfully exploring and intervening on their concerns, student-teachers were organised in six study-groups during the first week of the course. The distinguishing feature of the course was allowing the student-teacher groups to intervene on their core areas of concern in the aim of improving their learning context. The course provided
relatively adequate time (i.e. about four weeks), for student groups to develop and conduct interventions on their core areas of concern after data collection and development of preliminary finding stages. The interventions have allowed student-teachers to be more reflexive about their own processes of learning and accordingly implemented contextually fitting intervention activities within and across groups (Table 2). Student-teachers were also required to demonstrate how they were experiencing improvements during the intervention activities in relation their main areas of concern. Therefore, studying intentionally designed interventions for improvements became among the main context and area of selves-study on which we were co-constructing learning experiences within our community.

The following section positions the article within community of practice and self-study of teacher education practices literature.

**Community of practice and teacher-educators’ self-study practices**

Wenger and Wenger-Trayner (2015) characterise communities of practice as having a domain of interest, engaging in joint activities in sharing and improving their areas of interest and crucially develop “experiences, stories, tools, ways of addressing recurring problems-in short a shared practice” (p. 2). Building on this characterisation, Patton and Parker (2017) offer principles of effective community of practice among teacher-educators that include identification and development of a common focus for joint action, developing committed relationships, and collaborative spaces. Teacher-educator communities that aligned with these principles “broke isolation and the competitive norms of higher education, [and] provided a collaborative environment where faculty were committed to their learning, inspiring institutional growth” (Patton & Parker, 2017, p. 359).

The interactive nature of self-study research (LaBoskey, 2004) is amplified within a community of practice because “self study does not occur in isolation and working with other colleagues is encouraged” (Mena & Russell, 2017, p. 107). Self-study of teacher education practices have the tendency of consolidating and formalising the characterisation of communities of practice mentioned earlier because it values dialogue in professional learning of educators (Bullock & Sator, 2018) and developing researcher identity particularly relevant to self-study methods (Gregory, Diacopoulos, Branyon, & Butler, 2017). In the latter, challenging traditional notions of research prevalent in higher education contexts is an issue given the wide prevalence of “spectator-research” (Cohen, Manion, & Morrison, 2018) and accordingly cautious “acceptance” of self-study methodology among academic communities (Cuenca, 2010, p. 26; Gregory et al., 2017, p. 265). Though the predominant notions of research align with positivist research paradigms in our colleges, inspirational initiatives have been carried out at the former ACCE when all faculty members (academic and administrative) were encouraged and supported to undertake collaborative action research to improve college specific practices (Ghebrecal, Demoz, Posti-Ahokas, & Karvinen, 2017).

How could educators go about challenging and improving their conceptions and practices of research in general and self-study practices in particular while facilitating it among student-teachers? In addressing this question, which happens to be the central theme of this article, we found our community of practice as a vital learning space. Our
community helped us in exposing tensions and vulnerabilities of our practices (Klein & Fitzgerald, 2018) and developing our “own” pedagogy fitting to our context through reflections on our practices and collegial relationships (Williams, Ritter, & Bullock, 2012). Cochran-Smith (2003) urges educators to take ownership of their own learning by adopting an inquiry stance to their practices where “the process is one where teacher-educators educate themselves and each other by regarding the work of others as generative but open to interrogation” (p. 23).

Self-study scholars addressed challenges faced in learning and teaching self-study practices. Lunenber and Samaras (2011) and Ritter’s (2017) work, for example, focus on teaching side of self-study. Ritter (2017) share interesting pedagogical insight in teaching self-study in the context of “teaching” colleague educators. The insights include taking time in maturing challenges of practice; engaging participants in teamwork in creating context for support, encouragement, criticality, and individual commitments; and “pushing” participants to enact self-study in respective practices. Stump, Peercy, and Bullock (2018) work focus on the learning side of self-study and point to a tension fraught process of learning and doing self study. The need to “manage tensions” as a natural process of self-study is stressed “since the awareness of the continual interconnections among tensions helps produce new knowledge regarding one’s practice” (Berry, 2007a as cited in Stump et al., 2018, p. 72). The importance of a “theoretical foothold” is further stressed in navigating self-study of one’s practices while teaching it at the same time (Rogers et al., 2018). Though our course was not about self-study, we came to experience the need for developing our conceptions and practices of self-study in meaningfully supporting a group of student-teachers engage in self-study practices as part of their action research engagements.

Methods

A collaborative self-study methodology frames this article in emphasising “an interactive exploration of an issue by a team of researchers” (Lunenber & Samaras, 2011, p. 844). The issue of interactive exploration among the authors was learning to support a group of student-teachers meaningfully inquire and intervene on their own processes of learning as part of their action research projects. “Self-study methods encourage education professors to frame a new pedagogical approach as a research problem and thus subject it to data collection, analysis, interpretation, and peer review” (Bullock & Sator, 2018, p. 62). A distinctive feature of self-study research from action research was that “self-study would make the experience of teacher-educators a resource for research” (Feldman, Paugh, & Mills, 2004, p. 971). Accordingly, a collaborative space was intentionally created to make most of our learning by making the course facilitation processes as our context of interactions and evolving processes of meaning making based on a practice-based situations (Fletcher, Chróinin, & O’Sullivan, 2016).

Critical friendship was an important approach in making most of the experiences of the authors. Critical friendship allows in reflecting challenging areas of practice (Henriksen & Aas, 2020) and encouraged us to deepen our conceptions of self-study practices (Schuck & Russell, 2005). The first two authors were regularly interacting in facilitating the course and in supporting the six groups’ action research projects. The reflective discussion series arrangement among the authors conducted throughout the
semester (n = 34 sessions) provided space for debriefing and reflecting course facilitation processes by the first two authors. Critical inputs of Author3 and Author4 significantly influenced the course facilitation process and outcomes. Accordingly, Author3 and Author4’s role could be conceptualised as “meta-critical friends” because they had challenged and supported the entire course facilitation process based on their experience and expertise in facilitating a similar course in the Eritrean context (Fletcher et al., 2016).

The intentional and focused collaborative space was among the main inspiration in closely learning to develop the course. The discussion series were used as the main source of data in attempting to articulate essential learning experiences during peak collaborative inquiry engagements. The course was further designed to be interactively developed through written feedbacks provided by the student-teachers during the major action research milestones (n = 5). Students’ feedbacks served as a critical reference in learning to improve facilitation practices. This method aligns with the interactive nature of self-study research. Diaries of the first two authors captured practical insights and uncertainties which further deepened our self-study and provided rich reference for our discussion series.

**Data**

Audio records of the reflective discussion series among the authors (34 sessions), students’ written evaluations retrieved during the data collection stage (over 9,000 words), and course artefacts including diary entries, interactions in the course’s WhatsApp group page, students’ action research reports are the main sources and types of data used in this article. After revisiting the 34-session audio-recorded discussions, mainly conducted in local Tigrinya language with frequent switching to English, we have decided to focus on three particular sessions for the purpose of this article. The sessions have been identified to be the focus for deeper analysis in this article for three reasons. First, they were conducted during peak engagements of the collaborative course facilitations, i.e. data collection, planning and conducting of interventions. Second, students’ written evaluations on how they were experiencing the process were shared and reflected during one of the sessions. Third, they were particular sessions that the first two authors requested support of critical friends signifying “turning points” in their learning (Bullock & Ritter, 2011). The three sessions were transcribed in over 10,000 words to be used for closer analysis. Data extracts used in the paper were translated by the authors.

Students were asked to write evaluations about their experiences during data collection, group engagements, and how they wanted to be supported in the process. Students were not required to write their names, but were asked to label their groups in order to identify peculiar experiences and issues in respective groups. The evaluation was part of the course design in improving our facilitation practices and were instantly digitised to identify salient experiences of the students. Diary of the first author are also used as data because they captured critical observations and reflections of class sessions and beyond as he was facilitating the course on site during the data collection and intervention stages. Interactions on the WhatsApp group page (CoECAR 2018/2019 BiolEduIV) created for the course captured critical experience during the process.
Furthermore, students’ action research reports are also used to situate our findings in perspective.

**Analysis**

Data transcripts of the three reflective discussion sessions among the authors and students’ evaluations were first analysed inductively and separately in MS-Excel. Open coding was applied in describing and categorising texts (Cohen et al., 2018) which were latter collated into themes based on their similarities (Robson & McCartan, 2016). Table 1 captures the themes generated and the number of issues contained in each theme based on our reiterative interactions with the data. The two data sets were combined for analysis because we wanted to show how the experiences of the students provided a basis for learning to teach self-study practices in line with this article’s focus. Discussions among the authors, during the three sessions, were also critically informed by the issues shared in the students’ evaluations. Accordingly, themes generated from the students’ evaluations are corresponded with themes of the discussion transcripts.

While interpreting the thematically organised data, we identified particular issues which have significantly influenced our learning practices and shaped the course of facilitations. Accordingly, Bullock and Ritter (2011) analytical notion of “turning points”, in the context of self-study research, was fitting to identify data extracts that had the following characteristics:

- There is an affective (e.g. emotional or motivational) element to the data.
- The data frame a problem of practice.
- The author of the data is implicitly or explicitly asking for help from the critical friend.
- The data are bounded by the action-present; there is still time to act on the problem (p. 175).

Diary entries based on classroom facilitation experiences and beyond, WhatsApp group page communications which happened to record highest frequency of interactions

| Students’ Evaluation | Discussion Transcripts |
|----------------------|------------------------|
| Themes               | Issues | Themes       | Issues |
| Data management      | 21     | Data management | 10     |
| Instructors’ interviews | 3   | Self-study practices | 16     |
| Group experience     | 16     | Teacher interviews | 4     |
| Time                 | 2      | Interventions | 23     |
| Collaborative research | 7   | Team building | 10     |
| Action research      | 5      | Action research | 2     |
| Analysis             | 5      | Analysis       | 2     |
| Guidance             | 5      | Sharing        | 4     |
| Roles                | 4      | Educators’ practices | 4     |
| Observation          | 4      | Reflective writing | 3     |
| Exam                 | 3      | Exam           | 3     |
| Questioning          | 5      | Guidance       | 2     |
|                      |        | Evaluations   | 5     |

Table 1. Generated themes from students’ evaluation and discussion transcripts, and corresponding number of issues.
during data collection and intervention stages, along with students’ reports are used to enrich the analysis of the identified themes.

**Ethical considerations**

Collaborative engagements in studying educators’ teaching practices is a form of professional development and a peculiarly distinctive pedagogy in modelling intentions among prospective teachers (Loughran, 2014). Accordingly, we were keen to share how we intended to study our practices in modelling the main tenets that constitute the course, i.e. collaboration, action, and research, as our pedagogical approach in encouraging similar practices among the students. This was shared in our course design document which was presented to students during the first day of the semester by the first two authors in the presence of one of our critical friends. Crucially, the data generated during the course were mainly used to enrich the course experience as the first two authors were keen to show how they were learning to enact changes in their facilitations based on students’ evaluations and insights from the reflective discussion series. Accordingly, among the salient outcomes of the course was how our extent of collaborative engagements in studying our practices have positively influenced students’ levels of collaborative engagements during their action research projects (Authors, Forthcoming). This experience relates to a characteristic feature of self-study research in that validity is defined “as a validation process based in trustworthiness” (LaBoskey, 2004, p. 817).

Following, we present our findings in two highly complementary stages of data management practices experienced during the course.

**Data management practices for interventions**

Student-teachers engaged in two complementary data engagement stages. First, student-teachers collected data to better understand their problems and generate preliminary findings that would be the basis for planning and conducting their interventions. Second, student-teachers engaged with data in showing evidences of their improvements which were being carried out as part their interventions. **Table 2** summarises the nature

| Groups | Action research focus | Major intervention activities implemented |
|--------|----------------------|------------------------------------------|
| A | Improving peer learning | Awareness sessions, co-organising get together event, initiating peer matching based on student-teachers’ interests or hobbies |
| B | Improving library use | Explore updated materials from digital library, regularising visits during evening hours |
| C | Influencing lecturers’ way of teaching | Modelling disciplined learning, e.g. regular attendance, participation |
| D | Improving interest in learning | Collaborative study sessions, initiate interactions with subject instructors |
| E | Improving collaboration | Collaborative study sessions, co-organising get together event |
| F | Improving interest in learning | Collaborative study sessions, modelling disciplined learning practices |
of groups’ interventions. In this section, issues in relation to data engagements for interventions and educators’ learning while facilitating the process are presented.

**Practicing data collection**

Student-teachers evaluated designing data collection strategies, including selection of methods and instruments, to be manageable. Most of the groups used qualitative methods, mainly interviews and observations, following intensive series of guidance sessions with the first author on how they could adopt qualitative methods in relations to respective action research projects. Student-teachers found interviewing method to be “fun” and effective. A student-teacher stated that they have even conducted interviews among their group to test “credibility” of their items (E4). A student-teacher from the “library use” group was concerned about the “validity” of their interviewing and stated that they opted to triangulate it with their observations (B1). Student-teachers seemed to be sensing the essence of data quality discussed during class. Sagor (1992) rightly dubbed data collection as the “heart” of action research process as they amplify the purpose of the research and determine the outcome of the process. Observations were similarly practiced and student-teachers commented on the suitability of the method in relation to their questions and ensuring credibility of data obtained through the method. A student-teacher from “improving low interest” group shared that their group need to improve recording mechanisms, e.g. diary, images, during their observations (F1). This showed how the student-teachers were developing sensitivity to their learning situations and practices.

The recurring challenges mentioned in the evaluations and the WhatsApp group page were time constraints and interviewing some instructors from the college of science. Data collection stage for developing preliminary findings was happening during a rather prolonged mid-semester exams at the colleges. Student-teachers were visibly distracted from the process and requested postponement of submission deadlines of their preliminary reports. We have reflected on the disruptive role of exam practices at the colleges for course initiatives that attempt to meaningfully engage students.

The students have to be told about negative effects of exams [on their learning] (16 November 2018)

Problem development stage and questioning techniques were stated to be time-consuming and challenging by the student-teachers. During guidance sessions, groups were challenged to articulate question items for their data collection. Accordingly, improving questioning capabilities of the student-teachers was identified as a gap that we addressed through our formal and informal guidance. The challenge that some student-teachers felt was out of their control was interviewing some reportedly “reluctant” instructors. Student-teachers from three groups shared that some instructors were “intentionally” declining their requests for interviewing. It is worth mentioning that one particular group reported least challenge in interviewing instructors stating that their data collection timing, i.e. as they have conducted it before mid-exam schedules, to be the main reason for completing the interviews.
Learning to support the student-teachers during those stages within our community of practice led to exploring relevant issues of data management.

**Dimensions of data**

Reported challenges encountered in approaching some instructors probed us to look into critical aspects of data that explains why instructors may behave in such a way and what could this mean to respective action research projects. In our discussions, we have highlighted the role of keen observation as a credible form of data.

student-teachers have to be sharp in identifying behavior and approaches of their teachers, how potential interviewees behave could be a valuable source of data . . . (16 November 2018)

A student-teacher further comments on how his peers should look for alternative and more credible sources of data in the WhatsApp group page as follows.

I think we should not force those who don’t want to collaborate as the data they will give us anyway will be flawed. So, what I can recommend is that [peer students] should do some shadowing and observations of the subject they wanted to interview if they believe the data they can get from that person is very crucial. It’s more ethical that way (17 November 2018)

These experiences show how the student-teachers were expanding their research repertoires by exploring alternative (qualitative) data collection methods. On the other hand, it was an opportunity to guide the students to develop research competencies as they have essentially started to critically research their everyday learning practices at the colleges. Since this was a new experience to the first two authors, our critical friendship arrangement within our community had provided practical and insightful suggestions that shaped the course of the facilitations. The following discussion extract reflects on how one of our critical friends challenged us in supporting students to explore alternative dimensions of data collection.

What would we have done assuming that we were in the place of the students and teachers were reluctant to be interviewed, we are four of us […] do you remember what our students did [referring to Author3 and previous year’s ACCE experience] regarding their teachers’ blackboard uses, they got their data by discussing and documenting on their classroom observations . . . (16 November 2018)

Our critical friend was essentially sharing a perspective on how students’ experiences about their respective instructors could be a source of data. Those discussions were typical instances of the role of a “meta-critical friend” in probing our practices and “contributing both an expert voice and an alternative perspective” (Fletcher et al., 2016, p. 316). Retrospectively, our practices of self-study were significantly influenced as we came to know selves in practice as resources in research (Feldman et al., 2004). Accordingly, Author1 was highly encouraged to use class sessions, particularly after Week 12, for open briefing sessions among the student-teachers regarding their action research progress by creating spaces to collaboratively learn from evolving interactions. Our emerging pedagogy was to use student-teachers’ ongoing experience in their respective groups as a resource in their action research.
Role of groups

Similarly, student-teachers seemed to have recognised the role of group experiences as a source of data while researching their learning practices, as well as a resource in critically examining their data and exploring multiple perspectives. The following evaluation extracts relate to such experiences.

we had been discussing [among group members] about what we observed and what we wrote in our diaries for two days [for about four hours], today is the tenth day of our observation (F5)
as for the data analysis and reporting we will need to depend much on our selves (group c) so the support comes from us … of course there is no doubt we will need your guidance as usual (C2)

These experiences point to the importance of creating critical collaborative inquiry in learning to teach selves-study practices among student-teachers (Lunenberg & Samaras, 2011). Crucially, improving collaborative commitments among group members was important in optimising critical dialogic engagements. Student-teachers also seemed to have recognised the importance of group engagements and enhancement of individual roles in the process. This theme is explored at length in a forthcoming article.

Reflective writing

In making most of selves in practice as sources of data, a critical competency that needed to be improved was managing individual and collective diaries. The fact that some student-teachers requested (in the evaluations) “models” and “examples” of how to write a preliminary report showed that students paid limited attention to what they should be writing during the process of data collection. However, student-teachers also seemed to sense the suitability of writing diaries and some have requested explicit support in writing their diaries as one of them has stated in the evaluation.

I think we need guidance in the data collection, since we are using observation, it is little more broad writing in the diary and how to write it in a short, clear and systematic way (F2)

Student-teachers seem challenged on how to manage their data from their individual and collective observations. The following discussion extract reflects on a class experience in response to a student’s question on what they should be writing about during data collection stage.

‘what should we write about during data collection’ may seem a very realistic question because it may be customary not to write much during data collection, but actually action research is essentially about self-study and one writes most during data collection about everything (4 December 2018)

We further reflected on how students were missing valuable data because of their shortcomings in their reflective writing competencies. For example, we observed discrepancies in the variety and depth of issues between submitted drafts (which were rather shallow) and briefings, articulated by student groups, during class and guidance sessions (which were rich). One of us thoughtfully shared how this was as much a challenge to the students as it was to us, as their educators.
I face similar challenge if I don’t manage data properly, what I write becomes shallow if I was not regularly and seriously reflecting on my practices (4 December 2018)

This comment point to a central gap in the pedagogy of reflection in teacher education. Though reflective practice is strongly advocated in teacher education, there is a limited understanding on how to promote it among student-teachers (Korthagen, 2016). Modelling reflective practices while teaching students to critically and continuously reflect on their learning practices and to use it as a credible form of data was a relevant insight we were gaining in the process (Lunenberg & Samaras, 2011).

**Data management during interventions**

Groups were guided to focus in developing intervention activities that they could influence (Sagor, 1992), for example organising collaborative studies among themselves in improving their concern of low interest in learning subject courses. In this section, we address data management practices in meaningfully supporting students engage in selves-study practices to improve their learning situations.

Observing students in closely relating their respective action research focus with processes of learning at the colleges and employing the intervention stage to enact change in their learning practice was an encouraging experience. One of the students captured this in the evaluation as follows.

> the topic we are [researching] is so interesting and really helpful for us so I want every one of us to implement in our daily learning process (X2)

Yet, the nature of data engagements during interventions presented a unique challenge as some students stated it to be a “bit confusing”. This could partly be explained by students’ pre-occupation in analysing data and drafting their preliminary findings during hectic weeks. This stage was also particularly challenging because of the general assumptions of data collection as a one-off stage (cf. Rapley, 2018). The following discussion extract shows a critical turning point in our practices. This stage reflected a central problem of practice in meaningfully guiding the student-teachers, the first two authors explicitly requested support of critical friends, and the discussion insights opened up and guided possibilities for further action during the course.

> how do we support the student-teachers while collecting data during their interventions? this is a new territory for us and we have not done it before, another issue is about conception of data, data about others and oneself, the general view of data is that it is something that you look for not that you look in (11 December 2018)

Engagements in self-study clearly expose tensions and uncertainties in educators’ practices. Intentional interactions within our community exposed those tensions in a constructive manner (Brodie & Boroko, 2016) in meaningfully mediating them (Bullock & Ritter, 2011). Further uncertainties of Author1 was stated in his diary after an engaging class session on employing self-study methods during interventions.

> do we need to convince ourselves with data or evidence as we may already be ‘living’ the change … why do we need evidence for us? (10 December 2018).
This reflective question was inspired by a student-teacher’s remarks during a class session, which in a way illuminated the elephant in the room, when she was visibly perplexed about the need of showing improvements that was reportedly being experienced by respective groups to others. Convincing student-teachers on the need of showing evidence of improvement that may have already been evident to groups was the dilemma that Author1 was facing. This dilemma was meaningfully discussed and matured during our discussions as indicated in following extracts.

while the student-teachers are assessing the impact of their interventions on themselves and their learning practices, they should not necessarily look for it from others, they should genuinely assess their roles and position in the process with integrity, students need to engage in deeper thinking in analyzing to what extent their behavior has been shaped during the process …

the quality of evidence is often in the latter parts of research because when one starts to genuinely critique oneself and in learning to observe one’s environment with integrity the extent of learning becomes high (4 December 2018)

Centrality of integrity in generating quality evidence was emphasised in the discussion extracts. This insight made sense during the course of facilitations as we have observed groups who seem to have genuinely believed in the improvements that they wanted to see in themselves and their peers (with integrity) tended to initiate innovative interventions that in turn became source for quality evidence. For example, two groups took the lead in organising an informal and entertaining get-together event for the class to better familiarise one another and initiate peer learning strategies. During the event, they designed a peer matching “game” that they used to identify peers’ hobbies or inclinations. Afterwards, student-teachers experienced “visible changes” in the quality of their interactions amongst themselves (Mosazghi, Tekeste, Ghebru, & Yosief, 2019).

Reported visible changes in student-teachers’ interactive and collaborative behaviours were evidences that we encouraged groups to systematically document in order to embolden their genuine intentions. We were coming to know that the quality of evidence was in turn influencing the interest of the student-teachers as they spent more time within and across teams for their interventions. Hence, we learned that integrity and evidence were mutually reinforcing entities in the process of action research. We were used to assumptions of generating evidence from others and for others (cf. LaBoskey, 2004). The orientation that evidence should be primarily evident to oneself and during unfolding practices was not part of our research “habitus” and required continuous engagement through dialogue to slowly start changing our orientations and practices (Feldman & Fataar, 2016). In the subsequent academic years, Author1 started to focus more on providing adequate reflective time and space for his postgraduate student-teachers in making sense of their learning and supporting them make use of those reflections as the main source and resource for their continuous learning.

**Discussion**

In this article, we have presented experiences in supporting a group of student-teachers engage in data management practices to improve their learning situations in a college setting as part of an action research course. The students’ experiences in engaging with data for and during the interventions were juxtaposed with the authors’ learning within
a community of practice in understanding and better supporting students’ learning. The
course has demonstrated how students could develop critical stances and ownership of
their learning practices through processes of action research (Gibbs et al., 2017). Preparing
for and practicing the intervention stage, i.e. acting on findings for improvements, seem to
have amplified the meaning and role of action research in educational practice. We argue
this was possible through two critical and complementary stages of the course. First,
supporting students to be sensitive of their learning situation, through the data collection
experiences, seem to have influenced them to appreciate “data rich” environments of
educational contexts (Sagor, 1992). Second, intentional actions in inspiring a sense of
togetherness in learning (researching) to improve practices and situations of learning
have allowed in capturing the social basis of action research in understanding and improv-
ing practices, and conditions for improving practices (Kemmis, 2009).

Among the critical conditions for improving practices seem to be how the students
viewed their individual and collective roles in understanding and improving their learning
situations. Engagements in constant reflective practices and appreciating the role of peer
learners in capturing a more nuanced and complex data were among the salient conditions
experienced during the course in carrying out action research to improve learning practices
at the colleges. Our challenge during the facilitations was how to support reflective practices
and model collaborative engagements in researching and improving learning situations.
Reflective practices should be incrementally scaffolded among students because prescribing
reflective practices do not mean that they would actually be reflective (Ahmed, 2020;
Dreyer, 2015). Also, engaging in sustained reflective writing process by attending to
cognitive, affective, and motivational dimensions in teacher learning is a glaring gap in
the pedagogy of teacher education (Korthagen, 2016, 2017). Students of teaching have to
experience the role of reflective practice in improving processes of learning. In other words,
educators have to model, through self-study engagements, the essence of reflection within
their courses in demonstrating how reflection works in improving learning processes
(Loughran, 2014). In this, excessive exam orientations, limited reflective and collaborative
practices on the part of college instructors are among the constraining conditions for
promoting reflective practices (Author, 2017).

Engagements in self-study do not only explicate tensions and vulnerabilities that emanate
from practices but it also allows educators to develop matured understanding about their
practices (Bullock & Ritter, 2011). In point, we increasingly realised the value of our
community of practice because our intentional collaborative space was allowing us to
critically reflect problems of practice and meaningfully mediating them. “The importance
of developing inquiry-based professional learning communities in educational contexts as
a necessary and ongoing feature of professional practice” was further re-emphasised in our
study (Ritter et al., 2019, p. 151). Self-study scholars reaffirm that practicing self-study do not
necessarily and unproblematically translate to teaching self-study (Ritter, 2017). Our collab-
orative experience in facilitating the course shows the potential of enacting pedagogy of self-
study among student-teachers by modelling it within a community of practice. Critical
friendship arrangements where self-study educator-researchers are engaged with more
experienced colleague educators could provide an excellent ground for simultaneously
learning and teaching self-study practices (Fletcher et al., 2016). We believe such engagements
are central to the pedagogy of teacher education in the imperative of developing active and
empowering processes of learning in teacher education (Korthagen, 2016).
A significant turning point in learning to teach self-study practices was appreciating the constructive and mutually reinforcing interplay of integrity and evidence in managing data during interventions. An important social condition in fostering integrity during the facilitations seemed to be prioritising the value of collaborative initiatives to improve learning practices. Whitehead and McNiff (2006) argued for value-based standards of judgement in generating evidence in action research. During the interventions, we came to appreciate the difference between data and generating evidence as we were learning to support students in showing evidences of their improvements. Beyond acquiring research skills, we were keen to foster important qualities of collective and proactive engagements for improvements, and developing critical stances towards learning practices. Data that demonstrated such critical qualities, e.g. data generated during the get together initiative, were considered as powerful evidence of improvements. Intentionally and elaborately documenting and sharing such evidences of improvements seem to have further emboldened selves-initiated resolves for collaborative engagements. In action research, “practice is seen as thoughtful educational engagement, and not simply the execution of skills. Practice is judged in terms of what is good about it, rather than only in terms of what activities have been performed (Whitehead & McNiff, 2006, p. 83).

Finally, the course experience has implications for preparing a critical inquiry work force of teachers in fundamental ways (Wrench & Paige, 2019). Sensitising prospective teachers to complexity of data management in educational practices is critical in living up to the situated, complex, and active nature of teaching (Sinnema, Meyer, & Aitken, 2017). Crucially, developing critical and reflective stances towards individual and collective learning experiences is central to tenets of site-based educational development (Kemmis, McTaggart, & Nixon, 2014). The challenge and central pedagogy for teacher education programs and educators should therefore be to enact those very principles of action research and self-study practices in fostering collaboration, initiating engaging pedagogies, and critical reflective practices in making sense of and improving practices. A very meaningful way in progressing forward with these is committing to create and sustain professional learning communities within teacher education establishments because such communities are evident examples for students’ learning and their nascent professional identities as teachers.

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No potential conflict of interest was reported by the authors.

**References**

Ahmed, A. M. (2020). From reluctance to addiction: The impact of reflective journals on Qatari undergraduate students’ learning. *Reflective Practice, 21*(2), 251–270.

Brodie, K. & Borko, H. (Eds.) (2016). *Professional learning communities in South African schools and teacher education programs*. Cape Town: HSRC Press.

Bullock, S. M., & Ritter, J. K. (2011). Exploring the transition into academia through collaborative self-study. *Studying Teacher Education, 7*(2), 171–181.

Bullock, S. M., & Sator, A. (2018). Developing a pedagogy of “making” through collaborative self-study. *Studying Teacher Education, 14*(1), 56–70.

Cochran-Smith, M. (2003). Learning and unlearning: The education of teacher educators. *Teaching and Teacher Education, 19*(1), 5–28.
Cohen, L., Manion, L., & Morrison, K. (2018). Research methods in education (8th ed.). London: Routledge.

Cuenca, A. (2010). Self-study research: Surfacing the art of pedagogy in teacher education. *Journal of Inquiry and Action in Education, 3*(2), 15–29.

Dreyer, L. M. (2015). Reflective journaling: A tool for teacher professional development. *Africa Education Review, 12*(2), 331–344.

Feldman, A., Paugh, P., & Mills, G. (2004). Self-Study through action research. In J. Loughran, M. L. Hamilton, V. K. LaBoskey, & T. Russell (Eds.), *International handbook of self-study of teaching and teacher education practices* (pp. 943–977). The Netherlands: Springer.

Feldman, J., & Fataar, A. (2016). Working through the ‘hardness’ of teachers’ pedagogical habitus: Pedagogical learning among teachers in a professional learning community. In K. Brodie & H. Borko (Eds.), *Professional learning communities in South African schools and teacher education programs* (pp. 18–37). Cape Town: HSRC Press.

Fletcher, T., Chróinín, D., & O’Sullivan, M. (2016). A layered approach to critical friendship as a means to support pedagogical innovation in pre-service teacher education. *Studying Teacher Education, 12*(3), 302–319.

Ghebrecal, A., Demoz, B., Posti-Ahokas, H., & Karvinen, I. (Eds.). (2017). *Learning together: Collaborative action research to improve practice at the Asmara Community College of Education*. Asmara: ACC and Finn Church Aid.

Gibbs, P., Cartney, P., Wilkinson, K., Parkinson, J., Cunningham, S., James-Reynolds, C., … Pitt, A. (2017). Literature review on the use of action research in higher education. *Educational Action Research, 25*(1), 3–22.

Gregory, K. H., Diacopoulos, M. M., Branyon, A., & Butler, B. M. (2017). From skepticism to scholarship: Learning and living self-study research in a doctoral seminar. *Studying Teacher Education, 13*(3), 257–274.

Hailemariam, C., Ogbay, S., & White, G. (2010). The development of teacher education in Eritrea. In K. G. Karras & C. C. Wohlhuter (Eds.), *International handbook of teacher education worldwide: Issues and challenges* (pp. 701–736). Athens: Atrapos Editions.

Henriksen, Ø. H., & Aas, M. (2020). Enhancing system thinking – A superintendent and three principal reflecting with a critical friend. *Educational Action Research, 1*–16. Advance online publication. doi:10.1080/09650792.2020.1724813

Idris, K. M., Asfaha, Y. M., & Ibrahim, M. (2017). Teachers ‘voices, challenging teaching contexts and implications for teacher education and development in Eritrea. *Journal of Eritrean Studies, III*(1), 31–58.

Idris, K. M., Eskender, S., Yosief, A., Demoz, B., Andemicael, K. (2020). Exploring headway pedagogies in teacher education through collaborative action research into processes of learning: Experiences from Eritrea. Nordic Journal of Comparative and International Education (NJICE), 4(3): 139–156. http://doi.org/10.7577/njcie.3746

Kemmis, S. (2009). Action research as a practice-based practice. *Educational Action Research, 17* (3), 463–474.

Kemmis, S., McTaggart, R., & Nixon, R. (2014). *The action research planner: Doing critical participatory action research*. Singapore: Springer. https://doi.org/10.1007/978-981-4560-67-2

Klein, J., & Fitzgerald, L. M. (2018). Self-study, action research: Is that a boundary or border or what? In D. Garbett & A. Ovens (Eds.), *Pushing boundaries and crossing borders: Self-study as a means for researching pedagogy* (pp. 27–33). UK: Self-Study of Teacher Education Practices (S-STEP).

Korthagen, F. (2017). Inconvenient truths about teacher learning: towards professional development 3.0. *Teachers and Teaching, 23*(4), 387–405. https://doi.org/10.1080/13540602.2016

Korthagen, F. A. (2016). Pedagogy of teacher education. In J. Loughran & M. L. Hamilton (Eds.), *International handbook of teacher education* (Vol. 1, pp. 311–346). Singapore: Springer.

LaBoskey, V. K. (2004). The methodology of self-study and its theoretical underpinnings. In J. Loughran, M. L. Hamilton, V. K. LaBoskey, & T. Russell (Eds.), *International handbook of self-study of teaching and teacher education practices* (pp. 817–869). Dordrecht: Springer.
Loughran, J. (2014). Professionally developing as a teacher educator. *Journal of Teacher Education, 65*(4), 271–283. Retrieved from http://jte.sagepub.com/content/65/4/271

Lunenberg, M., & Samaras, A. P. (2011). Developing a pedagogy for teaching self-study research: Lessons learned across the Atlantic. *Teaching and Teacher Education, 27*(5), 841–850.

Mena, J., & Russell, T. (2017). Collaboration, multiple methods, trustworthiness: Issues arising from the 2014 international conference on self-study of teacher education practices. *Studying Teacher Education, 13*(1), 105–122.

Mosazghi, B., Tekeste, B., Ghebru, N., & Yosief, Y. (2019). Peer learning among biology education of year IV learners. Mai-nefhi: College of Education, Eritrea Institute of Technology. [Senior learners collaborative action research (CAR) report: CAR Course 2018/19 Academic Year]).

Patton, K., & Parker, M. (2017). Teacher education communities of practice: More than a culture of collaboration. *Teaching and Teacher Education, 67*, 351–360.

Posti-Ahokas, H., Idris, K. M., Hassen, K., & Isotalo, S. (under review). Collaborative professional practice for strengthening teacher educator identities in Eritrea. *Journal of Education for Teaching.*

Rapley, E. (2018). ‘Seeing the light.’ Personal epiphanies and moving towards interpretivism; a researcher’s tale of exploring teacher pedagogic practice. *Ethnography and Education, 13*(2), 185–203.

Ritter, J. (2017). Those who can do self-study, do self-study: But can they teach it? *Studying Teacher Education, 13*(1), 20–35.

Ritter, R., Ayieko, R., Vanorsdale, C., Quinones, S., Chao, X., Meidl, C.,… Williams, J. (2019). Facilitating pedagogies of possibility in teacher education: Experiences of faculty members in a self-study learning group. *Journal of Inquiry & Action in Education, 10*(2), 134–157.

Robson, C., & McCartan, K. (2016). *Real world research: A resource for users of social research methods in applied settings* (4th ed.). UK: John Wiley & Sons Ltd.

Rogers, M. P., Jacobson, E., Allen, J., Borowski, R., & Roy, R. (2018). Walking a fine line: Teaching others about self-study while developing myself as a self-study researcher. In D. Garbett & A. Ovens (Eds.), *Pushing boundaries and crossing borders: Self-study as a means for researching pedagogy* (pp. 75–81). UK: Self-Study of Teacher Education Practices (S-STEP).

Sagor, R. (1992). *How to conduct collaborative action research.* USA: Association for Supervision and Curriculum Development.

Schuck, S., & Russell, T. (2005). Self-study, critical friendship, and the complexities of teacher education. *Studying Teacher Education, 1*(2), 107–121.

Sinnema, C., Meyer, F., & Aitken, G. (2017). Capturing the complex, situated, and active nature of teaching through inquiry-oriented standards for teaching. *Journal of Teacher Education, 68*(1), 9–27.

Stump, M., Peercy, M. M., & Bullock, S. M. (2018). “I have to understand self-study first before I can engage in it”: Working through tensions in learning to do self study. In D. Garbett & A. Ovens (Eds.), *Pushing boundaries and crossing borders: Self-study as a means for researching pedagogy* (pp. 67–73). UK: Self-Study of Teacher Education Practices (S-STEP).

Wenger, E., & Wenger-Trayner, B. (2015). *Communities of practice. A brief introduction.* Retrieved from http://wenger-trayner.com/introduction-to-communities-of-practice/

Whitehead, J., & McNiff, J. (2006). *Action research living theory.* London: SAGE.

Williams, J., Ritter, J., & Bullock, S. M. (2012). Understanding the complexity of becoming a teacher educator: Experience, belonging, and practice within a professional learning community. *Studying Teacher Education, 8*(3), 245–260.

Wrench, A., & Paige, K. (2019). Educating pre-service teachers: Towards a critical inquiry workforce. *Educational Action Research.* Advance online publication. doi:10.1080/09650792.2019.159387