

Reflective Teaching: What Instructional Assistant Reflection Can Inform Us About Transformation in Higher Education

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Abstract

This study discusses the transformation and challenges of Instructional Assistants (IAs) as they engaged in a quarter long professional development (PD) course concurrent with their first teaching experience. Universities have responded to the need to prepare these future instructors for the demands of teaching in higher education in diverse ways. However, past research has not focused specifically on IAs' perspectives on these institutional offerings of PD. This study addresses this gap in the literature by carefully examining the views of IAs participating in an eight-week, non-credit bearing course offered by the Institutional Teaching Center. We detail the action research case studies of three IA participants engaging in the first offering of this "Survival Skills for IAs" course. The participants engaged in multiple levels of guided reflection during the course, providing insight to their transformation, mainly as it relates to self-efficacy and sense of community with the other participants. Barriers to transformation from the perspectives of the IAs are also addressed, with implications for generating solutions to address challenges IAs face as new instructors in higher education settings.

Keywords: reflection, reflection in higher education, transformative learning, professional development

As an integral part of teaching and learning in higher education, Instructional Assistants (IAs) are encouraged to be prepared to meet the learning needs of a diverse student population, while also balancing their own responsibilities as students themselves. Yet new IAs often have limited, if any, teaching experience. Universities have responded to this need in diverse ways, relying on the body of research focusing on standards of teacher proficiency by practice and instruction (Lambert & Tice, 1993). Although andragogical support may exist in higher level institutions, levels of support for IAs vary by institution, and few opportunities may exist for these new educators to consistently reflect on their teaching practices, potentially hindering their resilience and persistence while seeking improvement (Yost, 2006).

Past research has not focused specifically on IA perspectives in the context of a campus-provided professional development (PD). This pilot study attempts to address this gap in the literature by examining the views of IAs participating in a professional development course where they engaged in discussions surrounding andragogy, active teaching and learning, and lesson design. Participants took this course concurrent with their first teaching duties and had the opportunity to learn through consistent practice and reflection-on-action, a method by which most professionals learn (Schön, 1983).

Using ethnographic field notes taken throughout the course and interviews, this study seeks to reveal the process of IA transformation through their engagement in regular reflection, as well as explain some of the barriers to transformation they currently face in higher education. The following three research questions are addressed in this study:

1. What emerges when Instructional Assistants have a shared space to routinely reflect on their teaching?
2. Is the reflection process leading to transformation?
3. What can reflection reveal about the barriers to transformation IA's face in higher education?

Definition of Key Terms

Reflection

John Dewey (1933) described reflection as, “turning a subject over in the mind and giving it serious and consecutive consideration.” For teachers, Dewey encouraged a reflective practice in order, “to act in a deliberate and intentional fashion” (1933), rather than simply impulsively. Teachers, like most professionals, learn through a cycle of practice and reflection and can learn how to improve their practices in multiple ways, one being reflection *on* action (Schön, 1983). According to Schön (1983), “we reflect on action, thinking back on what we have done in order to discover how our knowing-in-action [knowledge gained from other/similar situations] may have contributed to an unexpected outcome.” In other words, after an event, educators reflect on how their prior knowledge created by similar events may have led to unintended or undesired outcomes, as well as what deliberate actions they can take to promote different results in the future. This is different from reflection *in* action, which happens during the act of teaching, garnering more immediate change (Schön, 1983). It is also different from metacognition (Flavell, 1979), where learners “think about thinking” rather than “thinking critically about...practice” (Schön, 1983). For the purpose of this study, the focus was placed on developing IAs’ reflection on action to help mobilize their transformation. Since most data was collected during a professional development course for new IAs working with undergraduate students, the study pertains specifically to the role of reflection on action in higher education.

Transformative Learning

For Mezirow (1978), critical self-reflection is essential to achieving transformative learning. His theory of transformational learning details how learners “construe, validate, and reformulate the meaning of their experiences” (Cranton, 1994). Perspectives, frames of reference, and attitudes change as learners integrate new ideas into existing schema. According to Mezirow (1997), “We must make our own interpretations rather than act on the purposes, beliefs, judgements, and feelings of others. Facilitating such understandings is the cardinal goal of adult education. Transformative learning develops autonomous thinking.” Learners must question their experiences and what led to specific outcomes in order to justify new knowledge. When transformative learning is the goal of adult education, it is the role of the educator to assist learners in recognizing assumptions, reflecting on alternative perspectives, and encouraging discourse.

Professional Development

Professional development colloquially refers to a wide variety of specialized trainings, formal education, or opportunities for advanced learning—all with the purpose of improving educator’s knowledge, skills and effectiveness. In the context of transformative learning, the role of professional development is more specifically to assist educators in gaining awareness of their perspectives and habits regarding teaching. PD can allow instructors to critically examine their assumptions and the consequences of those assumptions in order to transform teachers’ philosophies (Cranton & King, 2003). The PD course in which this study was conducted was designed to “discuss and implement practical strategies to survive and thrive as an IA.” Its goals included: (1) Integrating evidence-based practices and techniques to

support instruction and higher-order student thinking; (2) Engaging in active and productive discussion; and (3) Providing resources and support for continued instructor development.

Literature Review

Encouraging Reflection

A considerable body of literature supports the popularity of reflective strategies as a means of increasing teacher effectiveness. It is widely presumed that by encouraging reflection teachers will become “better” educators. Surprisingly, work on reflection has remained theoretical more than empirical, and evidence of this assumption is limited (Bain et al., 2002). However, research, particularly in K-12 education, has demonstrated that student learning is linked with educator learning (Ingaverson, Meiers & Beavis, 2005). Further research indicates that growth in thinking can be achieved by modeling reflection through guided practice and communicating that knowledge is tentative and incomplete (King & Kitchener, 1994). Reflective teachers are also more likely to engage in culturally appropriate teaching (Kleinfeld & Nordhoff, 1988) and discuss their ethical responsibilities towards students (Hursch, 1988).

However, university cultures do not always promote teacher reflection. Instructors often work in isolation and have infrequent opportunities to be observed by their peers. This places an additional burden on professional development programs as a space for teachers to discuss and reflect on their teaching practices (Cranton & King, 2003). In these spaces, the ability to assist in a teacher’s development of higher level reflection may not be limited to a highly trained professional; sharing reflections with a peer, or “critical friend,” could also be beneficial (Hatton & Smith, 1995). According to Hatton and Smith, “a powerful strategy for fostering reflective action is to engage with another person in a way which encourages talking with, questioning, even confronting, the trusted other, in order to examine planning for teaching, implementation, and its evaluation” (1995). A safe environment can be fostered between “critical friends” sharing experiences of similar struggles as new teachers, allowing for, “giving voice to one’s own thinking while at the same time being heard in a sympathetic but constructively critical way” (Hatton & Smith, 1995). By sharing reflection on action with a peer, a safe environment can be built where “critical friends” can help one another reach higher levels of reflection.

Measuring Reflection Through the 5R Framework

Bain et al. (2002) posited that reflection on action could be enhanced through reflective writing and thinking, which prompted the creation and revision of the 5R Framework, a scale for measuring different levels of reflection. The Five R’s are:

1. *Reporting: a descriptive account of the situation, incident, or issue;*
2. *Responding: an emotional or personal response to the situation, incident, or issue;*
3. *Relating: drawing a relationship between current personal or theoretical understandings and the situation, incident, or issue;*
4. *Reasoning: an exploration, interrogation, or explanation of the situation, incident, or issue; and*
5. *Reconstructing: drawing a conclusion and developing a future action plan based upon a reasoned understanding of the situation, incident, or issue (Bain et al., 2002).*

The final two levels—reasoning and reconstructing—are considered to be transformational, since it is where new knowledge is formed and future plans for action occur. According to the research, most new teachers are unlikely to improve their levels of reflection without assistance (Bain et al., 2002). With the aid of an instructor or mentor, transformational levels of reflection are more likely to occur. This study focused on these five levels of reflection, defining the first three levels as “lower level reflection” and the last two levels as “higher level reflection” for the purpose of measuring growth in the participants’ reflections.

Methods

To better understand IAs' transformation as new teachers, Graduate Student Researchers (GSRs) took ethnographic field notes during all eight sessions of the "Survival Skills for IAs" course. These classes were taught by an instructor from the "Teaching Center" (TC),¹ and had one GSR as a participant observer and one GSR as a full observer in all eight classes. Field notes were taken by hand for the first two sessions and later digitally transcribed. Notes from the later sessions were taken directly on laptop computers, as many participants utilized laptops during class themselves and did not seem distracted or concerned by the GSRs' use of technology.

Reflection on teaching has been consistent throughout the course, with early ethnographic data collection revealing the IAs engaging in lower level reflection-on-action, such as reporting their experiences and their responses to those experiences. However, as the course and ethnographic field note-taking continued, it was evident the IAs were engaging in higher levels of reflection-on-action that seemed to be reconstructing their teaching practices. GSRs were able to capture evidence of transformation through IA reflection, which prompted interest into the following questions halfway through the course:

1. What emerges when Instructional Assistants have a shared space to routinely reflect on their teaching?
2. Is the reflection process leading to transformation?
3. What can reflection reveal about the barriers to transformation IA's face in higher education?

The instructor of the "Survival Skills" course gave multiple opportunities for formal and informal reflection, both in and out of class. Participants were encouraged to reflect immediately following their teaching experiences by producing a media artifact, such as a picture with a caption related to their teaching and shared to social media, or a written reflection or voice memo submitted to the Teaching Center via a Google Form. All reflections were to address the following questions (Tanner, 2012):

1. How do I think today's class session went?
2. Why do I think that?
3. What evidence do I have?

During class sessions, the first few minutes focused on debriefing teaching experiences of the previous week by the instructor producing a Google Slide titled "Focusing on Your Experiences," which would have a quote from one of the submitted reflections along with the three questions. Participants were encouraged to respond to the quote and relate it to their own experiences, or answer any or all of the reflection questions based on their own experiences. The instructor also encouraged informal reflection opportunities throughout the class, such as asking questions on previous experiences with active teaching and learning strategies like Think-Pair-Share or various technology tools; the GSRs would also record these informal opportunities for reflection in their ethnographic field notes.

The GSR, who had been a full observer throughout the course, also conducted individual semi-structured interviews with each participant during the last session of the eight-week course where each participant was asked the following questions:

- 1) Why did you decide to take this Survival Skills course?
- 2) Reflecting on the past seven weeks, how and to what extent has this course changed you?
- 3) Has being given the space to reflect on your teaching practice been beneficial to you?

¹ We have given our center a pseudonym in an effort to anonymize the institution in which the "Teaching Center" resides for the purposes of review and publication

- a) If so, what have you learned from the weekly reflection?
- 4) What struggles do/did you face as an IA?
 - a) To what extent does the “Survival Skills” class help?
 - b) How can the Teaching Center continue to support you?

Interviews were transcribed and coded using the qualitative software MAXQDA at the conclusion of the Survival Skills course. Ethnographic field notes from all eight weeks were also coded at this time. The first round of coding included five predetermined codes to help gauge IA reflection and transformation to help address the three research questions that were formed halfway through the course: change, transformation, barriers/issues, lower-level reflection, and higher-level reflection. After reading all field notes and transcriptions at the conclusion of the course, eight more codes emerged: reasons (for taking the course), role (anytime participants referred to their perceived role as IAs or the roles of professors), suggestions (to improve the PD they were receiving), thoughts regarding reflection (mainly in regard to its value), teaching (participants’ thoughts on teaching, their own practices and as a general concept), agency (when participants expressed their perceived power in enacting change), self-efficacy (participants’ beliefs in their ability to control their situations), and social talk (when participants engaged with each other in talk not associated with class materials). After the first round of coding, the initial thirteen codes were consolidated due to overlap and to better address the research questions. For example, the codes “agency” and “self-efficacy” were consolidated to the code “confidence in teaching,” since this allowed for more focus to be placed on the confidence of each participant, or lack thereof, in their teaching ability, which could reflect growing self-efficacy or improve individual agency. The codes “change” and “transformation” were consolidated simply to “transformation” since this was essentially viewed as the same. The code “thoughts regarding reflection” was changed to “the value of reflection” since examples always indicated the importance of reflection. The codes “social talk,” “suggestions,” “reasons,” “role,” and “teaching” were cut due to their lack of direct relevance to the research questions. “Shared reflection” was added since we noticed that an individual may have exhibited lower level reflection, but, with the help of peers, would eventually reach higher level reflection, especially later in the Survival Skills course. The second round of coding yielded the following six codes: the value of reflection, shared reflection, confidence in teaching, higher level reflection, lower level reflection, and barriers to transformation. Definitions and examples for each code can be found in Table 1.

Results were analyzed for frequency, aggregated as a whole group (see Table 2). Results were also disaggregated by each participant (see Table 3) since it was instrumental in gauging individual transformation, their perceived barriers which contained some variance, as well as how they helped each other achieve higher levels of reflection. Upon analyzing participant reflection, several themes emerged. The stated value of reflection was high among all participants, with two stating the importance of sharing reflection with others with regards to both professional and emotional support. Shared reflection seemed to benefit all participants in terms of their own transformation, whether acknowledged or not. Reflection revealed the development of self-efficacy, as can be seen in analyzing their confidence in teaching. Reflection revealed and led to transformation in all participants, yet how they transformed and to what extent were each unique. Reflection also revealed participants’ perceived barriers to transformation, yet some of these barriers were seen as surmountable. Overall, their reflection had led to an increase in sense of community, self-efficacy, transformation, and acknowledging barriers.

Setting

This study was conducted at a large public, research intensive university located in the southwestern part of the United States. The data was collected during an eight-week pilot course under

Table 1: *Codebook*

Codes	Definitions	Examples
The Value of Reflection	Referring to what the participant explicitly reports as the value of reflection in this context or implies by thoughts towards the reflection process	J: "It has for me. I like to, like I said, I like to hear other people's frustrations or what they're going through. I don't really talk to any other TA, other than the one that I work with. I like to just hear from different people and get different perspectives and also advice and feedback."
Shared Reflection	Referring to making suggestions or asking questions to prompt higher levels of reflection in others, or reflecting on a shared experience	D: "I usually have main points to make and it usually goes off topic...I enjoy the organic nature...but at the same time I don't get to hit the main points of the course...I'm not making excuses but there are many main points...me and the course together are very unorganized...goes mainly to my philosophy on learning...personal interest leads to more learning." B: "I wasn't sure what we were doing, but I liked it a lot...the knowledge was good, I liked your tone, you made me feel like I was with you there on the importance on all of the topics" J: "I agree it was really relevant...the stake we have with nature...the carbon footprint we have on it. I think it'd be cool to start with padlet...having different things of what they think it is...or in the 70's it was this and in the..."
Confidence in Teaching	Referring to explicit reports one's of self-confidence or reports that imply one's self-confidence in pursuing certain actions	J talked about the class that she got to guest lecture, saying that the professor first told the students that class was cancelled that day, but then remembered J was to lecture; she said she felt that the students already hated her because of that. But she said overall she had a positive experience: "Most of the room was full, and I felt pretty comfortable because the professor wasn't there, I felt more at ease...it was a little more interactive...so I think that kinda woke them up...I think it went well, and after some of my students were really sweet ,and said that I did really well...professor asked class what they learned [during lecture] and they didn't speak for like 2 minutes, but..." they did end up saying some things and "sounded smart...They even said things I didn't say...I took their SGP, I took some of the feedback and they wanted some examples so I sent an email...and I think it was helpful."

Table 1: Codebook Continued

Higher Level Reflection	Referring to the top two levels of reflection - reasoning and reconstructing - according to Bain et al. (2002)	D: "I usually have main points to make and it usually goes off topic.... I enjoy the organic nature...but at the same time I don't get to hit the main points of the course...I'm not making excuses but there are many main points...me and the course together are very unorganized...goes mainly to my philosophy on learning...personal interest leads to more learning."
Lower Level Reflection	Referring to the bottom three levels of reflection - reporting, responding, and relating - according to Bain et al. (2002)	B: "Last week we were talking about protein gels..." (B stops momentarily, unsure how far in depth to get into explaining the subject, and M prods him to go on) "...they looked like jelly, you put a dye on the protein samples...it separates protein based on size...we were doing that...I was asking a lot of questions...I asked until they stopped knowing the answer...then I would explain to them..."
Barriers to Transformation	Referring to what participants perceive as impediments to their change or growth	B: Yeah, it's just, to me it seems like the lab is designed to just do the lab and like nothing else. Like, I feel like I'm not even supposed to be teaching, like that's just the environment seems like, and that's what the other TAs kinda do too. It just doesn't seem like an actual teaching environment, so I don't know, I don't know. And of course, the professor wasn't any help to that because he, he's...he's awful.

development titled "Survival Skills for Instructional Assistants," offered by the university's Teaching Center. Classes were offered at the Center, where participants met for one hour, once a week, where they learned and discussed evidence-based teaching strategies, practiced their teaching skills, and reflected upon their teaching experiences.

Participants

The participants for this study were three graduate students from different fields (Oceanography, Literature, and Biology) who volunteered for the pilot of the "Survival Skills for Instructional Assistants" course. They will be referred to by the pseudonyms Darryl, Jasmine, and Brandon throughout this paper. Darryl is male and in the final year of his PhD program. Jasmine is female and in her third year. Brandon is male and in his first year. This data was collected during the fall quarter of 2017, the first quarter in which each of these participants held teaching roles as IAs.

Summary of Findings

Initial findings of the action research case study of the three participants show promising answers to the research questions. The following themes and answers emerged after the completion of the coding process.

Table 2: Frequency of Codes – Aggregated

	Value of Reflection	Shared Reflection	Confidence	Higher Level Reflection	Lower Level Reflection	Barriers to Transformation
Week 1	1	0	0	1	0	0
Week 2	0	1	0	4	9	2
Week 3	0	0	0	1	10	7
Week 4	0	1	4	2	4	6
Week 5	1	1	7	4	2	5
Week 6	0	1	2	3	1	8
Week 7	0	3	9	3	9	8
Week 8	0	1	1	0	3	1
D Interview	2	1	3	2	1	2
J Interview	1	2	2	1	0	0
B Interview	2	0	1	2	0	4

These results reflect the total frequency of codes each week (and with each interview) between all participants.

Question 1: What Emerges When Instructional Assistants Have a Shared Space to Routinely Reflect on Their Teaching?

The Value of Teacher Reflection

During a Small Group Perception, collected in week four of the eight-week class, where participants were asked about their thoughts on the course and the instructor, one of the participants anonymously submitted feedback to the instructor stating that the group reflection at the beginning of class was something that was working well in the course. During the interviews, each participant was asked to comment on the value of reflection on their teaching, each replying positively. Brandon mentioned that, “a time period to actually think about my teaching, because I just get caught up in other things and never actually think about it,” has helped him become a better teacher. Darryl agreed that the set time to reflect was beneficial, making the suggestion that,

“I think personally there should be more reflection on how each week went. I mean I can even imagine a weekly gathering that's separate from this that is just an hour reflection with everyone. I think I can learn a lot about how each of you guys, each of the other [IAs], are dealing with their personal experiences in [IA]ing, cause everyone's a little different and what's their approach and I think that's, that's something I really value.”

Jasmine agreed with Darryl's sentiment that there needs to be a shared space to meet with other IAs to reflect, saying, “I like to hear other people's frustrations or what they're going through. I don't

Table 2: *Frequency of Codes – Aggregated*

	Value of Reflection	Shared Reflection	Confidence	Higher Level Reflection	Lower Level Reflection	Barriers to Transformation
Week 1	1	0	0	1	0	0
Week 2	0	1	0	4	9	2
Week 3	0	0	0	1	10	7
Week 4	0	1	4	2	4	6
Week 5	1	1	7	4	2	5
Week 6	0	1	2	3	1	8
Week 7	0	3	9	3	9	8
Week 8	0	1	1	0	3	1
D Interview	2	1	3	2	1	2
J Interview	1	2	2	1	0	0
B Interview	2	0	1	2	0	4

These results reflect the total frequency of codes each week (and with each interview) between all participants.

really talk to any other [IA], other than the one that I work with. I like to just hear from different people and get different perspectives and also advice and feedback.”

While Brandon relayed that the set time to reflect was important to enable him to focus on his own teaching practice in order to improve, Darryl and Jasmine disclosed that another value was the reciprocal sharing of their reflections with their peers.

Building Community with Shared Reflection

The importance of sharing reflection with others was directly stated by both Darryl and Jasmine, as a way to learn from other IAs who are dealing with the same types of struggles and experiences. Darryl mentioned that reflection on teaching can be done on his own time, “but there's something different about being in a room together and knowing that you're being heard.” He had also stated that he has “kinda anxieties in social settings,” so being able to discuss and reflect on his teaching in a small group setting with fellow IAs he has built community with over the past eight weeks helped foster his growth as a teacher. Jasmine stated something similar, saying, “I have a lot of anxiety about molding young people's minds and so I just wanted to do something where I felt like I could learn more about it. Also, be[ing] with people who are [IA]ing and share my struggles and frustrations.” She mirrored Darryl’s apprehensions of being a new teacher and reinforced the claim that there is value in sharing reflection with others.

Although Brandon did not mention outright that he valued the shared reflection, he benefited from it with his peers. There were many times over the quarter that Brandon reflected on his struggles and

Table 3: Frequency of Codes – Disaggregated

	Value of Reflection	Shared Reflection	Confidence	Higher Level Reflection	Lower Level Reflection	Barriers to Transformation
Week 1	D1	0	0	D1	0	0
Week 2	0	JB1	0	D3, JB1	D4, J3, B2	B2
Week 3	0	0	0	D1	D2, J3, B5	J4, B3
Week 4	0	DJB1	D2, J2	D1, B1	J2, B2	D2, J1, B3
Week 5	D1	DJB1	D2, J3, B2	D1, J1, JB1, DJB1	DJ1, B1	D3, J1, B1
Week 6	0	DJB1	J1, B1	J1, B2	DB1	D2, J1, B4, DJB1
Week 7	0	DJB2, JB1	J4, B4, DJB1	DJ1, D2, B1	J5, B3, DJB1	D2, J4, B2
Week 8	0	DJB1	J1	0	D1, J1, JB1	D1
D Interview	2	1	3	2	1	2
J Interview	1	2	2	1	0	0
B Interview	2	0	1	2	0	4

These results reflect the frequency of codes each week separated by participants. D is Darryl, J is Jasmine, and B is Brandon. Where there are multiple letters not separated by a comma (for example, DJB), it means that those participants all took part in that coded section of conversation.

the other IAs asked him questions and gave suggestions that provided him emotional support and suggestions to improve his effectiveness. For example, here is one interaction:

After giving a sample lesson to his peers, Brandon reflected, “I do this a lot when I’m presenting my own science, I misattribute time to certain details...so it ends up confusing people and wasting time that I could have put to different parts of the presentation...I should be more organized at using better images.” The Instructor interjected and told Brandon, “give yourself a positive compliment.” Brandon returned, “positive? I knew the stuff,” as he laughed. Jasmine says to Brandon that he was, “good at breaking it down,” and complimented his use of language (he used the term “hijack” and Jasmine referred to imagery from the Hunger Games). Jasmine asked if students could draw these out since they are supposed to come in with prior knowledge. She asked if they could show images of what bioluminescence is in the end and the Instructor agreed. Brandon mentioned that he didn’t have a projector. Several people tried giving examples of how to incorporate imagery, like asking students “where have you seen this before?”

This example shows the value of shared reflection: before his peers interjected, Brandon was being extremely hard on himself as a new teacher, trying to teach something he was not yet familiar with. Upon verbalizing his thoughts, his peers were able to offer their positive support of his teaching strengths,

as well as give suggestions to some of the issues he reported. This specific interaction happened towards the end of the course, where participants had already established a sense of community, allowing for non-judgmental support from “critical friends” (Hatton & Smith, 1995). Based upon his previous statement that he did not reflect on his teaching other than in this specific space, it is unlikely that he could have received this support elsewhere. These reflections provide evidence that there is value to shared reflection on teaching, whether this value is acknowledged or not.

Question 2: Is the Reflection Process Leading to Transformation?

The Development of Self-Efficacy

Bandura (1995) describes self-efficacy as an “individual's confidence in the ability to exert control over one's own motivation, behavior, and social environment.” The participants in this study all displayed increasing confidence in their teaching abilities. For example, after Brandon described his failure in giving out instructions on the expectations of a lab report assignment to his students, which resulted in some turning in one-page assignments and others turning in, “like a million pages for a lab report,” Jasmine asked, “do they know what a lab report is?” Brandon replied, “I agree they didn't know. I will do it better next time...I can do anything I want.” This statement displays his reflection on some initial missteps but also confidence in his ability to execute improvements in the future. Brandon also directly attributed his self-efficacy to his reflective teaching practice, saying, “I think [reflection] will help me in the future think more about the way I'm teaching”; from other quotes from Brandon, it is clear that he attributes more time thinking about his teaching to his improvement in teaching.

Other participants' reflections during class sessions revealed how positive student feedback helped raise their confidence levels. Darryl reflected on one of these interactions:

“Also, these kids are just figuring out...life!...the first week I talked to them a lot about perspectives and attachments and this girl came up to me at the end of class crying saying, ‘I am so attached to my hometown,’ and I said to her to stick with it and last week she came up to me and said ‘thank you so much.’ And I’m seeing that this is part of my job. I’m not a parent, but I feel like this is kind of related.”

Darryl recalled this experience, which displays his growing confidence in his ability to affect his students in non-academic ways. It is unknown if reflection led to his developing self-efficacy, but in this example, it has shown to reveal its evolution.

Jasmine displayed the highest degree of self-efficacy as evidenced by her multiple reflections on positive student feedback in class. In one such instance, she described:

“Friday, they turned in their papers, so I used the poll thing you showed us. And it was cool, the first section felt ‘eh.’ The second felt ‘cool!’ and the third felt ‘anxious...’ I used padlet too. I’ve having trouble with the same people keep answering. So, this was a good way to see what everyone was saying and who was getting it. And it was cool because they posted multimedia things and videos and we could go through it. And a student came up to me and said, ‘this was so cool and so great!’”

Jasmine had many of these reflections throughout the course, where she implemented a new teaching strategy and then would get immediate positive feedback from students after her classes. Being able to reflect on her teaching, and then reconstructing her practices based on her assessments, led to more effective teaching and learning, which garnered her constant encouragement from students. This cycle of reflection helped develop self-efficacy, her confidence to exert control over her motivation, behaviors, and social environment of her classroom.

Transformation in Different Forms

The process of teacher transformation due to reflection was unique to each participant. Participants' reflections were coded using Bain et al.'s (2002) 5 R's of Reflection: Repeating, Responding, Relating, Reasoning, and Reconstructing, considering the first three R's "lower level reflection" and the last two as "higher level reflection," where transformation of thought and potential action occur. Each participant needed to be considered holistically to gauge their transformation throughout the course.

Darryl

Darryl was already engaging in higher level reflection (reasoning and reconstructing) at the beginning of the course and continued to do so throughout. He talked about an experience early in the quarter where a student gave him feedback after class one day. "At first, I was like, 'screw you!' but after a while..."; Darryl reflected that he was taking the Survival Skills course to positively transform his teaching, so, he tried to remain open to suggestions from his students.

Towards the end of the course he articulated his philosophy of education: "I usually have main points to make and it usually goes off topic. I enjoy the organic nature...goes mainly to my philosophy on learning...personal interest leads to more learning." Due to the difficulty in gauging Darryl's transformation based on his consistent high level of reflection throughout, his explicit statement of his transformation in his interview was needed:

I'm definitely more aware of kinda some of the subtleties of teaching and, you know, what sticks and why and definitely a little bit more confident in doing activities that group people up or kinda force some interaction...I feel a lot more confident in those kind of activities. Definitely learned a lot about technology and you know, how we can implement that in the classroom, which is pretty cool. It's changed, I think a lot of it's awareness for me, I think this is kind of a survey type of class where I'm now more aware a lot more that can go into planning, teaching.

Jasmine

Whereas Darryl displayed a high level of reflection throughout the course, Jasmine started with a lot of lower level reflections (reporting, responding, and relating) on her teaching earlier in the course, which steadily increased to higher levels. She reported, among the three participants, the most changed action throughout the course to transform her teaching, such as using different active teaching strategies that were introduced in class; she was also the only one that volunteered to have the center for teaching support come to her classroom to do a Small Group Perception to gather feedback on her teaching from her students. She reflected that:

"It's helped me really think about teaching differently, especially in active learning tools. I tried to implement a lot of the things that we learned, and some of them, well most of them were good, some of them I'm not sure how they felt. I'd have to ask them, but I think for me it was helpful also having the Small Group Perception come in, helped me see what else I could do, so I think the students appreciated and it helped me feel like I knew what I was doing."

Although there were no field notes gathered from her classes to cross-check her transformation, which could be an interesting area for future research, her reflections revealed higher reflection levels of reasoning and reconstructing. She also became adept at facilitating higher level reflections of her peers, as evidenced by her questioning Brandon if his students knew what a lab report was, to help him reason why he got the response of assignments that he did. Jasmine did the same thing with Darryl during the group debrief at the beginning of class on the same day:

Darryl: "Last week I had a bunch of things going on so I wasn't prepared...it was fine...I have

this issue that kids aren't coming to class..." Darryl also mentions issues of students being disengaged.

Jasmine asks Darryl: "Is [the class] mandatory?"

Whereas most of the early group reflections at the beginning of each class were facilitated by the instructor to encourage deeper reflection, the participants started to facilitate higher level reflection with each other during the later classes, Jasmine often being the one to ask questions to facilitate reasoning and make suggestions for reconstructing future actions. Her transformation was revealed through her reflections, as well as was facilitated by her depth of reflection.

Brandon

Brandon started and continued with lower level reflection, mainly reporting and responding to others' questions, throughout the course. For example, early in the "Survival Skills" course he reflected, "I didn't eat before lab. I was so angry. It felt like daycare. We went the full 5 hours." The instructor asked if the students saw him struggle, to which he replied, "yeah, I was visibly getting angry. I kept getting called over...I was getting really angry and I was trying not to explode." However, later in the course he would reach higher levels of reflection when he was prompted with questions and suggestions from the instructor and other participants, as seen in the previous example regarding the lab report assignment. During his interview he also revealed his internal process of reflection and transformation

"I definitely feel like I could [reflect] more. Definitely when I'm preparing my teaching, cause as of now I just learn the material and then kind of just, like just describe it to the students, but the other day I was thinking about it. I was like, wait, I could totally have explained it this way that was more interesting and relatable for the students, and I was just, I was upset that I didn't do that, and so, yeah. I just think, rather than just describing the knowledge as I learned it, I should actually reform the ideas into something more, you know, palatable for the students."

This is an insight that helped confirm Brandon's transformation during the course: he may not have reached higher levels of verbal reflection on his own during the course, but he has shown evidence of reconstructing his current knowledge of his teaching practice to change his future teaching behaviors. Reflection during class and his interview revealed some transformation, and in his own words, has also helped facilitate his improvement as a teacher.

Question 3: What Can Reflection Reveal About the Barriers to Transformation IA's Face in Higher Education?

Permeable Barriers to Transformation

Through examining participants' reflections, numerous perceived barriers to their transformation had been identified. Some of those were "permeable" barriers, meaning those that could potentially be surpassed due to the participants' own agency. For example, one permeable barrier was the independence one of the IAs had with designing his classes. Darryl reflected that his professor, "doesn't have a lot of expectations...at first the independence was really difficult," but later he seemed to embrace the independence which fit his teaching style of letting organic conversations happen, based on student interest.

Another permeable barrier was the structure of the specific course the participant was teaching. Jasmine displayed not only self-efficacy of her teaching, but personal agency as well, saying she may need to have a talk with her professor because, "[the Small Group Perception] was helpful for me...going into last leg of the quarter," so if the professor needed to improve the course in the future, then it could be done with student feedback. Jasmine did not see the professor nor the design of the course and the designated learning outcomes as a fixed barrier, but something that she had some agency to enact future

change.

Impermeable Barriers to Transformation

Some barriers that were identified in participants' reflections were regarded as "impermeable," or rather, fixed and unalterable by personal agency. One impermeable barrier to transformation was simply the stress of the multiple roles these Instructional Assistants filled: doctoral students writing their dissertations, teachers to undergraduate students, and Instructional Assistants to their respective professors. Both Darryl and Brandon had remarked several times throughout the course that they were under a lot of stress due to their many responsibilities. Darryl mentioned one class that he had a postdoctoral proposal due the following week, along with preparing for teaching his classes. Also, although Brandon valued reflection and the space to think about his teaching, he would not be taking the follow-up course to "Survival Skills," saying, "I've got too many things, I'm just new and all stressed out already."

Another impermeable barrier seemed to be the teaching practices of the professors the IAs were assisting. Darryl reflected his difficulty teaching one week, saying, "there is a midterm tomorrow...and I just got the midterm yesterday and it's not even finished." He went on to say that he feels like he is, "put in a bad position, not knowing what she's looking for, not knowing where the class is going." Darryl continued, saying he could come to "Survival Skills" and, "I can have all the tools in the world," but it did not make much of a difference if the professor was not prepared for class, put up materials on the website late, or used slides in class that were not relevant. Darryl's reflection revealed that he believed he had some control to improve his teaching to be effective, but his effectiveness was limited by the incongruence with his professor's teaching practices.

Brandon also revealed barriers due to his own professor, reflecting one time that he had an argument with the professor in front of the class. On another occasion, Brandon explained, "the professor is lazy. He comes in asking the students what they're doing...it's the worst." The data here is limited to Brandon's own accounts of the events, but in the very least they reveal a negative relationship and possible miscommunication with his professor, which he did not see as transformable.

Unlike Jasmine, who saw the design of her course as changeable, Brandon identified the design of his laboratory class as another impermeable barrier to his transformation. In his interview, he explained,

"my struggles were kind of inherent to the lab class, and yeah, I feel like some of the things discussed here couldn't have helped me entirely just because of my class. It was just the way it is...to me, it seems like the lab is designed to just do the lab and nothing else. Like, I feel like I'm not even supposed to be teaching, that's just what the environment seems like, and that's what the other [IAs] kinda do too. It just doesn't seem like an actual teaching environment, so I don't know, I don't know. And of course the professor wasn't any help to that because he, he's...he's awful."

Brandon's reflection reveals his difficulty in applying his knowledge of evidence-based teaching practices due to his beliefs about the fixed nature of the design of his lab, as well as not having a mentor or peer to discuss and address his particular challenges. On a separate occasion, he had reflected on his disappointment of how the students lacked creativity during a lab assignment, attributing it to the lack of creativity in the STEM field, reflecting his own biases of the field. Brandon's beliefs regarding these impermeable barriers could also have contributed to his difficulty in individual transformative reflection and transformed teaching practices.

Discussion

Ethnographic field notes taken during an eight-week professional development course provided a unique opportunity to learn about the needs of IAs who are starting their teaching careers while balancing

their other responsibilities. These field notes, as well as the interviews at the end of the “Survival Skills” course, provided insight into their development as teachers, the role reflection plays in their transformation, as well as revealed their perceptions of barriers to their transformation.

The implications of this research are important in informing future development of IAs specifically and adult learning more broadly. Through this study, we provide new evidence and replicable measurements in support of the benefits of reflection. We document that reflection can lead to transformation in observable and measurable ways, a piece that is often missing from the theoretical literature. We highlight the role of reflection in developing self-efficacy as teachers, which may be validated through further action research studies. We further emphasize the importance of shared reflection on teaching experiences. We find evidence of a cohort effect, where critical friends at the same stage of their professional development are an important asset in achieving transformative learning experiences.

Through participant reflection, barriers to their transformation have also been identified, as either permeable or impermeable. Permeable barriers include the independence one of the IAs is given in designing course activities, as well as the structure of the course that another IA assists with. Impermeable barriers include the stress of the multiple roles IAs fill, the incongruence between IAs’ teaching practices with those of their professors, the negative relationship one IA has with his professor, and the design of a course one IA sees as fixed.

Future Research

Research about the role of reflection in transformative learning will continue to expand, aided by the use of new methodologies and data collection practices. To help increase our understanding of the reflective process in the context of adult professional development settings, avenues for future research include:

1. Future studies focusing on IAs’ reflective teaching practices. The limitations of this study did not allow for data collection to occur outside the sphere of the Teaching Center or in a larger sample. Expanded data collection across settings and additional participants would strengthen the conclusions drawn from this pilot study.
2. Observing IAs’ teaching practices in their classrooms along with their reflection could provide more insight into how they develop as teachers, as well their needs that arise, and the challenges they face.

Recommendations

To help improve IAs’ teaching abilities and address the perceived barriers to IA transformation, recommendations for future action include the following:

1. Expand professional development opportunities for new IAs in higher education that focus on andragogy and developing self-efficacy through collaborative, transformative reflection. Sharing reflections of successes and struggles with others in similar positions may help IAs feel less isolated and aid in transformation.
2. Increase the level of support from departments and instructors of record to effectively mentor and collaborate with IAs. Increased communication regarding learning outcomes, course design, and effective and consistent teaching practices may alleviate issues exacerbated by miscommunication or perceived low levels of support.
3. Encourage all those in teaching positions to use empirically-based methods for transformative learning in order to have more consistency in andragogy between professors and their assistants.

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