

Supporting Teachers as Principled Innovators

by

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ABSTRACT

This qualitative case study conducted in a higher education institution in Guyana aimed to address a need for more transformative approaches to professional learning and development given that accelerated transformation of the education system is required to meet the fast-paced national economic development. Through the lens of the Transformative Paradigm, Critical Pedagogy, and Transformative Learning Theory, this study explored four educators' perceptions of Principled Innovation Educators (PIE) workshops and their influence on educators' ability to (a) identify, (b) redefine problems in their educational practice, and (c) generate new ideas for problem-solving in their practice. Principled Innovation was used as a guiding framework for the workshops that were embedded in a research proposal course at the University of Guyana, a key provider of professional development for educators. In the four online PIE workshops, participants engaged with Principled Innovation. They used the generative and reflective questions on the Generative and Reflective Question Card Deck to work collaboratively, self-reflect, and make decisions related to identifying problems and generating ideas to address these problems during the problem identification stage of their research proposals. Triangulated data analysis from five data sets (pre-intervention focus group, field notes, journals, post-intervention individual interview, and final reports) indicated that participants' perceptions aligned with mine as the researcher and facilitator in revealing that the PIE workshops were successful in creating an empowering professional learning environment that supported transformative learning for the study participants. Implications for practice and recommendations are discussed.

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LIST OF ABBREVIATIONS

Abbreviation	Definition	Page
BEAMS	Basic Education Access Management Support.....	2
CPD	Continuous Professional Development	52
CPCE	Cyril Potter College of Education	1
CSEC	Caribbean Secondary Education Certificate	10
DBPL	Design-Based Professional Learning	56
GESIP	Guyana Education Sector Improvement Project.....	3
GITEP	Guyana Improving Teacher Education Project	2
ICEEILD	International Centre of Excellence in Educator Innovation, Learning, and Development.....	60
LMS	Learning Management System	31
IT	Initial Teacher Training	52
NCERD	National Centre for Education Research and Development	1
OAS	Organisation of American States	42
OUR	Office for Undergraduate Research.....	15
PD	Professional Development	54
PI	Principled Innovation.....	5
PIE	Principled Innovation Educators.....	5
TBI	Task-Based Instruction	19
TPD	Teachers Professional Development	52
UG	University of Guyana.....	1
UGBC	University of Guyana Berbice Campus.....	30

CHAPTER 1

INTRODUCTION

National Context

In recent times, the educational system in Guyana has come under scrutiny on account of the effects of the COVID-19 pandemic coupled with the country's newly attained status of a petroleum-producing nation. Learning loss from the pandemic, critical workforce needs as well as recent insights into professional development and classroom practices in Guyana (World Bank, 2020) underline the need for a revised agenda with accelerated professional development for teachers who are required to respond to these fast-paced changes. A World Bank (2020) report indicated that, in Guyana, teachers' professional development and instruction had not undergone major changes since many teachers, especially those in rural areas, still lacked "relevant qualifications, skills, and training" (p.61). More concerning in this report (World Bank, 2020) was the finding of a 2018 survey of classroom practices in Guyana. Only seven percent of teachers in the survey sample had met government standards for instructional practices. This information suggests that by Guyana's own standards, the quality of classroom instruction is contributing to poor learning outcomes. The report also raises questions about the nature of teachers' training and professional development in Guyana.

Training and professional development are conducted for teachers in Guyana mainly by two public institutions, the Cyril Potter College of Education (CPCE) and the University of Guyana (UG), in addition to the Ministry of Education through the National Centre for Education and Development (NCERD). A bachelor's degree which is obtained from the University of Guyana, or an associate degree obtained from CPCE is not

required for entry into the teaching profession. Teachers can enter the profession after only completing secondary schooling. Those in-service as well as those who have not taught initially receive two to three years of training from CPCE. This institution caters to both pre-service and in-service teachers with specialisation in early childhood, primary and secondary education at academic and pre-vocational levels. On acquiring their associate degrees from CPCE, teachers gain admission to undergraduate programmes at the University of Guyana where they obtain bachelor's degrees in education. Continuous professional development for teachers in various schools is usually provided by the Ministry of Education through NCERD.

Initiatives to improve professional development for teachers in Guyana have been done through a series of projects, one being the Guyana Improving Teacher Education Project (GITEP) which had a specific component focused directly on the quality and efficiency of teacher training through teacher observation instruments in practicum (World Bank, 2010). This project resulted in increased numbers of teachers being trained with more institutional structures put in place to support them, but they appeared not to have had much impact on classroom learning outcomes (World Bank, 2020). Another project was the Inter-American Development Bank/Government of Guyana – Basic Education Access Management Support (IDB/GOG-BEAMS) Initiative that implemented a Literacy Hour Programme in 2007 as an intervention to deal with unacceptable literacy rates reflected in national assessments. To support teachers' use of this methodology, the Ministry of Education engaged Master Trainers and Cluster Advisors and created manuals containing information about the programme and the procedures to implement it (Ministry of Education, n.d.). Despite this intervention, Jordan (2017) revealed that more

than half of the cohorts of students between 2013 and 2017 failed to attain acceptable levels of literacy in national assessments. This methodology appeared not to be as effective as it was envisioned, and the outcomes suggested that teachers' challenges with producing desired learning outcomes extend beyond exposure to a new methodology.

Current Trends in Teachers' Professional Development in Guyana

Professional development for teachers in Guyana has been enacted in long-term and short-term measures. A Guyana Education Sector Improvement Project (GESIP) was implemented in 2017 and continues to 2023. As part of professional development, it targets developing training courses and educators' capacity to deliver a revised curriculum framework. As an immediate response to the COVID-19 pandemic, the Ministry of Education, in collaboration with the Organisation of American States (OAS), sought to build teachers' capacity for remote teaching through ProFuturo. The emphasis was mostly on methodology, in particular, using project-based and problem-based teaching and learning methods in the classroom. However, as the struggle to improve teachers' professional development continues, previous initiatives have not reduced concerns about teachers' classroom practices and students' learning outcomes. Successive World Bank reports one decade apart (2010; 2020) have highlighted that providing effective professional development for teachers in Guyana is a critical and complex national challenge. One report (World Bank, 2020) noted weak input from higher education in addressing this challenge, and it specifically pointed out that higher education practices in Guyana were not aligned with real-world needs.

Problem of Practice

The World Bank (2020) report highlighted the need for more relevant practices in higher education in Guyana. As a higher education institution and a key national provider of professional development for teachers in Guyana, the University of Guyana has an important role to play in creating impactful professional development programmes for in-service teachers. Accordingly, it must examine ways in which its teacher education programme delivered to teachers who teach in schools across the country can be improved and made more relevant to align with the call for transformative agendas in teachers' professional development programmes (Ladson-Billings, 2021). It also needs to ensure that the professional development it offers to teachers across schools in Guyana addresses emerging and pressing local educational needs.

Consequently, this dissertation was conceptualised as one means of helping the University of Guyana to reimagine teachers' professional development through more transformative lenses. These lenses seek to create agentic educators who can perceive obstacles, and work reflectively and collaboratively to develop both awareness and understanding of how to act within their context to create impactful change (Freire, 2011). In addition, these lenses could potentially aid the University of Guyana to make a greater contribution to national development by creating a transformative educators' workforce. This type of workforce is required for improving the education system in Guyana so that it meets global and urgent pressing local needs amidst concerns about educators lacking confidence and feeling underequipped to teach in times of crisis (Manickchand, 2020).

In response to persistent and critical local needs, the action research qualitative case study described in this dissertation aimed to explore and understand how Principled Innovation Educators (PIE) workshops could build teachers' sense of agency and improve their decision-making and problem-solving process.

Principled Innovation

Principled Innovation (PI) is an emerging problem-solving approach that focuses on contexts and systems and on creating impactful learning opportunities for all learners (Mary Lou Fulton Teachers College, 2022). PI draws on specific contexts and larger systems to propose four clusters of character assets: moral, civic, intellectual, and performance, and eight practices as guiding principles for decision-making and problem-solving. This framework theorises that focusing on these assets will be holistic and impactful because they can build teachers' capacity to craft innovative solutions with the potential to meet educational, social, cultural, and emotional needs whilst aiming to produce positive change for humanity (Mary Lou Fulton Teachers College, 2022).

Objectives of Dissertation

Framed by the lens of Principled Innovation (PI), this dissertation focused on how the Faculty of Education and Humanities could intentionally foster transformational change in a traditional research course that provides academic training in the construction of a research proposal. The dissertation explores the potential of Principled Innovation Educators (PIE) workshops as a form of professional development to support educators' growth into more agentive, thoughtful, and reflective educators with a mindset for dealing with complex challenges and improving classroom learning outcomes. Producing educators with this mindset is important for the Faculty of Education and Humanities to

prioritize contributing to more transformative professional development in teacher education.

More specifically, this action research dissertation explored the broad question of “How does teachers’ participation in Principled Innovators Educators (PIE) workshops empower them to develop agency to improve decision-making and think critically and creatively about problems in their practice?” Essentially, the dissertation sought to achieve the following objectives:

1. Conduct a qualitative case study inquiry to ascertain the effect, if any, of four PIE workshops in creating agentic teachers with improved decision-making skills and creative approaches to addressing classroom problems. For this study, decision-making skills are operationalized as the ability to explore a problem, develop, analyse and select the best alternatives (Mary Lou Fulton Teachers College, 2022), and creativity is framed as both a mindset and a process engaging “novel and personally meaningful interpretation of experiences, actions, and events” (Beghetto & Kaufman, 2007, p.73). The context for this work is a traditional research proposal course that has been modified by implementing PI in the problem identification stage.
2. Prepare a manuscript that describes the action research dissertation journey for the audience in the local context. (Chapter 2)
3. Prepare a journal manuscript that reports on the qualitative case study inquiry to make a scholarly contribution to the field of professional development. (Chapter 3)

Accomplishing these objectives could contribute knowledge to more transformative professional development for teachers in Guyana and could also add to scholarship on the process of leveraging PI as an approach to achieve greater professional impact in a non-Westernised context.

Organisation of Dissertation

This dissertation was designed consistent with the alternative format for the Action Research Dissertation at Arizona State University. Within the context of this dissertation, this process involved conducting an action research study and generating two manuscripts. In Chapter 2, the manuscript for the monograph is presented. The aim of his chapter is to provide insight into the evolution of the action research dissertation. It provides a more detailed discussion of the local and larger context that informs the problem of practice in the dissertation. It also includes a review of relevant literature that informed the study and shows how theories of adult learning and collective efficacy informed the previous cycles of learning. It concludes with an introduction to the qualitative case study inquiry (Cycle 2 of my dissertation), an overview of its methodology, and a summary of its findings.

Chapter 3 is the journal manuscript for the research article generated from the qualitative case study inquiry. It includes the specific research questions for which answers are sought about the effects of PI:

1. What are teachers' perceptions of the activities of the PIE workshops?
2. How does teachers' participation in the PIE workshops influence their ability to (a) identity, (b) redefine problems in their educational practice, and (c) generate new ideas for problem-solving in their practice?

3. How do my perceptions, as a researcher and workshop facilitator, align or differ from teachers' perceptions of the impact of the PIE workshops?

The dissertation closes with Chapter 4 which presents reflections.

CHAPTER 2
MONOGRAPH

Overview

The aim of this chapter is to provide insights into the evolution of my action research dissertation. It describes the shifting phases of both my professional journey and the action research dissertation in which I aimed to apply an emerging transformative and innovative character asset approach to problem-solving as professional development in a higher education context in Guyana. The first part of the chapter describes how my personal experiences influenced my philosophical orientations and initiated my journey into action research with a transformative agenda. The second part of the chapter provides details about the situated context leading to the cycles of action research. The chapter concludes with a summary of the findings of the qualitative case study inquiry that reflects Cycle 2 of my action research dissertation, and my personal reflections.

Improving Professional Development through Action Research

Action Research is an area of increasing importance in higher education because it provides scope to link theory and practice and address problems that are embedded in teaching and learning. It has long been associated with teachers' professional growth and development (Mertler, 2017; Butin, 2010). Renewed interest in action research has emerged from a recognition that its multi-stage and cyclical processes can potentially produce the teaching and learning outcomes desired for successful and effective 21st-century educational systems (Mertler, 2017). The multi-stage process in action research builds on a cyclical process of identifying problems of practice, planning, collecting, analysing data, developing action plans, and reflecting. Within an education context, it is

documented as a good method of enabling teachers to connect theory to practice and grow professionally (Vaughan & Bumaford, 2016; Mertler, 2020) because teachers who undergo this process develop self-efficacy, self-directions, self-awareness, and improved problem-solving skills (Cabaroglu, 2014; Aldridge et al., 2020).

My Early Professional Experience and Becoming an Action Researcher

I sought to become an action researcher and join the EdD program after decades of unfulfilled desire to transform how we prepare our teachers for their classroom practice. This desire has its roots in my early professional experience when I worked as a teacher of English Language in a secondary school in a rural area. This school was populated with learners who had either failed or barely gained passing scores in the National Grade Six examination and who required additional time in Grade Eleven at the secondary school to obtain passing grades in the high-stakes Caribbean Secondary Education Certificate (CSEC) English Examination. This examination had implications for the learners' career and higher education prospects as a passing grade in the subject English Language was required for entry into both areas. My appeals for additional time in Grade Eleven for these learners were met with resistance from a principal whose argument was that the school could not initiate any change in the system that would be inconsistent with policy. At the time, the policy was to have all learners in Grade Eleven write the CESC exams and not have them repeat the grade. In the school, there was no system in place for learners who lagged in any subject area. As my colleagues declared, our role was to "pass them through the system".

My frustration mounted every year when the cycle of high failure rates in the subject of English Language was repeated because of indifference to learners' needs. I

also recognised how the absence of a passing grade in the subject English Language contributed to the disempowerment of many rural learners, preventing them from pursuing higher education and entering the career fields they desired. Living in poverty, many families could not have afforded the fees to have learners rewrite the CSEC English Language examinations privately. For them, secondary schooling was a one-shot endeavour. I knew then that I wanted to escape the sense of frustration created by a feeling of powerlessness. I wanted to initiate change that would empower teachers to interrogate, challenge and understand how to confront oppressive structures that hindered teaching and learning. To do this, I needed to pursue higher education studies and be able to work with teachers through the delivery of higher education. These opportunities allowed me to ask critical questions like, what if we are to do things differently, what if we are to do things better, how can achieve better learning outcomes? These questions are deeply entrenched in my role as an educator and align well with the goal of improvement in action research.

Shifting Position: Teaching in Higher Education

I teach in the Faculty of Education and Humanities at the University of Guyana. More specifically, I teach in the Departments of Curriculum and Instruction and Language and Cultural Studies in the Division of Education and Humanities at the Berbice Campus. I have been with this faculty for over ten years, a period marked by the teaching of linguistics and academic writing in the Department of Language and Cultural Studies, and subsequently, the teaching of methodology courses in language education while supervising the research projects of undergraduate teachers of English Language in the Department of Curriculum and Instruction.

Throughout that journey, based on my experience in higher education studies, I intentionally avoided using the lecture method of teaching which seemed grounded in the transmittal mode of instruction. As a student in higher education, I slept in classes when the lecture method was used while I was excited in classes when I was actively involved in determining outcomes when lecturers encouraged me to explore and bring new ideas to the classroom, negotiate meanings, and challenge my thinking and theirs, providing opportunities to gain deeper insights and new perspectives. Most important to the process of my higher education studies was my growing conscientization (Freire, 1970), the level of awareness I was developing about my learning preference and learning style in relation to others as well as my agency to perceive obstacles, and challenges and engage others to understand how to act on those realities to effect change. Thus, my philosophical orientation to teaching and learning in higher education was framed largely by the sense of disempowerment I experienced in my early teaching career, especially the oppressive structures I had encountered in secondary schools within rural communities and my growing conscientization that characterised my higher education studies.

My Philosophical Orientation

My epistemological position falls within the transformative paradigm. The transformative paradigm (Mertens, 2015) has an advocacy agenda, and it prioritizes individual and group transformation as instruments of social change. Further, it emphasizes individual and collective agency to act, reflect, resist, and contest societal challenges, acknowledging that those affected by the problem have an important role to play in addressing it. I believe that education needs to be transformative and empowering, and these beliefs guide my thinking that teachers have a right to participate

collaboratively in their own professional development. Through this participation, they can gain opportunities to contribute insights and knowledge to pedagogical approaches capable of transforming them into critical reflective inquirers. Higher education must provide such opportunities.

This philosophical orientation was threaded through the two previous cycles of my action research, and it set the foundation for my dissertation's focus on a single qualitative case study that built on the ontological foundations of realities being negotiated and interpreted in response to unpredictability and realities being socially constructed entities. Its methodology drew on critical pedagogy (Freire, 1970) and transformative learning theory (Mezirow, 2012). These theories are useful to develop an understanding of how I can help teachers to negotiate, interpret, reflect on, and make sense of inquiry grounded in Principled Innovation (PI). Principled Innovation is an emergent and innovative character asset approach to problem-solving. It emphasises moral, civic, intellectual, and performance values and encourages practitioners to develop perspectives as they engage with unpredictability. Through PI, I hoped to help teachers to develop agency to transform how they think about and can act in their practice in my situated context.

Situated Context: University of Guyana

The Teachers' Research Programme at the University of Guyana

The traditional emphasis on intellectual development, which has framed much of the literature on undergraduate research with outcomes such as intellectual gains in critical thinking, analysis, and communication skills (Kuh, 2008), frames the research curriculum for teachers at the University of Guyana. Although teachers complete a research thesis in

fulfilment of their bachelor's degree, consistent with the traditional emphasis on academic development and intellectual gains, the research curriculum follows a preordained traditional scientific format of identifying a research problem and following a linear sequence to conduct individual research projects every year.

Teachers complete a three-course research sequence. In the first course, they are taught a thirteen-week research methods course. In the second course, they select a topic and are guided to complete their proposal, and in the final course, they collect data and analyse data and then report their findings. The main objective is “to provide students [teachers] with an opportunity to conduct an in-depth and focused study of a subject of their choice. By the end of the course, student-teachers should be able to write a proposal for and conduct an education study” (Department of Curriculum & Instruction, 2020, p.1). In the absence of teachers developing awareness and understanding of the practical use of their research projects, many teachers complete their projects and abandon them when completed although teachers highlight concerns in other courses about teaching and learning challenges that they are unable to manage in their classrooms. For example, before the pandemic, one teacher began a study on the impact of teachers' feedback on students' motivation to write in the composition classroom. Believing that this study had useful practical implications, I engaged the teacher to continue to work on the project, but the teacher declined to do so. Research has shown that when teachers engage in research that they can use in classrooms, reflective and problem-solving skills are enhanced, leading to better learning outcomes for learners (Cabaroglu, 2014; Aldridge et al., 2020). While research is done by teachers in this context, surprisingly, scant attention is given to their applications in practice.

Within the context of the undergraduate programme at the University of Guyana, the Office for Undergraduate Research (OUR), which was established in the latter half of 2016, played a crucial role in highlighting possible limitations in the teachers' research curriculum.

This office was managed by a director at the Turkeyen Campus and an assistant director at Berbice Campus, the latter position I held for two years (2017-2019). During the period of its operations, the Office for Undergraduate Research facilitated 27 students attending regional and international conferences. Even though these events were open to all students submitting abstracts on a competitive basis, of the 27 students who attended these conferences, only 4% were from the Faculty of Education and Humanities with 2% being teachers in the Bachelor of Education (English specialisation) programme and 2% being students in the Associate Degree of English programme. The Faculty of Natural Sciences, Agriculture and Forestry, and Earth and Environmental Science had higher submission rates from students. In three in-house conferences hosted by OUR, a similar pattern of more participation from students in the sciences and other disciplines and low levels of participation from teachers in the Faculty of Education and Humanities was observed. One difference between the undergraduate research programme in the science disciplines and the humanities is that teachers have single mentors in the humanities while students in the science disciplines have multiple mentors. Students who benefit from multiple mentors possibly experience higher levels of success by engaging with multiple perspectives. Even though the difference in types of mentorship/supervision might account for the different levels of performance between the disciplines, teachers' lack of interest in disseminating their research work piqued my interest in their research

curriculum. When I spoke with the research supervisors (mentors) to encourage the teachers to submit abstracts, many stated that teachers' research projects were not of a satisfactory standard for public dissemination because many teachers had not invested much time and effort in their projects or had simply recycled a project that someone else had completed previously. A few teachers whom I approached stated that they lacked the confidence to withstand scrutiny of their work in a conference setting.

My Personal Interest in the Research Programme

I was interested in focusing on our research programme for teachers for several reasons. First, I was concerned about teachers' collective lack of self-efficacy and agency to identify and generate creative ideas to address classroom problems, their lack of engagement with research as well awareness of the connection between research and professional growth. I wanted to change this trajectory of teachers' thoughts about research being a done once and forgotten activity and support them to develop an awareness of the connections between research and professional development.

Second, I thought that the strategies I used in my language education courses could be a useful bridge to make teachers' experience with research more engaging and meaningful. My philosophical orientation about learning being a social and collaborative activity makes me an ardent proponent of the communicative approach and its task-based offspring. My classroom teaching builds on task-based principles, so teachers are usually engaged in collaborative tasks and projects. Their positive attitude to these tasks and projects, their conversations about what they were doing, how they were engaging and applying, the questions they asked each other, the connections they made across ideas that were put forward across task groups, and the new understanding which they developed

were all very inspiring. The deep level of teachers' engagement with tasks and projects suggested that once opportunities are provided, the teaching and learning environment would support the democratic, reflective, and dialogic type of instruction advocated by Freire (1970) in critical pedagogy.

Cycles of Action Research and Learnings

Cycle 0: Focusing on the Research Programme

Cycle 0-Reconnaissance was conducted in April 2021. The aim of this cycle was to explore research mentors'/supervisors' general and specific perceptions of the current research curriculum for teachers with the goal of understanding the background of the problem of practice and creating an intervention. It was conducted at the University of Guyana Berbice Campus, the smaller of the two campuses with less than 1,000 students. It was conducted with four research supervisors in the Division of Education and Humanities, a subdivision of the Faculty of Education and Humanities.

Research Perspective

I engaged in this cycle as a researcher and a teacher educator struggling to understand how to provide a richer and more meaningful and impactful learning experience for teachers in the research course. I was very interested in my colleagues' view of the research course. Therefore, this cycle was grounded in the following questions: *What are the limitations and benefits of the current research approach for preparing teachers, what kinds of alternatives for the current research approach might better prepare teachers for their classrooms and what components would be necessary to implement a new and better approach to research for teachers to prepare them for their classrooms?*

Methodology

The qualitative design of this cycle was guided by the grounded theory approach (Strauss & Corbin, 1998). Grounded theory is a common analytical approach in qualitative research that is useful for developing themes from comparisons of text segments and for providing a range of experiences and perceptions accurately and comprehensively (Strauss & Corbin, 1998). Twenty-minute semi-structured Zoom interviews were conducted with each participant. Data from each interview was subjected to qualitative deductive data analysis following procedures set out by Strauss & Corbin (1998). Each recording was listened to repeatedly and in vivo coding was used to extract keywords and sentences that related to the categories suggested by the focus of the research questions. These codes were analysed to develop initial themes across data sets. Only those sections of the transcribed texts related to the categories in the research questions were analysed.

Findings

Themes that emerged from the data were inadequate time for the research project, overworked topics, for example, recycling of topics such as parental involvement in schools, teachers doing research just to pass the course, not engaging in meaningful research, very few doing their own work because they recycled previous work of other teachers, training for research mentors or supervisors, and reviewing our research programme to determine what is not working and searching for better models of research and supervision. These insights from the findings in Cycle 0 built the foundation for Cycle 1. Using these insights, I considered an intervention to foster more collaboration between the research mentor/supervisor and teachers to foreground classroom problems. I

wanted to create a more inclusive and supportive bottom-up approach to dealing with challenges in the research curriculum. I also sought to create opportunities for the collective success of teachers with research and classroom problem-solving.

Cycle 1: Shifting Focus to an Intervention

Cycle 1 extended the findings of Cycle 0 in a mixed-methods sequential study conducted to investigate the effectiveness of five-task-based modules that I had created and integrated into the research proposal course as an intervention to improve the research knowledge and collective efficacy of four teachers who were introduced to action research. I was supervising these teachers who were enrolled in the research proposal and research report courses (courses two and three of the three-course sequence).

Theoretical Framework

This mixed methods study was framed from Collective Teacher Efficacy (Bandura 1977, 1997), Sociocultural Theory (Vygotsky, 1978) and Guskey's (2010) model of professional change. Collective Teacher Efficacy theory explains how the collective beliefs of a group can effect desired changes leading to improved student performance and achievement in educational systems. Vygotsky's (1978) sociocultural theory reflects learning as a process of mediating social relationships through scaffolded interactions that occur as participants accomplish collaboratively what they cannot do independently. These social interactions move learners toward greater self-regulation, self-efficacy, and agency.

Guskey's (2010) model of professional change seemed an appropriate model to illuminate how the Task-Based Instruction (TBI) intervention could promote and sustain

change. TBI is a problem-based pedagogical approach that focuses on collaborative and meaningful communication in purposeful and real-life engagements (Ellis, 2003).

Guskey's (2010) model focuses on teachers' professional development, emphasizing the order of change and suggesting how professional development could be facilitated and sustained. In this model, change begins with teachers experiencing change, applying it to practice, improving learning outcomes, and then changing their attitudes and beliefs when they see evidence of change in student achievement. Through this model, Guskey (2010) acknowledged, like Phipps and Borg (2007) that what teachers bring to the process is just as important as what they learn from it. In addition, he asserted that continued follow-up enabled teachers to "use new practices almost out of habit" (p.388), and successful professional development is sustained when it is viewed as a continuous and ongoing process and not an event (Guskey, 2010). Further, he argued that teachers are attracted to professional development that is anchored in their real-life needs, and programmes that address these needs are likely to succeed.

The Intervention

My intervention in Cycle 1 drew on Task-Based Instruction (TBI), an offshoot of communicative language teaching which is oriented toward more process-based collaborative student-centred project work (Richards, 2006). According to Ellis (2003), TBI is a problem-based pedagogical approach that focuses on collaborative and meaningful communication in purposeful and real-life engagements. TBI seemed appropriate because I wanted to create a rich and meaningful research learning experience for teachers, one that would provide opportunities for them to connect theory

to practice, grow professionally, and develop agency for problem-solving in their classrooms.

In TBI, teaching and learning are structured around three key stages: Pre-Task, During-Task and Post-Task (Ellis, 2003). In the Pre-Task stage, activities are framed, time allotted, and preparatory tasks completed. During-Task, the main task cycles are completed, and at the Post-Task stage, learners engaged in the tasks report on their learning, develop awareness and can repeat or develop tasks further (Appendix C). The TBI paired nicely with the process of improving collective efficacy. Research has examined TBI from a variety of language teaching and learning contexts (East, 2014; Hadley, 2013; Bularzik & Bogiages, 2020) and theoretical perspectives including psychological, cognitive, and sociocultural (Skehan, 2003). Psychological perspectives (Long, 1989; Aston, 1986) have examined interactional adjustments during tasks, focusing on how meaning is negotiated through a range of communicative strategies when there is a breakdown in communication and feedback is used to repair communication. These studies (Long, 1989; Aston, 1986) have argued that convergent tasks in which learners reach a consensus provide more opportunities for the negotiation of meanings than discussion tasks where they do not necessarily have to agree. The sociocultural perspective (Swain & Lapkin, 2001) which focused on the co-construction of meaning during interaction, especially how participants shape and build collaborative meanings, has reported that contrary to the arguments against discussion tasks, these tasks provide similar opportunities for learning.

While there are dissenting opinions in the literature (Ellis, 2009) on the effectiveness of and areas impacted by TBI, support for TBI continues from more recent

empirical studies which have shown that tasks activate cognitive processes (Bularzik & Bogiages, 2020), focus on problem solving and therefore push learners to attend to real-world needs (Anwar & Arifani, 2016), provide scaffolding opportunities (Shintani, 2016) and have a positive impact on student engagement (Choo & Too, 2011). Therefore, the three-stage TBI modules described previously held promise and opportunities for enabling teachers to effect necessary changes in their practice and cultivate beliefs and attitudes leading to changes in behaviour. In this cycle, Guskey's (2010) model of change discussed earlier illustrated the potential ways in which the research curriculum could become a powerful professional development programme that intersected theory, research, and practice when the TBI modules were infused. Two research questions guided this cycle:

1. How and to what extent does the implementation of task-based modules in the research curriculum affect teachers' perceptions of (a) their research knowledge related to teaching and (b) collective efficacy for solving teaching and learning problems?
2. How and to what extent does the implementation of task-based modules in the research curriculum affect teachers' (a) intentions to implement action research into their teaching and (b) their plans for professional practice in their classrooms?

Methodology

Cycle 1 used a mixed-methods complementary sequential design (Charmaz, 2014), collecting quantitative and qualitative data to determine the effectiveness of the intervention. Engaging both quantitative and qualitative methods of

data collection in this way allowed flexibility for reflection, revision, and iteration, crucial for a deeper understanding of the problem of practice (Ivankova, 2015).

Role of the Researcher

I functioned as a participant-observer and researcher collecting post-intervention data and as a co-learner and partner, providing scaffolding, monitoring progress, sharing ideas, and creating an environment in which there was mutual respect, trust, authenticity, and openness during the process of implementing the modules (Vygotsky, 1978). I implemented the five modules in five two-hour sessions across three weeks via Zoom. Prior to implementing the intervention, my teacher-participants were briefed about action research, and given the modules and relevant links to resources on action research. In the first hour of each session, teacher-participants met as a group and discussed their pre-and post-task activities. In the second hour, I met with teacher-participants, and we shared and discussed ideas during the main task.

Data Collection

Data collection was preceded by rigorous implementation of the ethical procedures outlined in the ASU IRB protocols. The first instrument was a 23-item self-report questionnaire adapted from Papanastasiou (2005) and Prenger et al. (2018). The questionnaire focused on effects regarding collective efficacy, research knowledge, and intention to use action research. The questionnaire was administered through Google Forms one day after participants had completed the final module. Responses to 22 closed items were on a 6-point Likert scale with 6=strongly agree, 5=agree, 4=slightly agree, 3=slightly disagree, 2= disagree, 1= strongly disagree.

In the second instrument, qualitative data was collected by a focus group interview conducted via Zoom. All four teacher-participants participated in one 25-minute semi-structured focus group interview. The interview questions focused on teacher-participants' perception of the modules relative to developing efficacy, research knowledge, and intention to use research action research. I facilitated this focus group one week after teacher-participants had completed the post-intervention survey.

Reliability and Validity

To establish the trustworthiness and credibility of the data, the interview transcript was sent to teacher-participants to verify its accuracy.

Data Analysis

Data analysis followed the mixed-methods approach (Ivankova, 2015) with data collected from the questionnaires analysed for the means and standard deviation using descriptive statistics. Interview data were transcribed, and the transcripts analysed following the grounded theory approach (Charmaz, 2014). Initial coding was first conducted on the transcript line-by-line with process codes. Codes were merged into categories. Themes were then developed from the categories. According to Charmaz (2014), the use of line-by-line and process codes facilitates a deeper exploration of the phenomena to account for what and how. Understanding what and how was consistent with the focus of the research questions. Third, complementarity was then explored with the interview findings used to explain the results from the questionnaire.

Findings

Generally, the findings in the study had a high degree of complementarity. Quantitative results for all research questions indicated that teachers rated the effects of

the intervention positively. The means for items related to all areas of developing collective efficacy ($M=5.25$, $SD=.5000$) and research knowledge ($M=5.75$, $SD=.5000$) were within the agree to strongly agree points of the scale with just two items relating to developing action research plans ($M=4.75$, $SD=.957$) being on the slightly agree point. The qualitative data complemented these findings with teachers expressing a positive attitude to action research in all three themes: growing and developing confidence to conduct action research, gaining insights into action research, and exploring opportunities and possibilities. These results indicate that the intervention seemed promising. Teacher-participants responses suggested that they were enthusiastic about collaborating to develop a problem-oriented approach to their professional development and practice. They highlighted how the tasks could help them to improve their practice and one teacher-participant remarked "...in our profession, how we can actually look at the problem in our classroom, for example, while we are carrying out activities, we can actually carry out our research at the same time." The qualitative findings yielded useful insights into their challenges and barriers to effectively participating in the intervention. Challenges they identified included being unfamiliar with action research, lacking adequate time to complete the tasks, difficulties with narrowing down a broad problem to a specific researchable problem and developing an actionable plan to investigate the problem.

Reflections

Teacher-participants' willingness and ability to reflect critically on the intervention during the data collection process was encouraging. The quantitative data collection drew responses from every teacher-participant for all the items. However, in

the focus group interview, responses were not evenly distributed. One teacher-participant hardly engaged with the questions. To negate this occurrence, in the next cycle, I implemented individual interviews. I had intended that the findings in this cycle would have led to revised modules being implemented in the next cycle. However, my exposure to critical pedagogies in TEL 702: Dynamic Contexts of Education shifted my focus to framing professional development within a more transformative lens.

Cycle 2: A New Agenda for Professional Development within the Research Course

Considering the current pandemic and Guyana becoming a petroleum-producing nation, the reframed approach focused on the Faculty of Education and Humanities preparation to empower teachers through transformative and innovative approaches. Specifically, it focused on creating agentive educators with the potential to connect research to their professional growth as they make decisions and generate new ideas for problem-solving in their local context. Therefore, the purpose of this cycle was to explore teachers' experience of an intervention, Principled Innovation Educators (PIE) workshops, when implemented as a form of professional development in a traditional research course.

The Intervention

The PIE workshops were intended to address weaknesses in our research programmes that were highlighted in Cycle 1. The workshops were a part of the wider focus of the research proposal course which was conducted after the research methods course and before the final course, the research report. The goals of these workshops were to enable teacher-participants to critically examine their classroom and professional practice as they identified and explored problems or challenges which needed to be

addressed. More specifically, the workshops proposed to engage teacher participants as self-reflective and agentic educators who could work collaboratively and make better decisions regarding how they identify, redefine, and generate solutions to address problems in their professional practice. Scoping problems to investigate in their research projects was an integral part of these activities.

Aligned with Principled Innovation (PI), the PIE workshops were as follows:

- (1) Decision-Making and Principled Practices
- (2) Humanising Learning Experiences
- (3) Collaborating to Problem Solve
- (4) Generating Ideas for Solution

Each workshop used the two-hour slot assigned for the research proposal course. The two hours were further subdivided into the following segments: Group Discussion (15 minutes), Individual Learning Experience Reflection (15 minutes), Collaborative Meeting (30 minutes), and Self-Reflection Journal (60 minutes). I had initially planned for the self-reflection journal entries to be completed during the second hour of each workshop. However, discussions were lengthy, and journal entries had to be completed outside of the normal class schedule. These self-reflection journal entries used prompts to examine perspectives and any shifts in perspective. All these activities were framed around Ideas 1 – 4 of one PI tool, the Generative and Reflective Question Card Deck (Appendix D). Each card in the deck contained one starter and one deeper dive question that allowed teacher-participants to explore aspects of their characters and practices of PI (Table 1).

Table 1

Principled Innovation Character Assets and Practices

Character Assets	Practices
Moral	<ul style="list-style-type: none">• Identify and acknowledge fundamental values• Utilize moral and ethical decision-making
Civic	<ul style="list-style-type: none">• Understand culture and context• Engage multiple and diverse perspectives
Intellectual	<ul style="list-style-type: none">• Develop habits of an informed systems thinker• Reflect critically and compassionately
Performance	<ul style="list-style-type: none">• Design creative solutions• Navigate uncertainty and mitigate consequences

My Expanded Role

To effectively conduct this cycle of action research and successfully implement the intervention, my role as an instructor/research mentor continued to encompass that of a researcher who conducted interviews and collected and analysed data to report on my findings as I did in Cycles 0 and 1. However, in this cycle, my role broadened to include that of a workshop facilitator who used the first four weeks of the research proposal course to conduct four workshops in which I facilitated both collaborative and individual work and dialogic engagements.

Theoretical Framework

Consistent with my epistemological position within the transformative paradigm and philosophical orientation of socially constructed realities, this cycle drew on the overarching transformative paradigm (Mertens, 2015), critical pedagogy (Freire, 1970, 2011), and transformative learning theory (Mezirow, 1978, 2012). The transformative paradigm focuses on empowerment that emerges when solutions to problems involve and engage those whom the problems affect at both the individual and group levels. Critical

pedagogy (Freire, 1970) has a transformative lens in that it diverges from the transmittal, banking model of education. It focuses, instead, on problem-posing and transformation through dialogic inquiry that builds conscientization leading to empowerment and agentic development. As a teaching methodology, it creates opportunities for dialogic encounters and interactions that promote reflection and action useful for exploring realities and identifying challenges, barriers, and alternative courses of action in decision-making.

The theory of transformative learning (Mezirow, 1978, 2012) is an adult learning theory that examines how adults make meaning of their life experiences. It focuses on how they use prior experiences and construct new and revised interpretations of experiences that trigger them to act. Mezirow (2012) proposed six phases that characterise this process of making meaning: (1) a disorienting dilemma, (2) a self-critical assessment of assumptions, (3) recognition in dialogic engagements that others share assumptions, (4) exploration of new ideas and relationships, (5) confidence to plan a course of action, and (6) action based on the new perspective developed through this process. According to Mezirow (2012), the transformation could occur suddenly (epochal) or incrementally and could be intense and emotional as old meaning structures are challenged, revised, and transformed.

Studies (Archer-Kuhn, et al., 2021; Clare, 2006) have argued that combining transformative learning theory with other theories can shed more light on how transformation occurs. Combining critical pedagogy (Freire, 1970, 2011) and transformative learning theory (Mezirow, 2012) in this study proved useful for analysing teacher-participants' emotional struggles, professional learning and development, and the

classroom culture as they engaged with PI, the emergent approach to decision making and problem-solving embedded in the problem identification stage of the research proposal. This study was framed by the following research questions:

Research Questions

1. What are teachers' perceptions of the activities of the PIE workshops?
2. How does teachers' participation in the PI workshops influence their ability to (a) identify, (b) redefine problems in their educational practice, and (c) generate new ideas for problem-solving in their practice?
3. How do my perceptions, as a researcher and facilitator, align or differ from teachers' perceptions of the impact of the PIE workshops?

The methods used in this cycle are discussed in the next section.

Methods

Design

A single qualitative case study was used to explore teacher-participants' experience of the Principled Innovation approach. While the case study is useful for exploring a novel phenomenon, it is even more useful for analysing participants' experiences and yielding an in-depth understanding of these experiences (Yin, 2018).

Participants

Participants in this study were four female teachers of English Language who were enrolled in the Bachelor of Education (English) programme at the University of Guyana Berbice Campus (UGBC). They were assigned to me for research mentorship/supervision while they completed their research projects in partial fulfilment of their bachelor's degrees in the final year of their two-year programme. Through the

Moodle Learning Management System (LMS), they accepted my invitation to participate in the study and agreed for the data we generated as a normal part of the research proposal course to be used in my study.

Procedure

The teacher-participants were new to me. I had not taught them any course before, and to introduce myself to them and create some level of comfort with working with me, I conducted a face-to-face orientation session for the course and introduced PI to them on campus (UGBC). Following the orientation session, all four workshops were conducted weekly on Zoom when we met for two hours as scheduled on the Division of Education and Humanities timetable. The content for all four workshops was loaded on the Moodle LMS one week before the start of each workshop. I gave each teacher-participant data plans before each workshop in case the internet was unstable or there was a disruption in the power supply because teacher-participants logged into Zoom from their homes. All interviews were also conducted on the Zoom platform and journal entries were submitted via Google Docs.

Apart from observing Arizona State University's Institutional Review Board study protocols and procedures, pseudonyms were assigned to each teacher-participant who knew that it was optional to share their data and that they could withdraw from the study at any time even though they had signed consent forms which addressed risks, benefits, and confidentiality. None of the workshops were graded.

Data Collection

To explore teacher-participants' experience with PI implemented in the course as a form of professional learning and development, I collected data across the entire

semester, beginning in September 2022, and leading up to the submission of their research proposals in February 2023. Five sets of data were collected across this period: (1) A thirty-minute pre-intervention focus group conducted in September 2022 to ascertain challenges teacher-participants had in their classroom and professional practice and make comparisons with post-intervention data to chart any changes, (2) Field notes throughout the duration of the research process, (3) Self-reflection journal entries collected after each workshop had concluded (14 total), (4) Four post-intervention thirty-minute individual semi-structured interviews to gain insights into teacher-participants experience with the workshops and (5) Four final reports (research proposals) collected in February 2023. I also wrote memos to document my data analysis techniques.

Data Analysis

Data analysis followed Bingham and Wittkowsky (2022) and combined both inductive and deductive analysis in a five-cycle process that used deductive codes to (1) organise the data sets with attributes codes and (2) apply topic codes to sort into categories based on research questions; used inductive coding to (3) identify ideas and (4) explore patterns that led to emerging themes, and (5) repeat deductive and inductive coding to apply a theoretical lens and explain findings.

Triangulation

To increase the credibility and trustworthiness of the study and produce rich and thick data (Tracy, 2010), data that yielded teacher-participants' perceptions (self-reflection journal and interview data) were triangulated with data from which my perception as a researcher and facilitator emerged (field notes, final reports, and pre-intervention data).

Summary of Findings

This qualitative case study that sought to address the need for more transformative and innovative approaches to professional development in Guyana addressed three research questions: (1) What are teachers' perceptions of the activities of the PIE workshops, (2) How does teachers' participation in the PIE workshops influence their ability to (a) identify, (b) redefine problems in their educational practice, and (c) generate new ideas for problem-solving in their practice, and (3) How do my perceptions as a researcher and workshop facilitator align or differ from teachers' perception of the impact of the PIE workshops?

A total of eleven themes emerged to answer these research questions. Four were associated with research question one and three with research question two, all of which were aligned with my perception as a facilitator and researcher. Three themes that reflected my perception in response to the third research question did not concur with teacher-participants' perceptions. However, for brevity, findings from research questions one and two are presented with research question three for perceptions that aligned. In the next section, each theme is briefly illustrated and presented according to the research questions.

Perception of the Activities of the PIE Workshops

Four themes emerged from teacher-participants' perceptions of the PIE workshop activities and their influence on professional development: enjoyable and engaging, satisfaction with activities, self-reflecting and increasing the level of awareness of their current practice and improving collective knowledge and understanding of their practice

through collaborative activities. All four themes concurred with my perception as a workshop facilitator and researcher.

For the theme of *enjoyable and engaging*, as shown in the individual interviews, all teacher-participants expressed positive perceptions about the workshop activities, expressing pleasure with them. Christina described her experiences that reflected the general sentiments expressed by the other teacher-participants:

I don't think there is any activity that I did not enjoy being a part of. So, I enjoyed every bit of it, even to the breakout room and so. Speaking to persons who I've known for a good time now, I would learn more things about them and all of that.

Teacher-participants' descriptions recorded in my field notes capture their *satisfaction with activities*. Xanadu expressed these feelings of contentment that were common across other teacher-participants when she explained that "I was concerned about how we're getting through all of these cards, and this semester still get a proposal on them, if these cards were just meant to waste my time, but we have covered a lot of it[proposal]." After the final workshop, she stated: "I think these workshops were very beneficial to us. They were well organised and coordinated."

The themes of *self-reflecting and increasing the level of awareness of their current practice* represented teacher-participants' critical reflection on their practice as part of their professional growth. As part of her professional growth, Andie described the influence of the reflective questions on the PI cards in the interview:

So, I think the one that influenced my professional development the most, was the use of the PI Cards. So, because the questions that are on those cards caused me to think about, the way in which I teach and the way in which I would deliver the curriculum as well as if it is of the best interest of the best benefit of all those who are involved.

In addition, teacher-participants perceived that *improving collective knowledge and understanding of their practice* occurred through collaborative activities that supported dialogic inquiry. Nylah's description in the individual interview suggests how useful these activities were to her:

The fact that we had to meet together, and you know, sometimes you would have a question thrown at you, and you don't know, maybe you know at that point in time you're not. You know you're not thinking about how you can do this, or how you can do that. But then hearing from another colleague [participant] or another person, you know the idea starts to come on board. Ideas start to flow for you.

Regarding research question two on the influence of the PIE workshops on educational and classroom practice, three themes emerged. The first theme of *engaging in reflective learning and growing in confidence to identify and address problems* was reflected in Xanadu's account of how insightful she became and how she increased her self-confidence to evaluate problems after self-reflection:

Instead of just thinking of an issue in isolation, and then trying to frame something around that which is what I was doing on that. Now I know that there are certain questions that I have to ask myself before I actually pin down a topic (Individual interview).

The second theme of *shifting from passive to agentive roles and feeling empowered to generate solutions in their educational practice* was evident in teacher-participants' descriptions of how their perspectives changed and inspired them to consider becoming agentive as captured in Christina's account:

...I would say that you know we would always need the assistance of other persons. But I believe that what these workshops change in me is like I can do things that oftentimes we tend to rely on other people like rely too much. So, what I want to do. I want to start doing the things that I want to see change, and if I can start, maybe I can influence, like other persons to start doing those or see the importance of doing them. So, I want to start in a little way even if I have to do it by myself to do things which I think will positively change the scenario in the classroom (Individual interview).

Teacher-participants also indicated in the third theme how they were *becoming thoughtful and purposeful through reflection on alternative or possible solutions* as they engaged in critical reflection, assessed assumptions, and transformed their perspectives to generate better alternatives. An excerpt from Andie's journal captures these feelings:

My perspective on this situation has shifted greatly in that the card opened my thinking to the idea that despite the professional situation may seem difficult it is achievable even on a small scale. Before examining this card, I viewed the project as doable but requiring much help if it is to make an impact and effect change in students. However, after examining the first question on my card the quote "Rome was not built in a day" came to mind, and that made the project seem much more manageable because instead of trying to effect change in the entire school or region, we just need to start small, and that may have a ripple effect upon others and the change may spread more widely (Journal, Entry 2).

Four additional themes emerged from my field notes. I perceived emotional struggles reflected in *initial anxiety and apprehension*, a disorienting dilemma in the form of *unfamiliarity with some aspects of the problem-posing design of the workshops*, a cultural shift in *developing a transformative classroom culture*, and an improved attitude in terms of *investing and committing to professional development*. Through my field notes, I observed apprehension and anxiety including apprehension about exposing vulnerabilities, as expressed by Xanadu: "It is not easy to accept vulnerability because of the fear of appearing incompetent and losing respect." I also perceived that teacher-participants were also experiencing a disorienting dilemma. In particular, they found the deep dive questions difficult as Andie identified: "The difficult one is how am I aligning my choices with my mission. It's difficult because I have to do internal thinking to analyse. It's difficult because I have to do introspection." Xanadu explained the disorienting dilemma in the level of introspection required when she suggested that "It calls for a level of introspection we don't often do in our practice."

The theme of developing a transformative classroom culture was noted in their positive responses to shifts that had taken place during the workshops. For example, Nylah related in the interview that she liked the workshops because “it is not just the one-on-one thing most of the time, so I like it.” Xanadu spoke about being able to “speak freely in the breakout rooms, and we could more freely share our fears and frustrations.” Andie shared that, “It wasn’t one person giving instructions or saying, but we were all in it to give our views and to share our ideas as well as to receive input from others.” Christina spoke about the dialogic engagement now present with conversations she had with the colleagues with whom she worked every day: “That kind of conversation I don’t really get. I don’t really have with them[colleagues]. But during the sessions that is when, like I see things from other persons’ perspective.”

I perceived many examples of improved attitudes, pointing to teacher-participants’ *investing and committing to professional development*. For example, they did not allow extra-curricular activities to interfere with their preparation for and attendance at the workshops, and their voluntary use of the cards extended outside of the workshops. At her school athletics sports Xanadu was reading the workshop activities: “I was in the pavilion trying to read it through all the screaming.” Nylah described using the cards at home “... I am actually into it, you know, just taking one card, one time, one card a day, and just looking at it and coming up with a random problem, and just thinking about how the card relates to that problem is something that benefits me.” Christina, similarly, described use for personal development: “I would often go through the cards, go through the questions. I would think about it. Think, you know how I can develop myself thinking about the questions.” Andie described using the PI cards with students:

“I’m like using it with my students in the sense that to get what they would want as I teach them.”

The findings of this study clearly showed that teacher-participants perceived that they benefitted from the workshops, a perception that was supported by my observations as the facilitator and researcher who implemented the Principled Innovation Educators workshops in this context and perceived that they were successful in supporting educators to develop agency to problem solve through better decision making.

Reflections

In many ways, my dissertation journey parallels that of the educators in my study in Cycle 2. In this cycle, the teacher-participants’ sense of being overwhelmed and powerless to address challenges that they identified in the pre-intervention focus group resonates with my challenges in my higher education practice, when I began to mentor educators for research at the undergraduate level and found corresponding problems that my colleagues reported in Cycle 0. In the same way that Principled Innovation supported the educators in my study to embrace disorienting dilemmas, transform perspectives, increase confidence, improve their decision-making skills, and generate ideas to address challenges, the three cycles of action research that I conducted created an empowering learning space. They allowed me to leverage two other routes in Cycles 0 and 1 to get to my destination of connecting theory to practice and adopting a proactive position on educators’ professional learning and development.

These routes were important. Through all three cycles of action research, introduction to new and improved ways of doing, self-reflection, and collaborative activities that provided the foundation for these cycles inspired both a sense of

exploration and instilled optimism to commit to the strengthening of professional learning and development in Guyana so that in our higher institution we can play a crucial role in transforming our education system. My dissertation is not intended to be a one-size-fits-all approach because of its limitations and the complexity inherent in any attempt to transform an education system. Rather, it sought to find a more practical, effective, and transformative approach to improving professional learning and development for educators. It provides insights into Principled Innovation as a viable approach. Given how inspiring this dissertation journey has been, I am optimistic that the Faculty of Education and Humanities, University of Guyana, will be willing to adopt new pedagogical strategies so that we scale up agency and provoke the kind of action required for meeting national education needs.

CHAPTER 3

JOURNAL ARTICLE

Introduction

Educational systems are constantly evolving either as a part of ensuring their effectiveness or in direct response to disruptions. While notable challenges have emerged during the COVID-19 pandemic, the complexity of these challenges has disrupted or exerted enormous pressure on traditional systems in higher education. The pandemic and post-pandemic era serve as good illustrations of how disruptive transformation and innovation occur. Hargreaves et al. (2010) suggested that crisis is a foundation for transformation and opportunities in the field of education, and capitalising on those opportunities includes preparing teachers as professionals who can inspire self-initiated innovation and creativity, with creativity framed as both a mindset and a process engaging “novel and personally meaningful interpretation of experiences, actions, and events” (Beghetto & Kaufman, 2007, p.73).

However, while crises are known for transforming educational systems and individual responses, real-time economic and social developments also push educational systems to transform to meet more complex demands (Bentley, 2009). Guyana, a recent oil-producing nation, is one illustration of how a country’s educational system is impacted by real-time economic and social development. Guyana is at the cusp of new and fast-paced economic development with career prospects emerging in areas previously non-existent in the country, for example, commissioning managers, energy engineers, process engineers, oil field technology providers, and drilling engineers and contractors. This situation has led to the need for accelerated transformation of the education system

amidst successive reports that highlighted the poor quality of teachers' training and professional development in Guyana (World Bank, 2010, 2020). These reports recognized the role of higher education in meeting needs in Guyanese society, pointing out that this gap in training coupled with the low alignment of higher education practices with real-world needs is contributing to poor learning outcomes in the classroom.

Teachers' Professional Training in Guyana

In Guyana, pre-service and in-service professional training is conducted for teachers by two public institutions, the Cyril Potter College of Education (CPCE) and the University of Guyana, in addition to the Ministry of Education through the National Centre for Education and Development (NCERD). Currently, CPCE provides two-year training programmes for both pre-service and in-service teachers with specialisation in early childhood, primary and secondary education at academic and pre-vocational levels. At the end of the two-year programmes, teachers acquire associate degrees. Teachers can then gain admission to undergraduate programmes across the Turkeyen and Berbice campuses at the University of Guyana where they acquire bachelor's degrees in education. An associate degree or a trained teachers' certificate attained at CPCE is a prerequisite for entry into the Bachelor of Education programmes at the University of Guyana. Continuous professional development for teachers in various schools is usually provided by NCERD and the Ministry of Education.

Providing continuous professional development to teachers in Guyana through the Ministry of Education and NCERD is mainly based on top-down models in which experts provide materials and engage teachers in professional development sessions. For example, the Inter-American Development Bank/Government of Guyana – Basic

Education Access Management Support (IDB/GOG-BEAMS) Initiative, implemented a Literacy Hour Programme in 2007 as an intervention to deal with unacceptable literacy rates reflected in national assessments. Jordan (2017) revealed that more than half of the cohorts of students between 2013 and 2017 failed to attain acceptable levels of literacy in national assessments. To support teacher practitioners' use of this programme, the Ministry of Education engaged Master Trainers and Cluster Advisors and created manuals containing information about the programme and the procedures to implement it (Ministry of Education, n.d.). Another intervention, wide-scale professional training, was done in collaboration with the Organisation of American States (OAS) through ProFuturo. This training aimed to build teachers' capacity for remote teaching during the pandemic. ProFuturo focused mostly on methodology, and it offered several types such as project-based learning and problem-based learning.

However, while this type of professional development allows teachers to gain knowledge and exposure to newer and potentially better ways of applying knowledge and technologies in their classroom, the approach remains largely top-down and transmittal, especially because teachers were expected to assimilate these methodologies and put them into practice with their students (Manickchand, 2020). The other problem with this type of professional training is that while it enables teachers to adopt, adapt and share methodology, teachers are likely to become dependent on policymakers to find interventions and solutions to their classroom problems. Beghetto (2021) described this kind of dependence as a lack of agency, specifically, a deferral of individual action to guidance and directions from others. Thus, while professional development at the national level tended to focus on transmitting pedagogical knowledge and methodology,

less attention has been directed towards transformative approaches defined in terms of creating spaces for critical reflection, multiple perspectives, and dialogue that lead to developing awareness and understanding of how to take action to effect change in specific contexts (Freire, 2011).

The University of Guyana, through its Faculty of Education and Humanities, is a key provider of professional development to teachers in Guyana, and it has a major role to play in ensuring that its programmes augment national efforts to provide relevant professional development to teachers. As recent global events such as the pandemic and current economic developments at the national level have shown, addressing complex problems in education in Guyana requires a proactive agenda that prioritizes high-quality transformative professional development. Transformative professional development produces agentive teachers with good decision-making skills and creative and innovative approaches to addressing classroom problems (Brown et al., 2021). This gap in professional development for teachers at the national level coupled with the expected role of higher education in Guyana is the impetus to explore Principled Innovation (PI) as a means for implementing transformational professional development for teachers.

Principled Innovation

Principled Innovation is an emergent and innovative character asset approach that is described as “the ability to imagine new concepts, catalyse ideas, and form new solutions, guided by principles that create positive change for humanity” (Mary Lou Fulton Teachers Training College, 2022, p. 1). Principled Innovation approaches decision-making and problem-solving from four clusters of character assets: moral, civic,

intellectual, and performance, and eight practices. Each character asset of PI encompasses two core practices.

Moral character asset centres on fundamental values and ethical decision making while intellectual character is grounded in systems thinking and critical and compassionate reflection. Civic character focuses on practices connected to understanding culture and context and engaging with multiple and diverse perspectives, and performance character focuses on creativity, courage, resilience, and collaboration. See Figure 1.

Figure 1

Character Assets of Principled Innovation



Reproduced from Mary Lou Fulton Teachers Training College (2022, p. 1)

This comprehensive and holistic approach puts individuals at the centre of the problems that affect them and need to be addressed in their contexts. Therefore, framing teachers' professional development from the lens of PI is one means of supporting and

inspiring teachers in Guyana to self-initiate creative ideas and innovations capable of addressing problems in their context. In the transformational professional development paradigm, these educators will then grow as agentive educators, becoming less dependent on policymakers for solutions to challenges in their practice.

Therefore, this study explored the experiences of four teachers who were introduced to PI in a higher education context. With its use of PI as professional development in a research course, this study adds to the literature on PI as an innovative approach in teacher education and on transformative approaches to professional development in higher education. Bentley (2009) advised that innovation has its greatest impact when it is embedded in or replaces existing systems, and those that succeed engage “participants repeated and practical efforts to solve problems and challenges they encounter in the course of trying to improve what they currently do” (p. 41).

Literature Review

Theoretical Framework

This case study builds on the ontological foundations of multiple realities and the epistemological foundation of subjective realities that can be negotiated and interpreted as part of action agendas required to manage unpredictability (Creswell, 2018).

Therefore, the transformative paradigm (Mertens, 2015) seems an applicable theoretical lens. The transformative paradigm emphasises individual and collective agency to act, reflect, resist, and contest societal challenges, acknowledging that those affected by the problem have an important role to play in addressing it. It puts those affected by the problem at the centre of action plans so that they can be empowered to change their own lives and situations, and it situates researchers alongside them in joint efforts to effect

change or social transformation. Studies of transformative interventions (Mertens, 2015) commonly use this paradigm when empowerment and advocacy agendas are involved, individual and group transformation are prioritised as instruments of social change, and a transformative theory is usually used to develop the research agenda and approach.

By using a transformative paradigm in this study, I engaged the voices of teachers whose voices are often excluded when professional development sessions are created for them in this context. Thus, in this study, the transformative goal was to provide a space for teachers to engage in a transformative experience where they were afforded opportunities to explore, reflect, question, critique, and challenge professional development as they critically engaged with PI and determine whether it enabled them to make better decisions that potentially lead to a creative and innovative course of action to address problems in their practice.

This study draws on critical pedagogy and transformative learning theory to develop an understanding of how as a facilitator and lead learner I could use PI to support educators to collaborate, reflect and make decisions influenced by intellectual, moral, civic, and performance values, and to develop agency to determine what is important to improve and transform their professional development and practice. The use of PI was framed within the theories of Critical Pedagogy and Transformative Learning Theory.

Critical Pedagogy

Critical pedagogy (Freire, 2011) is a transformative approach to education that has a social orientation and a focus on problem-posing in education. The problem-posing aspect of Freire's work (2011) focuses on agency which he conceptualised as the ability to perceive obstacles, recreate, and unite to understand how to act on those realities to

effect change and transformation. Freire (1970) argued that it is through a problem-posing methodology that agency develops.

According to Freire (1970), agency develops in encounters between people and their relations with others in the realities of their social world. In educational contexts, these encounters are characterized by dialogic interactions in which boundaries between teacher and students are blurred and mutual growth and development are facilitated. Through these dialogic interactions, praxis, reflection, and action that lead to the transforming of reality occur. These aspects of agentive encounters align with the Generative Reflective Question Card Deck in the PI Toolkit which is designed to facilitate individual and group decision-making (Mary Lou Fulton Teachers Training College, 2022). The cards are aligned with problem posing in that they feature questions that encourage reflection on the moral, civic, intellectual, and performance character assets when identifying a challenge or decision to confront and engage in group discussions or journaling prompts for deeper exploration of the situation or challenge. Afterward, teachers reflect on any new level of awareness or understanding of the challenge and subsequently the best course of action to address the challenge.

Freire (2011) suggested that the teacher who helps the students to develop agency poses questions related to concerns in the world and guides the students to conscientization, a level of consciousness where they critically examine their existence in the world and in relation to others. The questions in the Generative Reflective Card Deck similarly focus on questions related to people's situated context. Through this process, Freire (2011) proposed that they develop an awareness of barriers and challenges as well as the action they require to confront these obstacles. Agentive persons develop a level of

awareness that propel them to act and transform the realities of their existence. Framed from the lens of Freire's (2011) critical pedagogy, agentic persons are self-reflective and critical. They are conscious of their own realities and those of their larger social world, and they develop an awareness of how to act on these realities and effect change. When applied to this study, critical pedagogy as a transformative approach to education provided a lens to guide my role and positioning and for understanding how teachers describe their agentic development as they engaged with the PIE workshops: how they reflected on barriers and challenges as they defined and framed problems, decisions they made and any new ideas and actions they proposed to effect change.

The Transformative Learning Theory

The transformative learning theory (Mezirow, 1978, 2012) is a theory of adult learning that is grounded in constructivist, humanist, and critical social theory assumptions to depict how adults problem-solve by defining a problem or by redefining or reframing it (Taylor & Cranton, 2012). Mezirow (2012) described transformative learning as “the process by which we transform our taken-for-granted frames of reference (meaning perspectives, habits of mind, mindsets) to make them more inclusive, discriminating, open, emotionally capable of change, and reflective so that they may generate beliefs and opinions that will prove truer or justified to guide action” (p.76).

Key components of the transformative learning experience include (1) a disorienting experience; (2) critical reflection on assumptions, beliefs, and values; (3) reflective discourse that assesses reasons, weighs evidence, arguments, and alternative perspectives that arrive at best judgment under conditions in which participants fully and actively participate (4) shifts in perspective to explore new options and roles; (5) gains in

confidence and skills in newly identified roles and relationships; and (6) integration of new information into action (Mezirow, 2012). Critical reflection is not rumination; rather, it marks a shift in perspective and a generation of alternatives (Savicki & Price, 2021) in the domains of instrumental, communicative, and transformative learning (Mezirow, 2012). Instrumental learning is task-oriented problem solving that seeks to improve performance related to integrating facts and skills to control and manipulate the environment or other people. This description of instrumental learning connects with agency (Freire, 2011).

Communicative learning deals with interpreting meanings communicated by others through the filters of feelings, intentions, values, and moral issues. The transformative domain focuses on the use of prior interpretation to construct a new or revised interpretation of the meaning of the experience to guide future action. The aspects of communicative learning align with the character assets in PI and transformative learning with conscientization and agency in Freire (2011). The reflective questions in the Generative Reflective Card Deck are useful for triggering the meaning-making process, and because they are framed around character assets, they add filters of feelings, intentions, and moral values to the process of interpreting meanings communicated by others. They could serve as the prior interpretations necessary to transform individual and group perspectives leading to the agentic development that Freire (2011) described as conscientization, the level of consciousness required to critically understand the self in relation to others in the world.

Mezirow (2012) theorized that as a process transformation can occur through sudden, dramatic reorienting insights (epochal) or in incremental progressive series,

beginning with a disorienting dilemma where there is a mismatch between the persons' current meaning structure and their previous experience. In this study, PI would serve as a disorienting dilemma because its emphasis on dialogic processes (e.g., honesty and humility, perspective taking, empathy, inclusivity, truth-seeking, and reflection) encourages teachers to perspectival disequilibrium through engaging the unknown.

Self-critical assumptions follow where the teachers examine their own beliefs and understanding and connect them to the new experience. Critical assessment of assumptions, the third phase, is characterized by discourse that enables them to recognise the assumptions of others and explore their own and other biases. The fourth, fifth and sixth phases involve the exploration of new ideas and relationships, planning courses of action, and then acting based on the new perspectives gained from the process. Filters such as moral and ethical values and civic responsibility determine the potential for transformative learning because they help us to interpret and constructively use the experiences of others. Thus, conditions that stimulate critical reflection in which teachers engage in discourse with others and are motivated to think and act differently create opportunities for transformational learning to occur. All these conditions are reflected in the practices of PI that frame the character assets such as civic – Engage multiple and diverse perspectives (Practice C1), intellectual – Develop habits of an informed systems thinker (Practice I1), Moral – Moral and ethical decision making (Practice M2), and performance –Navigate uncertainties and mitigate consequences (Practice P2).

Despite Mezirow's transformative theory being very influential with studies that examine multiple perspectives such as transformative relations, perspective transformation, and fostering transformative learning dominating (Taylor, 2007; Hunt,

2013; Swatsky et al., 2018), there are several criticisms of his work (Taylor & Snyder, 2012). Studies have argued that even though Mezirow (2012) attempted to situate transformative learning within an emancipatory framework, its emphasis is more on personal transformation, and it neglects the sociocultural and other elements of change (Cranton & Taylor, 2012; Howie & Bangall, 2013). Others have argued that his overly Western assumptions ignore application in a non-westernised context (Wang & King, 2008). While many studies (Taylor, 2007) have used the transformative learning theory as the single theoretical lens (Taylor, 2007), fewer (Archer-Kuhn, et al., 2021; Clare, 2006) have combined transformative learning theory with other theories to provide more insights into how transformative learning occurs. For example, Clare (2006) combined transformative learning theory with critical pedagogy in religious education with a social justice dimension and argued that through this combination more comprehensive understanding of transformative education can be accessed.

Several researchers (Taylor & Snyder, 2012, Hunt, 2013; Swatsky et al., 2018; Lehner, 2022) have suggested that Mezirow's transformative learning theory should be used alongside emerging perspectives to provide a more holistic understanding of its outcomes and processes. Responding to these criticisms, this study combined transformational learning (Mezirow, 2012) with critical pedagogy (Freire, 2011) in a non-Westernised context to explore the agentic aspect of transformational learning through the lens of teachers' experience with PI as professional development. This combined lens provided the opportunity to explore the convergence of transformational learning and agency at the individual and group levels and through filters of character assets as teachers were exposed to disorienting dilemmas and challenging social and economic

situations where they were required to think and act to generate innovative solutions to address them.

Defining Teachers' Professional Development (TPD)

Teachers' professional development (TPD) is often examined from the complex blend of learning and experiences teachers bring to the process when they enter initial teacher training (IT), competencies they acquire during training, and from continuous professional development (CPD) they undergo as part of their work experience. While a distinction is often made between teachers who are already in professional practice and those who are preparing for professional practice, the literature (Metsapelto et al., 2022) suggests that the two should not be separated because IT provides a platform on which CPD builds. Fullan (1995) argued similarly that teachers' professional development is a complex blend of formal and informal learning that they pursue and experience in complex and dynamic environments either in preparation for professional practice or in continuous professional development. As the demand for teachers who can function in the emerging and dynamic learning environment grows, teachers' professional development in both IT and CPD has become a global agenda (World Bank, 2020).

Studies (Katz & Dack, 2013; O'Brien & Jones, 2014; Timperly, 2008) have distinguished between professional development and professional learning, pointing out that professional development is often aligned with the traditional transmission of information by experts to passive teachers while professional learning takes a more transformative approach that positions teachers as active participants (Strom, Martin, & Villegas, 2018). This study built on the transformational features of professional learning to conceptualise professional development. Therefore, I define professional development

from the lens of Strom, Martin and Villegas (2018) and Fullan (1995), acknowledging that professional development involves both formal and informal learning in which teachers create and transform knowledge as they actively participate in learning opportunities in their situated teaching and learning contexts. This type of professional development is systematic, agentic, and reflexive. It has a continual focus on what teachers identify as important to improve based on their experiences.

Current Perspectives on Professional Development

To produce professional development to meet complex educational needs, there have been calls for educational institutions to adopt more innovative and transformative lenses (Darling-Hammond et al., 2017; Hill-Jackson et al., 2022; Ladson-Billings, 2021; Keay et al., 2019). Programmes that prioritise producing future teachers through more transformative, collaborative, and ethical approaches to professional development are emerging (Hallman, et al., 2022; Saninno, 2020; Zeichner, 2020). As emerging approaches, they have not been robustly tested, but they imply that earlier approaches that concentrated solely on pedagogical knowledge, content, and instruction (Guskey, 2000) are inadequate to respond to new challenges and constantly changing demands in society (Keay et al., 2019). Thus, the field has expanded to include a more holistic system perspective that recognises teachers' ability to integrate complex skills, consider their personal attributes, and use reflexivity to think more thoughtfully about the impact of their actions in their professional practice and context (Francisco et al., 2021; Korthagen & Nuijten, 2022). Teachers developing professional agency to exert influence, make choices, and adopt certain stances (Desimone, 2009; Kramer, 2018) are important aspects of this perspective.

This expanded focus means paying attention to ethical standards and values, decision-making, and professional judgment (Guerriero, 2017). While several models of professional development are present in the literature (Thompson & Goe, 2009), current models within the teacher competence framework (Metsapelto et al., 2022) and design framework (Brown et al., 2020) add teachers' innovativeness to the professional development mix, and they suggest that several key components must be included in the design of professional development. These include addressing professional practice within individuals and groups during classroom practice, in collaborations with the school community, and at the local, national, and global levels (Asian Development Bank, 2021).

Current programmes have a strengths-based perspective that aims to empower teachers to develop agency (Calvert, 2016) and become innovative as part of their professional growth (Brown et al., 2021). Therefore, from this lens, teachers' perceptions of emerging types of professional development that focus on individual and collective learning and reflexive and agentive development in social and organisational contexts are worthy cases to study to contribute to the literature on teachers' professional development (PD).

Research on Teachers' Professional Development

Desimone (2009) contended that there is no accurate way to measure the impact of professional development on teachers in causal studies because of diverse perspectives regarding what counts as professional development, different conceptualisations of learning, and the difficulty in distinguishing learning experiences given the complex array of interrelated learning opportunities. However, Guskey (2002) suggested that

because true education reform begins with the teacher, professional development for teachers can only be successful if teachers perceive it to be so and are willing to apply it in their teaching contexts. Therefore, Guskey (2002) and Holloway (2006) proposed that one way to measure the impact of professional development is to explore teachers' experiences of them, and there are several studies (Timperley, 2008; Brown et al., 2021; Prenger et al., 2017) that have focused on critical features of teachers' experiences with professional development.

Research on teachers' experience of professional development (PD) has been examined from diverse perspectives including conventional episodic and fragmented forms facilitated by experts (Garet et al., 2011; Timperley, 2008), content (Robinson, 2011) and others that address contemporary developments such as the integration of technology (Elliot, 2017), design-based approaches (Brown, et al., 2021) and professional learning communities and communities of practice (Prenger et al., 2017; Smith et al., 2017; Johannesson, 2020). Studies suggest that while there is no specific time frame within which positive outcomes can be realized (Garet et al., 2011; Desimone & Stuckey, 2014), professional development that succeeds are those that are tailored to teachers' needs (Parson et al., 2019; Linvall et al., 2018); confront tough issues (Kramer, 2018) and provide critical support (Brown et al., 2020; Brown et al., 2021). As ongoing-continuous learning conversations, they support critical inquiry and deep learning with teachers working collaboratively (Monaghan & Columbaro, 2009; Johannesson, 2020) to develop professional agency to think, choose and act irrespective of their environmental circumstances (Kramer, 2018).

Within the context of online PD, Parsons et al. (2019) surveyed 213 teachers in the US to explore teachers' perceptions of online professional development. They investigated their previous experience and perception of possible formats. The survey found that teachers' most common experience was with learning subject content followed by use of technology and school and safety procedures. The most common benefits noted by the teachers included being able to work at their own pace, accessing PD materials at their convenience, and being able to engage in collective reflections with others in discussions. Teachers also reported a preference for online PD focused on new ideas and collaboration rather than gaining and receiving feedback on how much they know. Although the study provided useful insights into teachers' perception of their experiences with online PD, more studies that address the implementation of emerging initiatives in specific settings and provide more detailed explorations of online PD are necessary to promote a better understanding of innovative and transformative professional development and how they enable professional agency.

Brown et al. (2021) examined a group of teachers' response to phases of a design-based intervention in professional learning through design-based research cycles. According to Razzouk and Shute (2012), a design-based approach provides opportunities for people to creatively generate solutions to problems. Design-based professional learning (DBPL) is an approach to professional learning in which teachers engage in sustained, collaborative systematic inquiry, and design processes with colleagues to improve their own practices and the practices of the community (Brown et al., 2020; Chu, Brown, & Friesen, 2020; Friesen & Brown, 2020; Friesen & Jacobsen, 2015). Brown et al. (2021) reported that the group of teachers new to this approach initially responded

more from a transmission-oriented lens of professional development framed around knowledge from experts being transmitted to novices, and so they concentrated on best practices and success rather than improvement. They had difficulties adapting to the new form of professional learning and recognizing their students and practice as sites for professional learning as they requested more traditional and passive roles during the workshops. However, as the cycles progressed, teachers developed more critical and reflexive attitudes and began to make adaptations to actions in their practice, shifting their views of practice and colleagues. The results from this study suggested that teachers' shifts in learning take time, and teachers desire collaborative PD that brings new ideas to the session and provides opportunities for reflection.

According to Korthagen & Nuijten (2022), reflection connects theory, practice, and identity and contributes to teachers' agency. However, while there is dissenting opinions in the literature (Piastra et al., 2010; Garet et al., 2011; Desimone & Stuckey, 2014), on how much time is required before these connections can be made, time for connections would depend on whether the professional development is conventional or involves more contemporary professional learning models (Brown et al., 2021).

More recent studies have called for new forms of PD that focus on innovation and explore and shed understanding on shifts in teachers' thinking, acting, and practices in different contexts in this dynamic environment (Hill-Jackson et al., 2022; Ladson-Billings, 2021; Keay et al., 2019). Having recognised the inadequacy of conventional methods of professional development, they advance that professional development needs to be examined from the situated context of practice, educational environment, policy and the opportunities these contexts present for timely and transformative innovative

professional development. The role of context in transformative learning has been under-researched (Taylor, 2007).

Objectives of Study

Thus, the objectives of this exploratory qualitative case study were to: (1) address the need for more transformative and innovative approaches in professional development in the local context, and (2) explore teachers' perceptions about their experiences with participating in Principled Innovation Educators (PIE) workshops as professional development embedded in a research course in a higher education institution in Guyana. According to Bentley (2009), innovative approaches are impactful when persons affected by problems are engaged in addressing them.

Research Questions

This study was guided by the following research questions:

1. What are teachers' perceptions of the activities of the PIE workshops?
2. How does teachers' participation in the PI workshops influence their ability to (a) identify, (b) redefine problems in their educational practice, and (c) generate new ideas for problem-solving in their practice?
3. How do my perceptions, as a researcher and facilitator, align or differ from teachers' perceptions of the impact of the PIE workshops?

Method

Study Design

The study used a single qualitative case study design (Creswell, 2018) to gain an understanding of participants' perceptions of their experiences of participating in the Principled Innovation Educators (PIE) workshops, the phenomenon of interest within a

higher education setting in Guyana. Creswell (2018) described the case study research as a qualitative approach that explores a bounded system with in-depth data collection and reports that include descriptions of the case and themes. Even though case studies have been criticised for their lack of generalizability to wider populations, Yin (2018) suggests that a single case study is appropriate for exploring novel inventions. While a two-case study is suggested to be more beneficial than a single case study because of its analytical depth and potential for similar conclusions to strengthen analytical generalizability (Yin, 2018), Guskey and Yoon (2009) suggested that the implementation of any new professional development strategy should begin on a small scale to avoid committing large investments to uncertainty. Therefore, using the single case-study design in my higher education setting provided a unique opportunity to examine in-depth how and why teachers described their experience with PI as they did.

The study was framed from the overarching question of how teachers described their experience with the Principled Innovation Educators (PIE) workshops as they engaged in research in the Faculty of Education and Humanities. This site was chosen because higher education is a key provider of teachers' professional development in Guyana, and the impact of its professional development has implications for the larger education system in Guyana. Currently, as discussed in the next section, the University of Guyana is pursuing avenues for innovation in professional development.

Setting

This study was conducted at the University of Guyana Berbice Campus (UGBC). University of Guyana (UG) is the single national university in the country which has begun implementing interventions to fulfil the mandate for higher education to lead in

creating transformational spaces in professional development. As a response to the learning loss created by the COVID-19 pandemic and the changing dynamics of the economic and educational landscape in Guyana, the Faculty of Education and Humanities sought to redesign and improve professional development for educators. Quite recently (2022), it launched an International Centre of Excellence in Educator Innovation, Learning and Development (ICEEILD) with the aim of meeting the university's aspirational goal communicated in UG Blueprint 3 contained in UG Blueprint 2040. Blueprint 3 includes a focus on adaptability, speed and designer degrees targeting local, regional, and global needs (Concept Paper, 2022).

Included in the vision of the centre is a focus on life-long professional development that provides short or on-going courses, programmes, workshops, seminars, or research projects. These should be evidence-based and incorporate transformative pedagogies for social advancement within communities locally, regionally, and internationally. These experiences should also meet the needs of diverse communities of teachers and other adult learners while rapidly producing a highly competent cadre of educators who will close the learning gap produced by COVID-19 and support the national needs for a well-trained and highly skilled workforce. The centre contains a new unit which is designed to support academic research and innovation, underscoring an emphasis on innovation. To help realise the vision of this centre and support the growth of this unit, innovative practices need to become embedded in courses offered by the Faculty of Education and Humanities. Most courses have focused on academic outputs, not innovation. Therefore, creating conducive conditions and providing opportunities for innovation to be embedded in the courses is of critical importance.

The Research Courses

At the Faculty of Education and Humanities, research courses at the undergraduate level are part of traditional academic training for teachers. In three successive semesters of thirteen weeks each, educators complete a research methods course prior to constructing a research proposal and then conducting the research and reporting on the research project. During the research proposal and report courses, supervisors work with educators as they conduct independent projects. Two previous cycles of action research showed that teachers are challenged with writing research proposals; they have difficulties conceptualising and framing problems of their practice for investigation. Being able to make decisions about problems of practice, especially how and why they should be investigated are important aspects of the theory, identity and practice nexus in innovative professional development that is essential for addressing complex educational problems.

In this context, with on-going professional development being identified as a key priority, the research proposal course seemed an appropriate site for embedding PI as transformative professional development because in its initial stage, the research proposal focuses on identifying and framing problems from a traditional perspective. PI as a character asset-based and problem-based approach that promotes deeper and critical exploration of problems of practice could prove useful for enabling teachers to make innovative decisions regarding complex educational issues and becoming agentic professionals who achieve greater impact.

Participants

Teachers enrolled in the research proposal course were purposely selected for this study because they could illuminate the research questions (Yin, 2018). For inclusion, educators had to be enrolled in the research proposal course during the first semester of the academic year. I had never taught these educators in any course before. Also, none of them had participated in any research conferences hosted by the Office for Undergraduate Research. However, in the first sequence (research methods) of the research courses, they had worked collaboratively to plan a group research project while being taught by another instructor. All four female educators who were enrolled in my course were invited to participate. Thus, the exclusion criteria included educators who were supervised or mentored by other faculty members. Teacher-participants were invited by email and through announcements made in the research proposal course page on the Moodle Learning Management System as is customary for the delivery of our courses in this context.

Role of Researcher

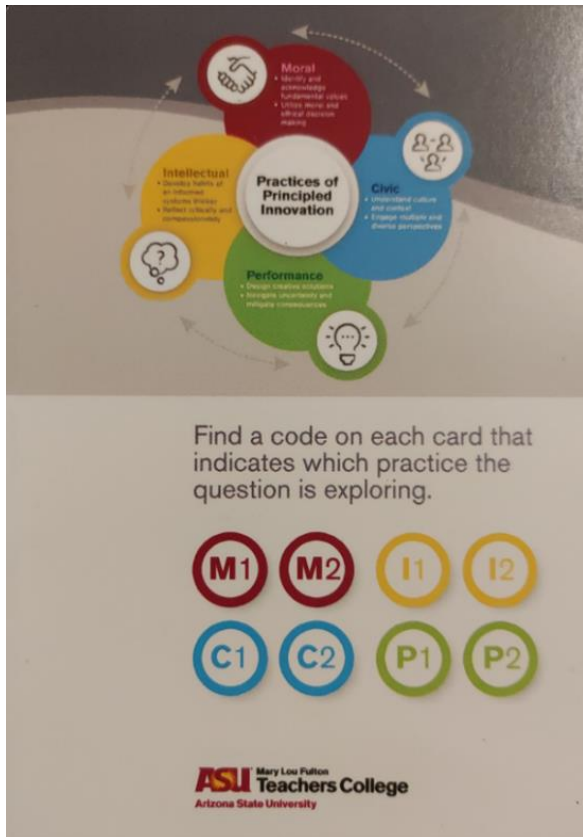
As the instructor who mentored the students for the research proposal course, I functioned as the researcher and participant observer (Mertler, 2020). I was a lead learner who facilitated collaborations with teacher-participants during the PIE workshops. I provided scaffolding and guidance and engaged with them in dialogic inquiry, sharing ideas, and creating an environment in which there was mutual respect, trust, authenticity, and openness during the process of implementing the workshops. I facilitated all workshops, monitored their progress, conducted all interviews, and collected and analysed data.

Overview of the Intervention

The intervention for this study, Principled Innovation Educators (PIE) workshops, was framed from Principled Innovation (Mary Lou Fulton Teachers Training College, 2022), and the PI tool used for professional development in this study was the Generative and Reflective Question Card Deck. This deck focuses on principled decision making through the lens of the eight practices (Appendix E) with each character asset connected to two practices at the levels of both individual and group reflections. Every card is colour coded according to the category of asset (moral, intellectual, civic and performance) and practice M1, M2, I1 I2, C1, C2, P1 and P2 (Figure 2).

Figure 2

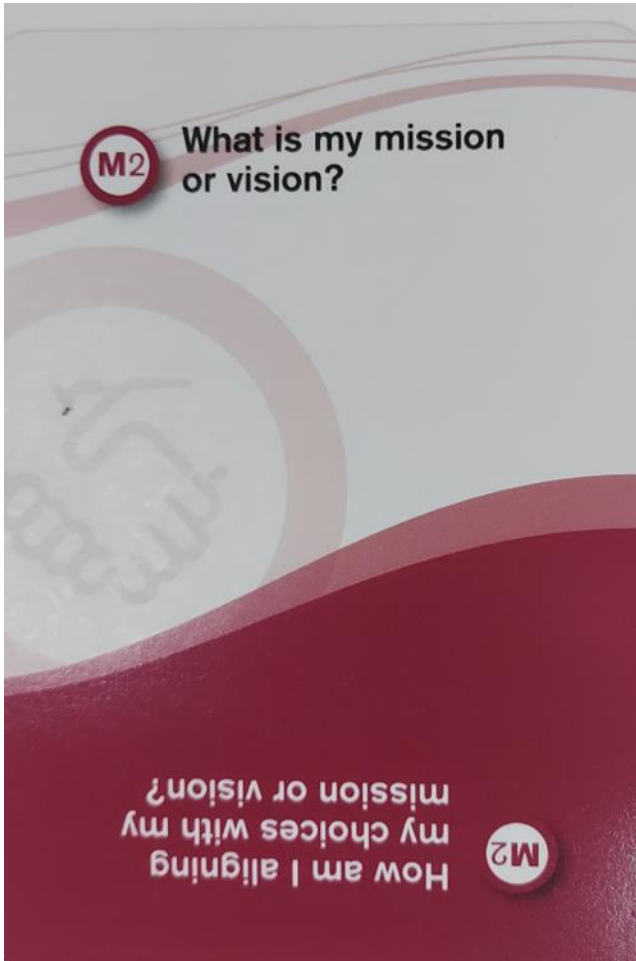
Features of Principled Innovation Cards



Each card contains an exploratory starter question (white) that examines an aspect of character and a deeper dive question (colour) that enables participants to engage with practices of PI (Figure 3).

Figure 3

Sample of a PI Card



The process (immerse, reflect and act) in A guide to decision making through Principled Innovation (Appendix F) was adapted and integrated into the four professional development workshop sessions held during the month of October 2022 with one session in each of the four weeks (Table 2).

Table 2

PIE Workshops	Workshop 1	Workshop 2	Workshop 3	Workshop 4
Date	October 7	October 14	October 21	October 28
Focus (1 hr.)	Decision-Making and Principled Practices	Humanizing Learning Experiences	Collaborating to Problem Solve	Generating Ideas for Solutions
Reflective Learning (1 hr.)	Writing of Reflective Journal Entries			

Procedure

An initial two-hour orientation session (at the end of September) preceded the PIE workshops. This session was held face-to-face on campus (UGBC) to establish personal connections. In this session, teacher-participants were introduced to PI and the PI tool (deck of cards) and an overview of the workshop sessions. They collaboratively prepared a research class code of conduct comprising a class pledge, standards, class responsibilities, and class member responsibilities.

Prior to being implemented, the content for each workshop was integrated into the Moodle Learning Management System (LMS) used by the University of Guyana for the online delivery of courses. Workshops (Appendix G) used the PI ideas (Appendix D) and followed the structure in Table 3.

Table 3*Workshop Structure*

Sections	Activities/ Procedure
Overview	Introduce the focus of each workshop and its activities. Link the previous workshop to the current one.
Group discussion (Idea 1) (15 minutes)	Identify a challenge in practice or research project Each member picks a card from the deck. Discuss how each question relates to the identified challenge, learning experience or research project
Individual learning experience reflection (Idea 3) (15 minutes)	Use questions from each character asset to anchor the learning experience in human-centredness. Design their own through individual exploration of the challenge and a project.
Collaborative meeting (Ideas 4 and 5) (30 minutes)	Select a card to jumpstart exploration and analysis of the challenge and share perspectives as a group. Design their own through exploration of the challenge and a project
Self-reflection journal prompt (Idea 2) (60 minutes)	Choose a card from the deck and journal about how the question applies to a professional/personal situation in life. Review any shifts in perspective or additional questions to explore after writing.

The first workshop introduced the teacher-participants to decision-making and principled practices. Design your own activity was not included in this workshop because teacher-participants needed time and space to understand decision-making through principled practices. Workshops two to four asked them to consider research projects to address challenges via design your own activity.

Consistent with the schedule for the research proposal course, teacher-participants and I met virtually (via Zoom) once weekly, on Friday afternoons, for two hours. The first hour was to use the PI cards to collaboratively inquire into their professional situations, individually consider researchable problems for their proposals and

collaboratively explore possible projects. In the second hour, they were to write self-reflective journal entries. However, because the collaborative discussions were highly engaging, they ran long, and journal writing activities transcended our scheduled two-hour meeting on Fridays and became a task teacher-participants completed over the weekend or during the following week. Having teacher-participants complete their journal entries at home and outside of the class structure may have had the potential benefit of allowing them to spend more time on this process and feel less like they were being observed as they generated their reflections. As an additional benefit, this flexibility to complete journals on one's own time may have reduced the impacts of the Hawthorne effect (Holden, 2001). All participants logged into the Zoom platform from their homes. To avoid interruptions caused by unstable internet, I provided each participant with mobile data plans for each session to support their uninterrupted participation in the workshops.

In the first group discussion in each workshop, all teacher-participants were placed in one Zoom breakout room to work collaboratively for 15 minutes on identifying a challenge in practice aligned with Idea 1 (Group Discussion) on the PI card. Seeking to affirm the creative freedom and engage in non-transmittal modes of teaching (Freire, 2011), I allowed the teacher-participants to decide whether they preferred me to be present for breakout group conversations. Because they opted to discuss the topics without my presence, I did not enter the breakout rooms. This, similar to moving journal writing to outside of class, may have also limited the impacts of the Hawthorne effect. For each group and individual activity, teacher-participants were given scaffolding through thinking/talking discussion prompts to jumpstart their thinking (Appendix F).

Data Sources and Triangulation Process

Five sets of data were collected between September 2022 and February 2023. Using multiple sources of data is essential to enhancing the quality of a case study (Yin, 2018). Data included one pre-intervention focus group interview conducted prior to implementing the PIE workshops, four individual interviews conducted post-workshop, fourteen self-reflection journal entries (4 entries for 3 participants, 2 entries from 1 participant), field notes, and four final reports (artefacts). See Table 4 for an overview of the data sources.

Table 4

Overview of Data Sources

Data Source	Quantity	Timing	Date
Focus Group Interview	30 minutes	Pre-intervention	September 2022
Participant observer's field notes	2,530 words	During research process	September 2022 to February 2023
Self-reflection journal entries	14 (5,266) words total: avg entry = 376 words	After each workshop	October 2022
Individual interviews	4 (30 minutes each)	Post-intervention	November to December 2022
Participants' final reports (artefacts)	4 (5,939 words)	Post-interview and self-reflections	February 2023

- **Pre-intervention Focus Group**

Pre-intervention data was collected through one thirty-minute open-ended focus group interview on the Zoom platform to explore teacher participants' experience with addressing challenges in their classroom (See interview protocol in Appendix G). This

data was important to compare post-intervention experiences with transformational learning theory to determine if any changes had occurred.

- **Self-reflection Journals**

Teacher-participants were encouraged to write self-reflection journal entries in response to reflection prompts after each of the four workshops. In total, 14 self-reflection journal entries were collected with a total of 5,266 words at an average of 376 words for each journal entry. One teacher completed only two journal entries while the remaining three teachers completed all four entries.

- **Individual Interviews**

Four thirty-minute (2 hours total) post-intervention semi-structured individual interviews were conducted virtually on the Zoom platform one-on-one with each teacher-participant one week after they had completed the workshops. See Interview Protocol in Appendix G. These interviews explored their perception of the workshops and their influence on their professional and educational practice.

The use of the pre-intervention focus group and the post-intervention individual interviews allowed for the detailed exploration of teacher-participants' experiences before and after the PIE workshops to determine whether individual transformations had occurred. They were also useful for data triangulation.

- **Final Reports (Artefacts)**

Teacher-participants wrote and submitted final reports (research proposals) as a course requirement at the end of the course. The first chapter which focused on the introduction (the background to the study, statement of the problem, purpose of the study, significance of the study, research questions or hypothesis and definition of terms) was

analysed to determine if the PIE workshops had any influence on teacher-participants' decision-making and problem-solving in their professional and educational practice. This chapter was chosen to determine if they were able to identify and frame problems to investigate using insights from the workshops. Four chapters with a total of 5,939 words, an average of 1,485 words for each final report were analysed.

- **Field notes**

I wrote field notes documenting my observations and reflections during and after each research activity including the focus group interview, workshops, interviews self-reflection, and final reports. Some relevant quotes that supported my observations were included. In total, my field notes were 2,530 words.

Memos

Memos (Charmaz, 2014) were a key part of my analysis technique. According to Bingham & Wittkowsky (2022), combining deductive and inductive coding and memoing supports comprehensive discussion of the findings leading to actionable and meaningful implications and recommendations. Memos were written throughout the data collection and analysis process to keep track of my analysis process as well as the decisions I made regarding coding and developing themes.

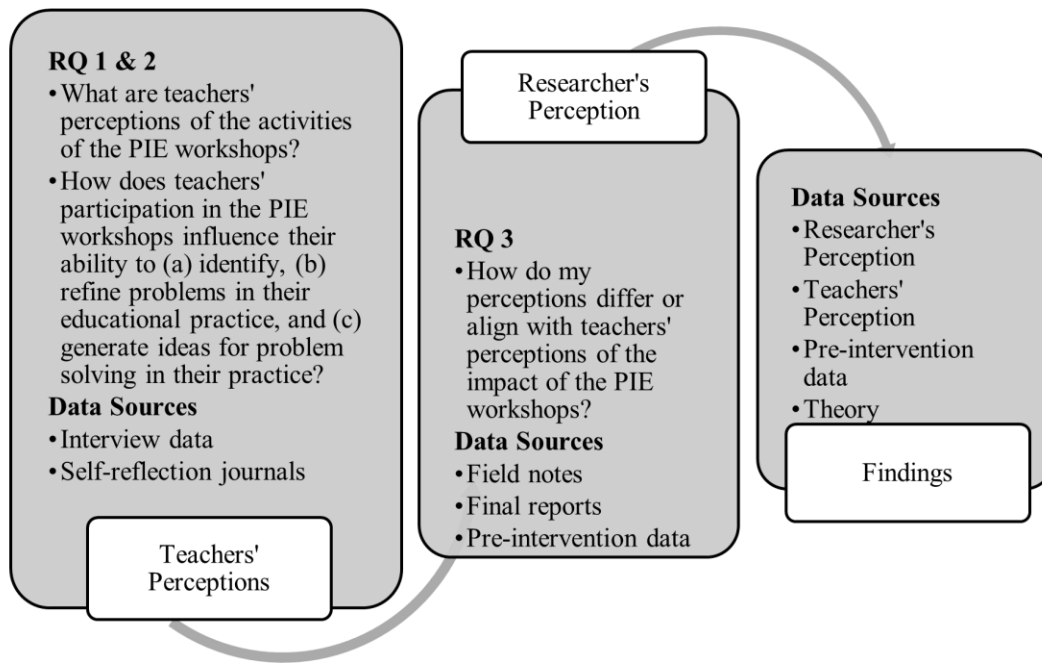
Credibility and Trustworthiness

Data from my observation journal (field notes) were triangulated with those from the participants' journal, and the journal data and my observation of teacher-participants artefacts were also triangulated with interview data. The focus group data were also triangulated with individual interview data as part of the process of producing rich and thick data (Tracy, 2010). Focus groups allow researchers to explore participants'

experiences, their interactions, and how they engage in sense-making (George, 2013), and data triangulation increases the credibility and trustworthiness of the case study's findings (Tracy, 2010). See Figure 4 for an overview of the data triangulation process.

Figure 4

Overview of the Data Triangulation Process



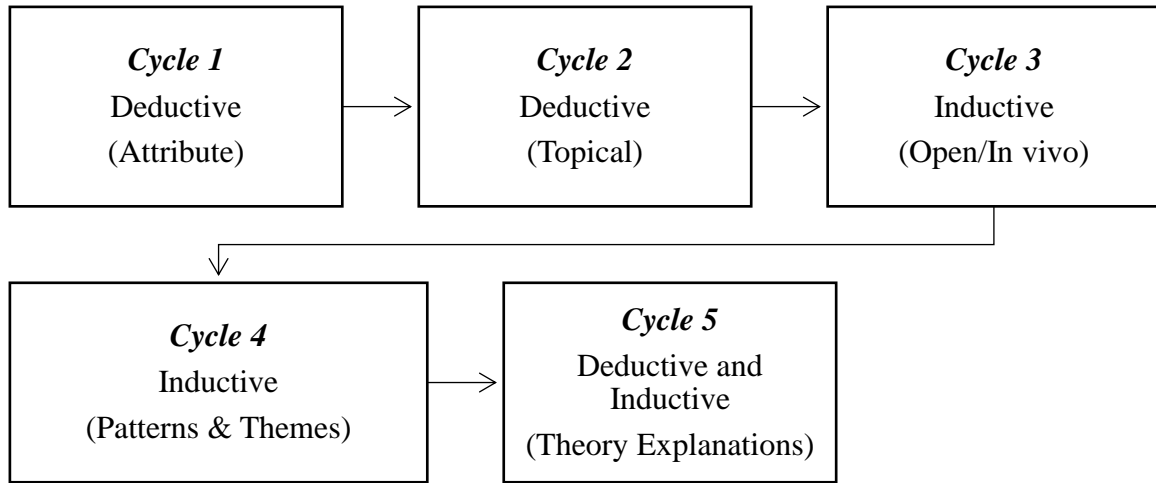
Data Analysis

Data were analysed manually. Transcribed interviews, written field notes, and self-reflection journal entries were read repeatedly. A five-cycle process that combined inductive and deductive processes as outlined by Bingham and Wittkowsky (2022) was used in the analysis. These cycles included: (1) deductive attribute coding to organise and sort the data into categories according to data type, (2) deductive *a priori* topic codes to sort the data into relevant categories according to research questions, (3) inductive in vivo coding to identify emerging ideas, inductive pattern coding to arrive at themes, and (5)

deductive and inductive coding to provide theoretical explanations of findings. See Figure 5 below for an overview of data analysis cycles.

Figure 5

Overview of Cycles of Coding



Adapted from Bingham and Wittkowsky (2022)

Examples of coding are illustrated in Table 5 and Appendix H.

Table 5*Sample of Data Analysis: Theme Generation*

Attribute Code Category	Topic Code	Open/Initial Coding	Theme	Examples
Interview	Group Discussion	“enjoyable” “interactive sessions” “breakout room”	Enjoyable and engaging	<i>So, for me, the workshop was most enjoyable because we had interactive sessions, and because we are able to express our opinions and our views and so that was the most enjoyable part for me (Andie).</i> <i>I enjoyed every bit of it, even to the breakout room sessions (Christina).</i>
Field notes	Design	“flowed naturally” “love” “concern” “coverage” “cards” “usefulness”	Satisfaction with the activities	<i>I now realize that each of the cards that were chosen is like they all flowed naturally. One thing just led to one another and another, and I really love that (Nylah)</i> <i>I was concerned about how we're getting through all of these cards, and this semester still get a proposal on them, if these cards were just meant to waste my time, but we have covered a lot of it[proposal](Xanadu)</i>
Journal	Self-reflection	“realisation” “understanding”	Self-reflecting and increasing the level of awareness of their current practice	<i>It brings to the realization that in order to adequately and effectively cater for learners' one must first understand his/ her mission/ vision (Andie).</i> <i>After some reflection, I realised that behavioural problems are often the reflection of issues in the lives of students outside of the classroom (Christina).</i>
Interview	Self-reflection	“deep thinking” “solution”	Engaging in reflective learning and growing in confidence to identify and address problems	<i>The workshop really made you think about why, how will we find a solution (Xanadu).</i> <i>When it's my time now to sit by myself and to reflect on the things that, with the things that we discussed, it gave me that my time, this time for me to think about how I am going to handle this (Nylah).</i>
Final report	Agency	“scope challenge”	Shifting from passive to agentive roles	<i>purposefully integrating reading into the curriculum in schools is not the challenge but balancing the need to teach the skill of literacy whilst using appropriate strategies to inspire and motivate children to read for pleasure is (Andie)</i>

Ethical Considerations

All the study protocols and procedures were approved by Arizona State University's Institutional Review Board. Teacher-Participants in this study were briefed about the intent and purpose of the study through both oral and written mediums prior to conducting the study. While all teacher-participants were required to participate in the course as part of their degree requirements, sharing their data for research was optional. They could choose to withdraw at any point during the data collection process. All four teacher-participants elected to participate in the research. Each teacher-participant signed a consent form that addressed risks, benefits, and confidentiality. They were allowed to ask questions and read and confirm the accuracy of the information in the interview transcripts. To protect anonymity, pseudonyms have been assigned to each teacher-participant and will be used throughout this chapter.

Findings

Findings are presented according to research questions. For conciseness, findings for research question 1 (what are teachers' perception of the activities of the PIE workshops?) and research question 2 (how does teachers' participation in the PIE workshops influence their ability to (a) identify and (b) redefine problems in their educational practice and (c) generate new ideas for problem solving in their practice?) are combined with research question 3 (how do my perceptions align or differ from teachers' perception of the impact of the PIE workshops?).

When my perception from field notes and their final reports were triangulated with teacher-participants' perceptions measured by the pre-intervention focus group interview, journal entries, and individual interviews, a total of eleven themes emerged.

Four themes provided the answer to research question one on the perception of the PIE activities: enjoyable and engaging; satisfaction with the activities; self-reflecting and increasing the level of awareness of their current practice and improving collective knowledge and understanding of their practice through collaborative activities. Three themes emerged to answer research question two on the influence of the PIE workshops: engaging in reflective learning and growing in confidence to identify and address problems, shifting from passive to agentive roles and feeling empowered to generate solutions, and becoming thoughtful and purposeful through reflection on alternative or possible solutions.

In addition to these seven areas of alignment, my field notes yielded four additional themes. For research question one on the perception of the activities of the PIE workshops, I perceived that teacher-participants had initial anxiety and apprehension and demonstrated unfamiliarity with some aspects of the problem-posing design of the workshops. For research question two on the influence of the PIE workshops on classroom and educational practice, I perceived teacher-participants developing a transformative classroom culture and investing and committing to professional development.

Teachers' Perception of the Activities of the PIE Workshops

The first research question considered teacher-participants' perception of the PIE workshop focusing on three key features: group discussions, self-reflection, and the design/approach, in addition to the influence of the workshops on their professional development. When teacher-participants were asked if they enjoyed the activities of the PIE workshops, they indicated a positive perception reflected in the themes: Enjoyable

and engaging and satisfaction with activities. Regarding the influence of the workshops on professional development, the themes were self-reflecting and increasing the level of awareness of their current practice and improving collective knowledge and understanding of their practice through collaborative activities.

Enjoyable and engaging

All four teacher-participants expressed positive reactions with the term *enjoy* emerging frequently in the individual interviews. Teacher-participants illustrated specific activities and aspects of the design and implementation of the workshops that they found engaging. For example, while Xanadu remarked “Yeah, I did enjoy the workshops,” Nylah stated initially, “I enjoyed all of the activities. I love the workshops that I was present, and I enjoyed every one of them, so there isn’t an activity that I did not like,” and subsequently, she said, “It was well-designed.” In the debriefing, she expressed that “I believe that this has been one of the most fun and educational thing for me for a while.”

Illustrations from other teacher-participants are below.

So, for me, the workshop was most enjoyable because we had interactive sessions, and because we are able to express our opinions and our views and so that was the most enjoyable part for me. It wasn’t one person giving person instructions or saying, but we were all in it to give our views and to share our ideas as well as to receive input from others (Andie).

Yes, I did enjoy the workshops. It really opened me to a lot of things like previously I never used to take into consideration like society, and how I can help, but now I am more open to those things to contribute to society, about moral values and all of that. So, yes, I did enjoy the workshops (Christina).

Christina also stated that “I don’t think there is any activity that I did not enjoy being a part of. So, I enjoyed every bit of it, even to the breakout room and so. Speaking to persons who I’ve known for a good time now, I would learn more things about them and all of that” (Individual interview).

As discussed below, my perceptions as the participant observer aligned with the teacher-participants' perspectives.

That teacher-participants perceived the activities to be enjoyable and engaging was also revealed in their ongoing discussions and positive reactions during the workshops. For example, a discussion during the first workshop demonstrates how the teacher-participants were actively engaged in the discourse and highlight how these exchanges influenced each other. It began when Xanadu claimed that teachers not being prepared with the requisite knowledge could be a sign of indifference and arrogance:

... any entry, any entrance, I should say, into the classroom without the requisite knowledge of the various learning, various intelligences or materials and activities that cater to these learning styles is either an act of arrogance or one of indifference.

This claim sparked a rich discussion where others brought other perspectives to challenge the use of the term *arrogance*. Nylah indicated that she agreed with what was being said, “but then you wouldn’t go so harsh on us to say it is an act of arrogance.” Christina also agreed that she did not believe it was an act of arrogance “because it’s difficult for a teacher.” She further asserted:

I mean you can be prepared; you can go with your lesson plan and you can try to cater to meet the needs of all the students. Yet you know that as one individual and with the time given to you and the content that you have to teach, you know that you might not be able to meet the needs of all of them though you might try as much to include the needs of all of them; so, I don’t believe, you know, that it is an act of arrogance. I don’t think so.

Their shared perspectives influenced Xanadu to indicate that she was willing to revise, *adjust* her view and not use the term *arrogance* considering the different positions.

In addition, teacher-participants were often relaxed during discussions, transitioning from serious critical discussions to laughter on occasions and even when

acknowledging that they did not have an answer as Nylah did when she did not have a response to a question. She laughingly remarked that “I have not given that a thought. I completely blanked that out.” This example illustrates the comfort and willingness to be vulnerable that teacher-participants felt; they were eager to engage in the discussion but also open to admitting when they did not know an answer or had not thought about a topic. In the final workshop, Xanadu pointed to the level of engagement:

The workshops really made me think about the whole scope of issues that could arise in my practice and the levels of complexity of each of those issues. It made you think about the issues more than we normally will within the normal classroom setting.

Satisfaction with the activities

When asked in individual interviews if there was any activity that they did not like or would like to see changed, all teacher-participants expressed a common desire to see no change in activities. Examples from Christina and Nylah illustrate why they were satisfied:

I don't think there is any activity that I did not enjoy being a part of. Even when in the breakout rooms and so when we would communicate with each other and so, they're always things coming up that's opening my thinking into new things. And you know discussions that I never had with my colleagues, and so before though I know them (Christina)

I would say no. I think that your strategy in pulling off the workshop and the activities that we had to do. They were, they were well, it was well designed. I think that's the best approach for me. If I were in your shoe, I would have done the same thing. It gets the work done faster. I like the breakout rooms (Nylah).

However, two teacher-participants expressed concerns, one with the timeframe for workshop activities and another with the writing activities. For example, Andie commented initially that “I don't have an activity that I didn't like. I like all of the activities,” but later, she added that “when we were in the workshop itself, we were

working with a specific timeframe, and so on, so that we didn't have much deep reflection.” She concluded by saying, “Yeah, maybe when we were doing the activities a bit more time would have caused more reflection.” Xanadu summarised her dislike for writing activities, remarking, “*I am frustrated by my writing*” and reasoning:

I think that question would like, whether I want to see it changed or, it should be changed. I think that's two entirely different things. Like I said for me it's the writing aspect. While there may be other participants in the workshop that may think that that was the most fun part, so, that may not necessarily need to be changed. I just need to adjust my attitude to that. So, I wouldn't say that I would like to see that changed. I think attitude adjustment is required.

The quotes illustrate that although some teacher-participants perceived areas to improve, they were generally satisfied with the PIE workshops, and this positive reaction was in sync with what I perceived.

My perceptions were largely collected via field notes which contained many instances of teacher-participants expressing satisfaction with the activities. For example, during one workshop Nylah commented on the design features: “I now realize that each of the cards that were chosen is like they all flowed naturally. One thing just led to one another and another, and I really love that.” Xanadu expressed concerns amidst appreciation in the second workshop:

I was concerned about how we're getting through all of these cards, and this semester still get a proposal on them, if these cards were just meant to waste my time, but we have covered a lot of it[proposal].

After the final workshop, she stated: “I think these workshops were very beneficial to us. They were well organised and coordinated.” Christina expressed satisfaction through reflection on personal growth: “So, I think it really helps to create, or it contribute to create a well-rounded individual because it captures all assets that you

know.” Andie reflected on change, pointing to the gradual understanding of how to address challenges:

When we came up with the challenge, we were all clueless as to ways in which we can actually help or make this thing not be a challenge anymore. However, going through the cards and listening to the different aspects, I can definitely see ways in which we can better this challenge.

Teacher-participants’ appreciation for the design of the PIE workshops and their awareness of what was accomplished during the workshops were important factors in their positive perception of the PIE workshop activities.

Influence on Professional Development

Self-reflecting and increasing the level of awareness of their current practice

Regarding which activities influenced teacher-participants’ professional development, teacher-participants described key reflective activities and how they influenced their professional growth. The most common activities reported in their responses were that the self-reflection prompts from the PI cards and individual reflexive activities inspired them to critically reflect on key aspects of their current practice:

So, I think the one that influenced my professional development the most, was the use of the PI Cards. So, because the questions that are on those cards caused me to think about, the way in which I teach and the way in which I would deliver the curriculum as well as if it is of the best interest of the best benefit of all those who are involved (Andie, Individual interview).

Well, they're [PI cards] very introspective like you do a lot of self-searching, and, you know, like I think it really boost like you wanting to do more. Yes, like you want to perform more, or you want to like self-actualize and make more use of your potential. Because you do a lot of, for me. I do a lot of thinking after this, during the session, after the session and so. ... Okay. So, there are activities where we were questioning about, if we can do more than we are currently doing, and I think yes. I think that one really like it caused a change, and it affected my professionalism because I want to as a teacher, I want to do so much more than I am currently doing, and that does not only involve teaching students academics. Like I want a stronger relationship with my students (Christina, Individual interview).

To pinpoint, our first activity [Group Discussion], I would say all of them, because I was placed in situations where I didn't think about problems that I can, that I may encounter, problems that I can solve, and in doing these activities, I actually got a chance to sit and reflect, especially when it was after having all of the conversations in the workshop (Nylah, Individual interview).

Xanadu cited the group brainstorming activities: "I think the group brainstorming activities where we were able to speak freely in the breakout rooms, and we could more freely share our fears and frustrations."

The excerpts above revealed that as perceived by the teacher-participants, self-reflection activities motivated them to reflect on a range of professional concerns, including instructional strategies, student outcomes and needs, and teacher-participants' performance as teachers whereas group activities conducted in breakout rooms were a safe space for learning and discussing psychological concerns, and these perceptions were supported by my observations of the discussion among teachers during the workshops.

The following excerpts from the pre-intervention focus group interview, individual interviews and field notes highlight their self-reflection and level of awareness of their practice. Xanadu had become aware that academic excellence could be improved if a more comprehensive approach is adopted by the administration:

I think it's the administration's focus more on performance, excellence, records rather than behavior, welfare. So, we are constantly dealing with all, all of these other issues, and then the administration whether they be the administration of the school, the Ministry of Education, the individual departments of education, their focus is academic excellence, but they are not focusing on the other things that could enhance academic excellence (Pre-intervention focus group interview)

Similarly, Andie learned that improving learning outcomes is not achieved with a restricted focus on curriculum demands. How to deliver the curriculum is important:

To me, oftentimes we are given the scheme to work with, and we just know that we should complete these specific topics within the specific time frame, and sometimes as teachers, we do not always choose the best methods or the best strategies to deliver all the content to our students (Individual interview).

Nylah learned that developing an understanding of students from different perspectives is important:

I think I am undertaking strategies but not sure about whether undertaking appropriate strategies. How do I respond to challenges and obstacles, frustration as a teacher and as a parent, because it really, really gets to you sometimes then I have to remember that what they are doing is not deliberate (Field notes, Workshop 4).

Christina's reflection on the PI cards captured in the field notes summed up how teacher-participants increased awareness of their practice when she said:

They [the PI cards] are very introspective, you know. You think a lot when you get into them. It really forces you to think about things that you know you never thought about, or you didn't want to think about [Workshop 1].

Thus, the strategy of introspection appeared to be a factor in increasing teacher-participants' awareness of challenges in their current practice.

Improving collective knowledge and understanding of their practice through collaborative activities

Collectively, teacher-participants expressed positive perceptions about the collaborative activities in which they discussed challenges which helped them to increase their knowledge and understanding of varied areas in their practice:

For example, there was this session where we were talking about special needs students, and at my school we have a lot of special needs students. But miss, to be honest, I don't think like I ever really like felt sympathetic like, or with these people, you know, because it's always like a hard task working with them. So, when I hear, like I have to teach a class with a lot of special needs, I don't want to go to the class. I have a negative attitude because I say, you know oh God this is headache. This is difficult and you know I never like be sympathetic towards these students, but we had a conversation, and a colleague of mine when she

spoke about it, you know I realized that you know I never look at this thing like in this way that maybe if these children they are not responsible for how they turned out to be, or whatever challenges they are born with, and maybe I can be more empathetic (Christina, Individual interview)

The fact that we had to meet together, and you know, sometimes you would have a question thrown at you, and you don't know, maybe you know at that point in time you're not. You know you're not thinking about how you can do this, or how you can do that. But then hearing from another colleague [participant] or another person, you know the idea starts to come on board. Ideas start to flow for you (Nylah, Individual interview)

To me, oftentimes we are given the scheme to work with, and we just know that we should complete these specific topics within the specific time frame, and sometimes as teachers, we do not always choose the best methods or the best strategies to deliver all those content to our students. However, with the PI cards, I was able to realize that we should always have the interest of others first and foremost because if we are going to be teaching them, then it should be beneficial to them. It should benefit them positively. So, even though we may finish the content or complete all that we are expected to complete if learning isn't taking place if what we consider to be our primary goal isn't achieved, then it makes no sense (Andie, Individual interview).

I was somewhat intimidated by the questions when I saw them on Moodle before, but as we got into each of the workshops I realized that the questions actually give us, the way they were structured, they actually give us a lot of scope to discuss issues that we were encountering in our practice, and even though we all had different issues, the questions were so shaped, so structured that we were able to link our specific issues, link to what the other person may be going through (Xanadu, Individual interview)

The teacher-participants' responses illustrate aspects of collaborative activities: listening to multiple perspectives and diverse problems as well as collaborative discussions of questions that improved their collective knowledge and understanding of their practice.

These findings were supported by their discussions during the workshops.

As teacher-participants interrogated themselves alongside their challenges, taking ownership and considering their contributions to the process of problem-solving, they revealed how improved collective knowledge and understanding of their practice emerged. Xanadu's expression of appreciation for the collaborative process and

Christina's reflection on obstacles illustrate their developing awareness of the contributions of teachers to improved practice:

Xanadu said:

What I'm finding from these workshops is that as we identify the problems and we discuss it, there, isn't. I am not getting a sense of pretence from my colleagues in that our approach to the problem seems genuine. That's refreshing to me because it says that we actually have teachers in the system that isn't just here for the money or the holidays. But we actually care about the students' well-being, and that we are looking at the humanizing aspects. I think that bodes well for the profession (Field notes, Workshop 2).

Similarly, Christina said:

Like my colleagues pointed out. I think one of them spoke about how to respond to obstacles. And in this teaching profession there's so many obstacles that you know, or challenges that we face. But I believe that you know that if we work together, and you know we keep a positive mindset, there are always things that we can do to help our students (Field notes, Workshop 2).

Others further illustrated how this kind of understanding emerged during the collaborative process:

Andie wrote:

For me the workshop in general have been very beneficial in the sense that when I was thinking about my proposal and so on, I was like this is going to be a whole lot of work, but here in the workshop with my colleagues and listening to their views has helped me a lot, and then it doesn't seem as difficult as I have created it in my mind because I am hearing other views and the cards would have helped along the way in that area (Field notes, Workshop 3).

Nylah also found value in this dialogic process:

From listening to everybody, we came up with a lot of different, you know new perspectives. One of them, in particular, came from Xanadu. We all spoke on it, and from one thing, one person said something, and then it grew from that (Nylah, Individual interview).

During the workshop, Christina added, "So, I'm reading something and questioning yourself about it, and so that seems some, you know frightening, but when you get into

the discussion it becomes easier.” Andie supported Christina’s perspective, “We also get to hear the views of each other, and how each of us will see that situation or relate to that particular situation. So, it helps when we're discussing” (Field notes, Workshop 2).

Thus, according to teacher-participants, engaging in collaborative activities enabled them to develop explicit knowledge and generate ideas that foster an improved understanding of their practice.

Triangulated Perceptions of the Influence of the PIE Workshops on Educational and Classroom Practice

The second research question explored how teachers’ participation in the PIE workshops influenced their ability in three domains: (1) identify problems, (2) redefine problems in their educational practice and (3) generate new ideas for problem-solving in their practice. The three themes that emerged as reflections of teacher-participants’ perceptions were in alignment with my perception as a participant observer. Teacher-participants were engaging in reflective learning and growing in confidence to identify and address problems, shifting from passive to agentive roles and feeling empowered to generate solutions in their educational practice, and they were also becoming thoughtful and purposeful through reflection on alternative or possible solutions.

Engaging in reflective learning and growing in confidence to identify and address problems

The triangulated data revealed that key reflection activities provided supportive conditions for meaningful learning that positively impacted teacher-participants’ confidence to explore their professional practice as illustrated for each teacher-participant below.

Nylah

Nylah expressed the view that she gained the confidence to address problems:

Yes, so because I was given the opportunity to sit and to actually think about things. I'm the type of person that sometimes you will find me not giving answers on the spot, and I would, you know, would want to have some time, and so forth, but because of the workshops, and how we were asked to do these activities, it helped me in this way where I can actually better answer questions, better think about how I can evaluate situations, how I can attempt to attack something. I am to look at a problem in a specific way and how I can do that. So, because of the workshops, I think it actually benefited me more than I think that it would have. Because at the beginning, I didn't know what to expect from it. But at the end, I became a better person (Interview)

This confidence led to her developing awareness of the room for improvement: "There is always room for improvement when it comes to encouraging students to read" (Journal, Entry 4) and exploring classroom problems related to reading that were discussed during the workshops. During the initial research process, Nylah had expressed concern about not having a topic yet to focus on, not knowing what to research, and how soon I would expect them to come up with a topic. In her final report, she drew on the problem of indiscipline identified by Andie during the pre-intervention interview. She also relied on her own growing awareness of the importance of being sensitive to students' and stakeholders' needs that she had described in her journal when she gave insights into new realisations leading to changes in her thinking:

My major priority should be the interests of the students, not merely completing the syllabus. Additionally, my thinking changed from simply informing stakeholders about a project that has to be covered to actually going out and convincing them of its significance so that they will want to participate. After going over the questions on the card, I realized that even if something seems impossible to finish, we shouldn't give up; instead, we should start working on it in bits and pieces to finish it. I understood from the card that I ought to use humanization in the classroom. My major priority should be the interests of the students, not merely completing the syllabus. (Journal, Entry 2)

In her final report, Nylah sought to develop an understanding of how indiscipline impacts learning outcomes in classrooms with the goal of ascertaining the extent to which indiscipline affected the academic performance of Grade 9 students. She stated that the findings in her study “will be helpful to the students, parents, teachers, and the principal.” She seemingly recognized this information as being useful to persuade stakeholders to collaborate and improve learning conditions when she stated that it can “aid parents because they will be able to identify factors that may contribute to their child’s low academic performance and help in their efforts to improve.”

Andie

For Andie, gaining confidence to identify and scale problems so that improvements can be made in practice was an important outcome of reflection:

Well, this will bring me back to the cards because through using the cards as well as the questions that were pulled, it's helped me to examine or to reflect on everything that is happening in my school environment to find a problem. It may not be something, major, but as long as there is any difficulty or some amount of difficulty in dealing with it, then it becomes, or it is a problem... Oftentimes, what happens is that if everybody is not affected by a particular situation, then we don't see it as a problem. But with the workshop, I realize that in every area we can identify something that needs improvement. For example, the situation that I chose that relates to students and their reading desire. This may not be a problem for every teacher because of the area in which they are teaching. So, a math teacher may not see it as such a big deal because they're dealing mostly with numbers and equations, and it's not much reading involved. However, with me being a teacher of English, I would see it more of a problem. So, with the workshop, it shows that it doesn't have to be a problem that is generalized to everyone, but they can be just a problem for a particular set of students or a particular area of study (Individual interview).

Andie initiated discussions around reading as a challenge during the pre-intervention focus group, spoke repeatedly about it during the workshops, and wrote about using her new realisation to explore issues surrounding the problem of reading in her journal: “In our discussion, we realize that in some instances it is not that students do not want to read

but the content and materials given to them is not always appealing and hence create a block” (Journal, Entry 3).

However, she recognized that addressing problems is not just about identifying them when she wrote about being honest and truthful to self and role:

In addition, exploring this card [M2: What is my mission or vision?]and this situation has brought up additional questions, do I truly understand my mission/vision? Am I genuinely making efforts to ensure that my choices are aligning with my mission/vision? Though these questions call for deep internal examination, I realize that until I am able to answer these questions honestly and truthfully. I may not find all the best solutions to this situation (Journal, Entry 1).

She further stated that “As an educator, we must examine ourselves and what we are able to do to cause change. While examining that many questions crossed my mind as I examined myself and the role I should take” (Journal, Entry 2). In her final report, she used this understanding to focus on teachers’ using strategies to motivate Grade 7 English language students to read for pleasure.

Christina

Like Andie, Christina emphasised new realisations focusing on the reflective questions on the cards and their role in helping her to recognise what would make a difference and improve teaching and learning:

I believe the cards and the questions on the card helped with that to identify problems that we face. Because they're based on different areas like they have intellect and all of those things, civic, and so. So, I believe that okay, like moral and all these things like. When I think about the questions, and so on these cards I realized that you know we don't have a lot of these things, at least in the school where I am teaching. Students are not really disciplined, right? And, you know, that needs to change. That really needs to change for us to have a society that is good and productive. So, like when I read the questions on the cards, I think about the classroom and what problems we have there (Individual interview).

She also wrote about her reflection on the moral character asset and its connection to improving learning conditions:

I believe that it is important to forget about the behavioural problems of students because behavioural problems are often reflections of issues in the lives of students outside of the classroom and being sensitive to these students is very important as they begin to navigate their way through life (Journal, Entry 2).

She stated that “As educators, we must take responsibility for setting the conditions that will allow our students to reach their goals” (Journal, Entry 3). In her final report, she sought to examine the use of technology in instruction from the larger perspective of reading discussed during the workshops. She proposed to examine conditions conducive to learning by focusing on teachers’ and students’ perceptions of the effects of audiobooks and videos in the English Literature (English ‘B’) classroom.

Xanadu

Considering adopting multiple perspectives and finding common ground, Xanadu reflected on teachers’ attitude and the need for adjustment:

One thing I did admire that you would put one general question out there most generally it'd be just myself, Christina, Andie, and Nylah, and the answers we would come up to, come up with for that one question would be so varied, but yet we would still be able to identify some common ground (Individual interview).

The first question [I1: Am I claiming more than I actually know?] really made me stop to consider how do we as teachers present ourselves before these students? Do we present ourselves as I am the teacher, I am the almighty? I know it all. I know it best, and any challenge that you pose to my knowledge or to my perspective I would ensure that I down you and you never try it again. It really made me think that I should adjust my approach (Journal, Entry 1)

During the initial research process, Xanadu had expressed concern about doing useless research and wanting to do research that can be applied in the classroom and have practical benefits for her students or herself as a teacher. Not surprisingly, her final report

focused on adjusting educators' attitudes, and creating a culture of tolerance among educators for learners with developmental disabilities.

These findings support the perception that the self-reflection questions on the PI cards were very instrumental in enabling teacher-participants to engage in reflective learning and grow in confidence to identify and address problems in their educational practice. All problems identified by teacher-participants sustained focus on challenges identified in the pre-intervention interview or on discussions that expanded on those problems from diverse perspectives during the PIE workshops.

Shifting from passive to agentive roles and feeling empowered to generate solutions

This theme marked critical agentive outcomes such as shifts in their perception, roles and performance. The most common influence of the PIE workshops reported by all teacher-participants in interview responses and journal entries was shifting from passive to more agentive roles in varying degrees and considering solutions. That teacher-participants perceived that the PIE workshops moved them from passive to agentive roles, enabling them to perceive problems from a more solution-based perspective. This was captured in data from field notes and supported by data in their final reports.

A comparison of teacher-participants' feelings of helplessness and frustration reflected in the pre-intervention data, and their growing awareness and understanding to identify, scope, and justify their focus on specific research problems in their final reports, capture their shift from passive to agentive roles when dealing with complex challenges. In the pre-intervention focus group, they expressed feelings of helplessness and frustration derived from a lack of responsiveness from the administration in their schools,

their perceived absence of parental support, and their struggles to find ways to address the challenges. Awareness and understanding of how they can participate in improving learning outcomes in their classroom or schools developed gradually as they progressed through the workshops and conceptualised and scoped problems to investigate using their own context, experiences, and perspectives in their decision-making process as is captured below for each teacher-participant.

Nylah

Nylah wrote about personal and collaborative action when she asserted that:

It [workshops] makes people realize that in order for something to function, both individual and group efforts **are** required. I thought about who I am and the part that I play in society as I looked at the card. I've learned from the questions I've explored that collaboration with others is sometimes necessary to effect change (Journal, Entry 2).

She actively considered solutions: “It gave me little bit of confidence a little bit more confidence in speaking out, in actually talking about, you know, if we have this problem, how can I solve this problem? How can I help to solve the problem?” (Individual interview)

Andie

Earlier, Andie identified the students’ attitude as a major problem and pointed to teachers’ feelings of helplessness:

I know for a fact there are some parents who would work with their children. There are some teachers who would work with the students in line of how they should behave, but if it doesn’t come from within them, if they do not see the need to become disciplined students, I don't think there is much that we can do for them (Pre-Intervention focus group interview).

She chronicled changes in her thinking:

The second aspect of my question [on PI card] changed my thinking in that instead of just telling stakeholders that the project is important and that they should work on it, it is still up to me as a teacher who is working on the project to sell it and make it desirable for others to see the importance of it and want to help (Journal, Entry 2).

Later she spoke about her developing awareness of collaboration as part of the solution:

Okay. So, in aspects where it would have influenced my thinking about problem is that we can. A problem directly is not direct. It's not always just. It does not always require one person to do all the work. What I'm trying to say is that sometimes problem would require the help of others and being as one person may not be able to do it by ourselves (Individual interview).

Andie examined her research problem in the context of teachers' roles and choices and their impact on students' attitudes and learning outcomes in her final report:

The research done thus far has indicated that reading for pleasure is declining daily and with an advanced technological era, purposefully integrating reading into the curriculum in schools is not the challenge but balancing the need to teach the skill of literacy whilst using appropriate strategies to inspire and motivate children to read for pleasure is.

Consequently, she thought not only of her own agency to create change in herself and her surroundings but also about how students' own agency should be inspired to help them grow as readers as well. She aimed to provide insight into strategies that teachers may utilise to motivate students to develop a desire to read for pleasure, their effectiveness as well as the challenges with the strategies. In her final report, she indicated that “an understanding of strategies to motivate students to develop a desire to read for pleasure is important to inform and improve the low percentage of reading in schools and increase interest in reading” in the classroom.

Christina

In the pre-intervention interview, Christina perceived the mobile gadget as a barrier to learning. She described a more passive positioning related to generating

solutions, describing help-seeking from the administration, and articulating a need for more parental support and guidance:

Yes, addressing the attention issue. We have raised it with our HM [headmaster] many times, and you know we let her know that these students, they need to stop bringing their gadgets to school, and she would have raised it at PTA meetings, and so because almost every week we see a Tic Tok being done in a classroom with students.

I'm thinking like parental support and guidance. I think we need more of that so, and their interest to as well in their children's education, so the children can take learning seriously (Pre-intervention focus group interview).

Later, Christina directed her attention to creating change:

I, well, I would say that you know we would always need the assistance of other persons. But I believe that what these workshops change in me is like I can do things that oftentimes we tend to rely on other people like rely too much. So, what I want to do. I want to start doing the things that I want to see change, and if I can start, maybe I can influence, like other persons to start doing those or see the importance of doing them. So, I want to start in a little way even if I have to do it by myself to do things which I think will positively change the scenario in the classroom (Individual interview).

Christina wanted to improve the unacceptable levels of literacy in the local context, specifically, students' negative attitudes and lack of interest in reading and understanding texts in the classroom that she saw as part of the problem. Christina sought to determine whether Grade 10 students and teachers perceived that audiobooks and videos are effective strategies to stimulate students' interest, engagement, and motivation to read the required texts of the syllabus in the English 'B' classroom. She wrote in her final report that her study was significant in that it "could provide insights into the positive and negative effects of using other modalities, such as audiobooks and videos with the students in the English Literature (English 'B') classroom."

Xanadu

Initially, Xanadu described her struggle to generate solutions to address students who had seemed disconnected from her teaching:

I am teaching and literally feel like I am speaking to a wall. There is no response. There is blank and you can't get any emotions on their faces. Nothing. So, that is for me a teaching problem that I have been dealing with this term, and I'm still trying to come up with ways to handle it. (Pre-Intervention focus group interview)

Later, she explained how they were able to use the PI cards to generate solutions:

I think they allowed me to see the solutions to the problems in a practice may not be as far-fetched around areas I may have assumed at first. Every problem has a solution, but it's just how you go around finding that solution. I think the cards in particular, the fact that they give you one question to prompt your thinking [personal perspective] and then a follow-up question [systemic perspective] on that. It allowed us to expand our thoughts on the issues that we were facing and give us more scope to come up with solutions (Individual interview).

She focused on the specific problem of integrating learners with special education needs into the classroom, especially sidelining these learners because they are viewed as less capable by teachers. Her study aimed to determine how professional development workshops can engender an attitude of tolerance towards learners with developmental disabilities in teachers' classrooms. When outlining the significance of her study in her final report, she stated that "when teachers are adequately equipped with the necessary tools to create an environment of inclusivity, they can present an avenue for learners with developmental disabilities to achieve their highest potential."

The triangulated data in this section illustrate teacher-participants' perception of how opportunities to connect with others in a professional context, use the PI tool and self-reflect led to them developing a new understanding of how problems could be addressed, especially what decisions and actions they need to take.

Becoming thoughtful and purposeful through reflection on alternative or possible solutions

This theme reflects teacher-participants ability to consider more effective ways to cope with challenges and engage in critical self-reflection on how to address them. They perceived that participation in the PIE workshops made them more thoughtful and purposeful leading to them developing awareness and generating alternative or possible solutions thus improving their problem-solving skills. Field notes and self-reflection journal entries supported this perception.

Nylah

Nylah emphasized perspective-seeking and shared how participating in the workshops made her more purposeful in generating a solution to a problem and effecting change in her classroom practice. She also shared how introducing the PI cards to her students resulted in greater classroom engagement:

My thoughts on the problem did not change after reading what was written, but they did greatly improve in that it made me see the pressing need for stakeholders to be actively involved. Relationships with stakeholders can introduce new viewpoints and methods of thinking. The likelihood of accomplishing diverse objectives increases when a variety of stakeholders are involved in the team effort (Journal, Entry 4).

Just today. I had my fifth-form students. What is the topic we were looking at? It was a topic we were looking at? We were going to do our SBA [School Based Assessment] and we have a wide topic area where we can choose from, if we are to choose athletics, if we are to choose football, or so forth. So, I took the cards to school, and I distributed them, and I asked them various questions, and then I use your approach. And I said, you know, use the questions on the cards, and let's see how we can get over this issue. If you're to go to athletics, how are you going to solve problems? We have a practical where we have to come together, and we plan that. And from years gone by, we have gotten into a lot of issues. So, because they read what is on the card, I placed them in groups too. Because they read what is on the card, and they related to athletics or whatever sports they chose, they actually answered me, and we did this before, and I got no sort of answer from the class. They were all sitting there before, and they weren't saying anything. So, me

introducing the cards now, I got various answers from them. (Individual interview)

She also reported a revision of perception at the conclusion of one workshop: “At first, when we had the discussion, I was thinking about the students...I am now thinking this is not only to be looked at from one perspective” (Field notes, Workshop 1). This revised perspective was evident in her inclusion of parents as stakeholders when she wrote about the significance of her research project in her final report.

Andie

Andie rationalized on scaling to effect change:

My perspective on this situation has shifted greatly in that the card opened my thinking to the idea that despite the professional situation may seem difficult it is achievable even on a small scale. Before examining this card, I viewed the project as doable but requiring much help if it is to make an impact and effect change in students. However, after examining the first question on my card the quote “Rome was not built in a day” came to mind, and that made the project seem much more manageable because instead of trying to effect change in the entire school or region, we just need to start small, and that may have a ripple effect upon others and the change may spread more widely (Journal, Entry 2).

She also commented on how introspective questions made finding solutions seem less overwhelming and gave her a sense of renewed purpose:

The questions on the cards help us, help me, to reflect on whether I am doing my best to think about the problem or I am doing it halfway. Also, one of the questions spoke about stakeholders being involved. I can relate that to the fact that there are some problems that by myself, I may not be able to remedy or be able to fix but with the help of others or getting others involved that problem can be fixed. So, ... the questions on these cards help me to find new ways of solving problems, not only in my classroom but in school generally ... because oftentimes when a problem arise, for me, I know that sometimes I feel overwhelmed in how to deal with it, but with these questions, I think that I am able to find other ways of dealing with it that doesn't really overwhelm me or doesn't really seem so difficult (Individual Interview).

Andie described this link between the reflective questions on the PI cards and teacher-participants attempts to find solutions: “Even in selecting our solutions, the other

question prompt us to think about whether those decisions that we're going to make or those solutions if it's going to have a positive impact" (Journal, Entry 3).

Christina

Christina spoke explicitly about collaborative reflection and alternative solutions:

Well, I believe the identifying of challenges and things we can. We can do so. Speaking about things that can do to help with the challenges can help with that with solving problems. Because when my colleagues and I discuss, we came up with like a variety of things that we can do to help solve these problems, and a number of strategies, we can take to deal with the problems that we encounter (Individual interview).

She also identified the benefits of written reflections:

Writing my thoughts down on the journal, it really helped me to think more about what I want to do and how I want to contribute. It really felt more real because anybody can say something but like when you put things down on paper there is a sense of commitment there so that's how the journal made me feel (Field notes, Workshop 2).

However, her comments in other journal entries suggested that the workshops impacted her differently from her colleagues. Where her colleagues wrote about changes using terms such as being "unable to think" (Andie, Entry 1), "my mind initially found it difficult to come up with ideas" (Nylah, Entry 1), "perspective on this situation has shifted greatly" (Andie, Entry 2), and "my thoughts on this situation have substantially shifted" (Nylah, Entry 2) to suggest major changes, Christina only made two references to change: "perspective has shifted only slightly" (Entry 1), "perspective on this subject a little bit different" (Entry 2), referred mainly to questions that emerged after reviewing what was written and provided mostly examples of her best practices throughout her entries. She ended her final entry by requesting support from policymakers for teachers'

professional development. This action contrasts with her response in the interview where she said the following:

I, well, I would say that you know we would always need the assistance of other persons. But I believe that what these workshops change in me is like I can do things that oftentimes we tend to rely on other people like rely too much. So, what I want to do. I want to start doing the things that I want to see change, and if I can start, maybe I can influence, like other persons to start doing those or see the importance of doing them. So I want to start in a little way even if I have to do it by myself to do things which I think will positively change the scenario in the classroom (Journal, Entry 4).

This contrasting view raises the question of whether she perceived that her participation in the workshops was empowering as the other teacher-participants did.

Xanadu

Xanadu explained her growing understanding of the need to change attitudes and be teachable:

One would be arrogant to presume that they know enough for it to be enough. Arrogance may have been a harsh condemnation. However, while we seek to exude confidence, we must take care to likewise be teachable. Additional questions I asked myself were:

What do I actually know?

When will I know if it is enough?

How will I know if it is enough?

My resulting answer could be summarized in saying that knowledge acquisition should be a lifelong activity. Just enough must never be the standard (Journal, Entry 1).

Later, she described how participating in the workshop moved her from superficial analysis to deeper and more purposeful analysis of problems and possible solutions:

I think generally is that we take a lot of things for granted, for example, one of the issues that we dealt with in the workshop is the students' lack of interest in reading. A lot of times we the teachers see that as a problem, yes, oh, these students don't like read, why you'll don't like read, but then we don't seriously or actively seek ways to deal with that or to solve that issue, or to help that student to resolve that issue. We just brush it off as them having a lack of interest, but we don't dig deeper as to the real reasons why this may be an issue with the students. The workshop really made you think about why, how will we find a situation?

Not just a matter of identifying this, but it made you really delve deeper to understand what may be some of the contributing factors, and what are some of the possible solutions (Individual interview).

In terms of her research, she reasoned:

I knew what area I wanted to look at, I wasn't sure how to go around it what specific aspect to look at, and you provided that guidance without telling me directly this is what I want you to do, whereas I notice what's going on with some other research courses is either lecturers telling the students I want you to do this and do it this way or not offering any guidance, but telling the students, I'm waiting on your research. I have not seen anything from you, but they have not offered any guidance. (Individual interview)

Becoming more purposeful, she explained:

Instead of just thinking of an issue in isolation, and then trying to frame something around that which is what I was doing on that. Now I know that there are certain questions that I have *to ask myself before I actually pin down a topic*" (Individual interview).

Based on these responses, teacher-participants demonstrated that they were gradually becoming more thoughtful and purposeful. In addition to the themes discussed previously, triangulated data from the field notes and teachers' final reports yielded four additional themes: Initial apprehension and anxiety, unfamiliarity/discomfort with some aspects of the problem-posing methodology, developing a transformative professional classroom culture and investing and committing to professional development.

Initial apprehension and anxiety

This theme points to struggles with what specific features of the workshops required from teacher-participants or their perception of what they entail. Field notes revealed initial apprehension and anxiety regarding the design features of the workshop. In the first workshop, when discussing the intellectual character asset *I Am I claiming more than I actually know?* Xanadu suggested that "it is not easy to accept vulnerability

because of the fear of appearing incompetent and losing respect.” When asked how they felt about the first workshop, Xanadu replied, “a bit apprehensive. I get a feeling it’s about to get more intense and complicated.” Christina’s response was “I’m not sure like what it will be about, and all of that, just a little nervous. I read the information that is there but still feel a little apprehensive after reading it.” In workshop two, Xanadu identified the sources of anxiety as the detailed nature of the workshops and their frightening self-reflective questions:

I was in the pavilion trying to read it through all the screaming [athletics sports], and then I saw all the ‘what do you think?’ and ‘do you want to?’, ‘do you think?’ and I think that's what raised my blood pressure level a bit.

The journaling activities and teacher-participants’ expectation of assessed activities also induced anxiety: “There is so much to write, so many things, so many perspectives coming up in the discussion. I think my issue is how much to write and how much to focus on.” In response to being told that the journal is free-flowing, she commented: “That’s it. It’s free-flowing, but the marks aren’t free-flowing.” Christina expressed relief that the journal was not being assessed: “I’m glad the journals are not being marked.” Not only did teacher-participants acknowledge and express feelings of apprehension and anxiety with the design aspects of the workshop, but they also revealed unfamiliarity or discomfort with some aspects of its problem-posing methodology.

Unfamiliarity/Discomfort with some aspects of problem-posing design

This theme addresses difficulties with new areas that were not part of their regular or normal exposure in practice or areas not fully grasped. Teacher-participants’ comments during the workshops revealed that some aspects of the problem-posing design were discomforting. Throughout the workshops, I felt that I had to emphasise that the

workshops were flexible, the use of the PI cards was a learning process for them and me, there were no right or wrong answers and that the journal entries and workshop activities were not being graded. In addition, I observed in the workshops that tasks that they found challenging were those requiring direct steps or actions and deep introspection. Quotes from all four teachers in my field notes (Workshop 1) illustrate this:

The question on the blue part [deep dive] seems more challenging because it is a direct action or step that I have to come up with (Christina).

The deep dive questions are difficult. For one thing, it is not always easy for teachers to accept and admit we have knowledge gaps (Xanadu).

It's more challenging because I have to search deep in myself to find the answer. How do I know that I am understanding what their [students] needs are? (Nylah)

The difficult one is how am I aligning my choices with my mission. It's difficult because I have to do internal thinking to analyse. It's difficult because I have to do introspection (Andie).

Xanadu explained the reason for difficulties when she remarked during the workshop “that it calls for a level of introspection we don't often do in our practice,” and the others agreed.

Also, field notes on how they accomplished some tasks during the workshops suggested that there was a bit of a struggle with integrating the character assets to frame a research project. Only one teacher-participant was able to provide a response during the workshop:

I am looking at it from the angle, the card I chose, performance. Like Andie and everybody who spoke about their experience with reading, mine was that my mother started me out with the Bible. Yes, the Bible of all things, she gave me it and said you have your own Bible, and you read, and she was... She had these blocks, and she worked with me, and so on. So, I think we spoke about involving stakeholders. I think the parents are so key. You know find ways or find some means of getting involved. I think this is one of the things that we could use. (Xanadu)

In addition, although teacher-participants perceived that the workshop influenced their ability to identify problems and generate ideas to solve problems in their practice, two teacher-participants (Andie and Nylah) struggled with answering individual interview questions that were related to thinking about the influence of the PIE workshops on professional development especially generating ideas to solve problems in their practice, and one teacher (Xanadu) struggled with providing a response to the influence the workshops on identifying problems in their practice:

Andie:

Yes, Miss. I am thinking of the ways.
I don't know, but I am thinking.

Nylah:

Can I get back to that one, Miss?
I'm not thinking it. Let me see.
It's like I'm running out of words right now.

Xanadu:

That's a difficult one for me to answer offhand. One thing I did admire that you would put one general question out there most generally it'd be just myself, Christina, Andiee, and Nylah, and the answers we would come up to, come up with for that one question would be so varied, but yet we would still be able to identify some common ground. Further than that I am not sure I could answer that.

It seemed that during discussions, simultaneously reflecting and considering actions by concurrently questioning, thinking, and using the knowledge to address a problem was problematic, not fully grasped yet. Despite this perception, teacher-participants final reports in which they used the problem-posing process demonstrated that they were able to identify and adequately scope problems for investigation in their proposals through the lens of intellectual, moral, and performance assets. This accomplishment suggested that even though the teacher-participants struggled to provide explicit examples of how the PIE workshops impacted their professional development

and practice spontaneously during the interview, they were able to apply the practice of PI in their final reports.

Developing a transformative professional classroom culture

Freire (1970) describes a transformative professional classroom culture as one that creates a space for students and teachers to engage in a transformative experience by providing opportunities for them to participate in dialogic interactions that not only shift power boundaries between teacher and students but also create mutual growth and development. This theme reflects just this. Regarding a transformative space and dialogic interactions, in answering the question on what they liked about the workshops in the interview, terms such as “freely” “censored”, “one person giving instructions” and “different manner” in teacher-participants’ responses were illustrative:

I think the group brainstorming activities where we were able to speak freely in the breakout rooms, and we could more freely share our fears and frustrations. I think the brainstorming activities where we’re in the breakout room. We didn't feel like, well I didn't feel like I was being censored I should say (Xanadu).

...and because we are able to express our opinions and our views and... so that was the most enjoyable part for me. It wasn't one person giving instructions or saying, but we were all in it to give our views and to share our ideas as well as to receive input from others (Andie).

...How we had to get into the rooms and do the activities you know, and it is not just the one-on-one thing most of the time, so I like it (Nylah).

Okay. Like the challenges that we often talked about, the challenges that we face, and you know, like if I see something from one perspective, then somebody else would come up, and they would bring another perspective to it or another turn. And I would be like, you know what I never thought about this thing in this way until this person like bring it up. And so, that kind of conversation I don't really get. I don't really have with them[colleagues]. But during the sessions that is when, like I see things from other persons’ perspective. I find that we have a lot of similarities with the problems that we face, but the way people tend to look at it might; they are different actually. Some persons look at things differently, and you know it causes me to think about things like in a different manner (Christina).

Teacher-participants' views relating to ownership and responsibility for their own development expressed during the workshops are also illustrative of developing a transformative professional culture. Nylah related that the workshop experience could be improved if they acknowledge that:

It is a personal something on all of us. As Xanadu said, if we all get our acts together it should be smoother. I am not thinking about what you can do at this I am thinking about how I should do it.

Christina remarked that “We have to try to be inclusive...Everybody is different, and unique, and they have different talents and skills. As teachers, we have to try to spot the talent and build on them.”

Field notes also revealed the blurring of boundaries and power shifting in the reversal of roles between interviewer and interviewee and facilitator and participant. In role reversals, both Xanadu and Christina engaged in power shifting by asking questions unrelated to my interview questions when they were prompted to make any comments or suggest any question that I could have asked them during the interview:

What has been your perception about our response to the workshops our general response not the specific questions that you asked?
Do you think you achieved the aim of the workshop whether the objectives were achieved? (Xanadu).

Actually, I have a question, miss, but I don't know if you'll be able to share on this. The assets that they selected, moral, civic, intellect, and it's performance, right? How or what lead them to come up with these areas or what made them choose these four areas? (Christina)

The impact of the PI extended beyond the workshops; three teacher-participants reported adopting the role of facilitators in their schools with teachers as participants in professional development.

So, I use this with some colleagues. We did it similar to the way we would do it in the workshops again I asked them to take a [PI]card. Well, we didn't think of a situation first. We just picked a card and read what was on the card, and then relate it to a situation or to a problem within our school or within our lives, basically (Andie, Interview).

I have a colleague that saw what I was doing, and she asked me where I got the [PI] cards from, so she was asking me if I can come into the classroom, and I can do a session with them, using the cards. So, my next, after the professional development session with my colleagues, I will be going into the fifth form to look at them and the [PI] cards. (Nylah, Interview).

I have used them [PI cards]in passing a couple times with my colleagues after [the workshops] (Xanadu, Workshop).

The workshops gave teacher-participants a transformative space to participate in an inclusive learning environment and transform their thinking as they developed the agency to self-direct and act as they committed and invested in their professional development.

Investing and committing to professional development

This theme shows teacher-participants' enthusiasm, openness to change and their motivation to apply what they learned to practice. The willingness of teacher-participants to invest and commit to professional development was reflected in their preparation for the PIE workshops, attitude to the workshop activities, application of the PI approach outside of the workshops, and their openness and willingness to develop a growth mindset and change. For example, awareness of features of the PI deck of cards prior to the workshops was mentioned by Christina and Xanadu during the workshops and in the post-intervention interview by Andie:

I had a look at the cards. They are, I must say they are very creative. I like it, sophisticated yet creative. I notice that they are colour coded, and all of that, and they are based on four very important areas, moral civic performance, and intellectual. I did not get to read all of the questions, but the few that I read. I find that they are very. introspective like you question a lot of things, and you think

about a lot of things when you read the questions (Christina, Field notes, Orientation session).

One person called a card, and we started discussing the question, and so much came out of that discussion. We identified an issue, and then everybody had things to see, and then there were stuff out of it, and I think it was a productive discussion. (Xanadu, Field notes, Orientation session).

The cards rather, the PI cards were helpful in that area because of the questions. Some of them. I'm trying to remember a couple of them. Some of them as to say how, if you're doing all that you can or if you are doing less than you can do. So, in dealing with a problem, the questions on the cards help us, help me to reflect on whether I am doing my best to think about the problem or I am doing it halfway (Andie, Individual interview).

With respect to their attitudes to the workshop activities, there are several examples that illustrate the teacher-participants' high level of engagement with the workshops and the material. For example, as mentioned previously Xanadu described reading the workshop activities while at her school's athletics sports: "I was in the pavilion trying to read it through all the screaming." In addition, at one point when there would have been extra-curricular activities in their schools on our scheduled workshop day, and I suggested cancelling the workshops, the teacher-participants advised me not to because they wanted to attend the workshops despite the activities in their schools. All teacher-participants completed journal entries despite the journal writing taking place outside of the normal class time because highly engaging group discussions often went beyond the time limit. In addition, all four teacher-participants mentioned examples where they applied the PI approach outside of the workshop and their assigned research projects:

At first, when I go the cards, I was like hmm. This is a full pack of something that I don't know what I am going to do with. What am I going to do with them? But then after we started to get engaged with it, at least for my time because I missed the first class, the first workshop, and now that I am actually into it, you know,

just taking one card, one time, one card a day, and just looking at it and coming up with a random problem, and just thinking about how the card relates to that problem is something that benefits me (Nylah, Field notes, Workshop 2).

So, I don't want to use it as a weapon instead of as tool, but I think I'll continue to use it in my Grade 11 classes in terms of generating ideas of HSB, human and social biology school-based assessment (Xanadu, Interview).

I'm like using it with my students in the sense that to get what they would want as I teach them as it relates to teaching them (Andie, Interview).

I am not very talkative, but the use of the workshop caused me to do some really deep thinking as well as with the cards. They caused me to question myself. Question the decisions that I've made in my teaching career and everything that I do within my life generally (Andie, Interview).

I would use them for my own development. Oh, I would often go through the cards, go through the questions. I would think about it. Think, you know how I can develop myself thinking about the questions. How can I develop myself? So outside of the workshop I would use them like as a form of self-development (Christina, Interview).

Teacher-participants' attitude and engagement with their final reports provide further evidence of their investment and commitment. During the writing of their final reports, teacher-participants demonstrated an openness and willingness to change, defending their approach and submitting drafts repeatedly for feedback even though I required one draft submission.

Discussion

The purpose of this case study was to explore the use of Principled Innovation Educators' (PIE) workshops as transformative professional development through the theoretical lens of critical pedagogy (Freire, 2011) and transformative learning theory (Mezirow, 2012). PIE workshops were an intervention framed from Principled Innovation, an emergent and innovative character asset approach to decision-making and problem-solving that puts persons at the centre of the problems that affect them and need

to be addressed in their contexts. (Mary Lou Fulton Teachers Training College, 2022). The literature on professional learning and development connects high-quality transformative professional development to those that meet the needs of teachers, help them to confront tough issues and create opportunities for critical inquiry and collaborations that promote deep learning (Brown et al., 2021). High-quality professional development also helps teachers develop agency to overcome barriers regardless of their contextual circumstances (Parson et al., 2019; Kramer, 2018; Johannesson, 2020).

In addition, this work addresses a gap in the type of professional development that teachers in Guyana typically receive and addresses the accelerated transformation of the education system that is required to meet the fast-paced national economic development resulting from the country becoming an oil-producing nation. Against this gap and the role of the University of Guyana as a key provider of professional development for educators, the analysis of findings in this case study strengthens the support for using Principled Innovation as a transformative professional development approach in this context. In addition, through triangulated data analysis (interviews, field notes, and journals), the findings reveal how the PIE workshops align with the criteria for high-quality professional development (Parson et al., 2019; Kramer, 2018; Brown et al., 2021; Johannesson, 2020) and provide opportunities for transformative learning to occur (Mezirow, 2012).

The findings in this study highlight the transformative nature of the PIE workshops. A significant contribution of this study is the finding that all teacher-participants applied the practices gained from the PIE workshops to self-initiate the use of the PI approach in their professional and educational practice. Considering that

teachers were engaged in a research course and not a course on pedagogy, this finding is indeed significant. Teacher-participants provided examples of the diverse use of the PI approach to improving their professional and educational practice. For example, they used it to have students generate ideas in the classroom: “I’ll continue to use it in my grade eleven classes in terms of generating ideas of HSB, human and social biology school-based assessment” (Xanadu). Nylah explained how students generated ideas:

I placed them in groups too. Because they read what is on the card, and they related to athletics or whatever sports they chose, they actually answered me, and we did this before [learning about PI], and I got no sort of answer from the class. They were all sitting there before, and they weren't saying anything. So, me introducing the cards now, I got various answers from them.

Teacher-participants also used the PI approach for professional engagement with colleagues: “So, I use this with some colleagues. We did it similar to the way we would do it in the workshops again I asked them to take a [PI]card” (Andi). It was also used for personal development: “I would use them for my own development. Oh, I would often go through the cards, go through the questions. I would think about it. Think, you know how I can develop myself thinking about the questions” (Christina).

Observing teacher-participants shift from exhibiting feelings of helplessness in the pre-intervention interview to citing multiple uses of the PI cards after the PIE workshops is consistent with shifts in teachers’ thinking and acting and the emergence of agency described by Freire (2011). These serve as examples of persons being self-reflective and critical and developing consciousness of their own realities and an awareness of how to act on these realities and effect change. This finding can also be explained as a progression on Mezirow’s (2012) critical reflection stage along the domain of instrumental learning or task-oriented problem-solving. Instrumental learning seeks to

improve performance related to integrating facts and skills to control and manipulate the environment or other people. It is likely that teacher-participants moved beyond rumination, operating at the later phases of transformative learning, adopting a reflexive disposition, and using the newly learned practices to replace old or existing ones that they perceived as not effective in their educational context, especially since teacher participants indicated that the workshops made them do the following:

Think about things that they never thought about, or didn't want to think about, it really made [them] think about the whole scope of issues that could arise in [their] practice and the levels of complexity of each of those issues. It made you think about the issues more than we normally will within the normal classroom setting (Xanadu).

I think it really boost like you wanting to do more. Yes, like you want to perform more, or you want to like to self-actualize and make more use of your potential (Christina).

Following this empowered position that developed from their reflexive disposition and collaborative engagement, teacher-participants demonstrated self-efficacy to scale and scope their research problems. Teacher-participants described how this occurred: “You know you're not thinking about how you can do this, or how you can do that. But then hearing from another colleague or another person, you know the idea starts to come on board. Ideas start to flow for you” (Nylah). One teacher-participant remarked that:

Instead of just thinking of an issue in isolation, and then trying to frame something around that which is what I was doing on that, now I know that there are certain questions that I have to ask myself before I actually pin down a topic (Xanadu).

Another teacher-participant indicated that “it helped me to realise that in every area [of practice], we can identify something that needs improvement” (Andi). Teacher-participants’ research problems emerged out of their collaborative discussions and

focused on improving their educational practice at both classroom and professional levels. The literature provides support for professional development being most transformative when it meets real-time needs (Parson et al., 2019; Johannesson, 2020). Whether teachers retain and sustain the use of the PI approach and its long-term impact could be further investigated.

In addition, in this case study, despite teacher-participants revealing their initial anxiety, apprehension, and discomfort with some aspects of the problem-posing design of the workshops that were possibly novel to them, their response to the PIE workshops was very positive. As evident in triangulated analysis, satisfaction, enjoyment, and engagement appeared not to be affected by time constraints when journal writing activities transcended our scheduled two-hour meeting on Fridays and became a task they completed over the weekend or during the next week.

Teacher-participants discussed how their feelings of satisfaction and enjoyment emerged not only from their appreciation of the design of the workshop but also from their perception of benefits such as self-reflecting and increasing the level of awareness of their current practice and improving collective knowledge and understanding of their practice through collaborative activities. The findings in this case study align with previous research on online professional development that has documented participants' benefits such as collective reflections with others in discussions and their preference for professional development focused on new ideas and collaboration rather than feedback on how much they know (Parson et al, 2019). When the teacher-participants responded in discussions about the workshops, they labelled the workshops as “different”, “fun and

educational” (Nylah), and “quite refreshing” (Xanadu) in “opening up” their “thinking to new things” (Christina).

Previous research connects teachers’ desire for a blend of personal and collaborative reflection to high-quality professional learning that generates positive responses from teachers (Brown et al., 2021). This study produced similar findings in that the teacher-participants in expressing their appreciation for the PIE workshops indicated that they desired a flexible, communicative professional space that allows them to interact, explore and reflect deeply and humanely on their classroom room and educational practice in a dialogic, non-threatening, and non-judgmental environment. Teacher-participants discussed the workshops enabling them to speak freely, (e.g., “more freely share our fears and frustration” (Xanadu)) in addition, to creating opportunities to engage others, (e.g., “thinking from somebody else’s point of view, not the one-on-one thing most of the time” (Nylah)) and showing how the workshops helped them to develop self-efficacy with “ideas” starting “to flow after listening to another colleague”, (e.g., “getting a chance to sit and reflect”) (Nylah) being provided with opportunities for “*my time*” (Nylah) to think about how they can handle and “evaluate situations” (Nylah) and build relationships:

Maybe I can try to inspire them [students] or help them to develop in a more profound way other than academic because I realize that people often remember you, for you know the type of relationship that you share with them. If you would have impacted them in a positive way or so. Not so much so about, you know, like the content that you teach them (Christina).

In this regard, the professional learning environment created by the PIE workshops supported teacher-participants’ progressive movement through stages of Mezirow’s (2012) transformative learning theory: self-critical assumptions, critical

assessment of assumptions and exploration of new ideas and relationships, planning courses of action, and then acting based on the new perspectives gained from the process. The cluster of character assets and practices in PI provided scaffolding for teacher-participants to reflect critically and constructively on their own experiences and those of others to make decisions on their course of action. Thus, in this case, teacher-participants transformational learning occurred not only under conditions in which they fully and actively participated (Mezirow, 2012) but also under conditions that created a safe professional space for them to explore their vulnerabilities and enjoy collaborating and developing a better understanding of their practice.

For professional development, teacher-participants' initial anxiety, apprehension, and discomfort may be explained by their unfamiliarity with the instructor as this was their first exposure to me, by them feeling a sense of being evaluated on how they responded to answers consistent with a traditional judgmental approach where they are judged on academic gains (Kuh, 2008) and also by their familiarity with the banking model where the sage philosophy dominates, dialogic interactions are absent, and there are clear boundaries between the teacher and students (Freire, 1970). Early anxieties can also be explained by the disorienting dilemma identified as the first stage in transformative learning theory when there is a mismatch between the current meaning structures and their previous experience (Mezirow, 2012). It is likely that while the PIE workshops encouraged teacher-participants to perspectival disequilibrium through engaging the unfamiliar, they also presented them with meaning structures different from their previous experience in the form of them having to adopt a reflexive disposition to interrogate classroom practice. Teacher-participants perceived initially that the deep dive

questions were difficult because the level of introspection required was unfamiliar to them, and coming up with direct steps or actions to address challenges was difficult. One teacher-participant mentioned being intimidated by “a lot of thinking about this particular practice” and that the workshops call “for a level of introspection we don’t often do in our practice” (Xanadu).

In their professional context, the banking model (Freire, 1970) and traditional professional development sessions exist (Ministry of Education, n.d), and the contrast in the interview response and the final journal entry of one teacher participant was instrumental in illustrating some sort of dependence on this type of traditional professional development. In the interview, the teacher-participant discussed her perception that the workshops made her agentive in that she “can do things that oftentimes we tend to rely on other people, like rely too much on”. In her final journal entry, she described best practices and wrote that “to help teachers become more effective the Ministry of Education has to hold training sessions and workshops.” Beghetto (2021) described this deferral of individual action to guidance and directions from others as a lack of agency. In this case, the teacher-participant appeared not to fully recognise that professional development could emerge from participants’ repeated and practical efforts to solve problems and challenges they encounter in the course of trying to improve what they currently do” (Bentley, 2009, p. 41) as a part of being systematic, agentive, and reflexive (Strom, Martin, & Villegas, 2018). This teacher-participant response to professional development, most likely, from a transmission-oriented lens is consistent in part with Brown et al. (2021) who reported that the group of teachers new to his design-based approach initially responded similarly by concentrating on the transmittal of

information to novices and best practices rather than agency and improvement and recognizing their students and practice as sites for professional learning. However, his participants shifted this perspective as the cycles progressed.

Limitations

As with all studies, there are limitations to this work, most notably these findings are limited to one case study with a small sample from a single course.

The first limitation is that the study's findings can not be generalised to all professional development needs because research courses differ by mentors and type of programmes across the Faculty of Education and Humanities. Participants in this study were teachers operating at the secondary level and completing the course Education Proposal (English) on one campus. Future research should explore multiple cases across both campuses, drawing diverse participants and mentors from different programmes to provide more transferrable results with broader applications.

A second limitation is that teachers at the primary and early childhood levels or on other programmes with different mentors may experience the workshops differently. My teaching experience outside of higher education was at the secondary school level. Thus, it was easier to connect with and engage with the experience of the study participants. Future studies should determine whether similar results would be obtained if the study participants at the secondary level are mentored by educators with primary and early childhood experiences.

A third limitation is that studies of professional development indicate that positive outcomes emerge when the professional development is continuous (Darling-Hammond, 2017). In its current iteration, because the study was conducted as part of normal practice,

focusing on one aspect of a course, study participants spent eight hours in the PIE workshops. Future studies that examine the PIE workshops as a model for transformative professional development that seeks to pose questions, interrogate self and others' practice, and make classroom collaborative sites for professional learning should do so within a longer time frame such as across a semester or an academic year. Doing so would enable such studies to better determine whether transformative learning from dramatic reorienting insights (epochal) or incremental progressive series (Mezirow, 2012) provides more transferrable results and impact. Because of the short time frame during which the PIE workshops were conducted, the latter conclusion cannot be determined from this study. This conclusion would be important to provide a more comprehensive understanding of the process of professional learning that needs support as well as how Principled Innovation as transformative professional development functions as an ongoing-continuous learning conversation.

A fourth limitation of the study is that it engaged teacher-participants' first chapters in their final reports (not the entire study and subsequent chapters). While my study findings determined that the teacher-participants could identify and frame problems for their research proposals, it could not determine whether this ability translates to improved performance in the design and conduct of the research. Future studies should include these components to determine to what extent study participants transfer the knowledge and skills gained from PIE workshops to other areas of their research and whether their research findings are used to improve their classroom or educational practice. Similarly, future work could examine whether teacher participants continue to use PI to inform their classroom practice even after the conclusion of the research course.

A fifth limitation is highlighted by the inconsistency in one teacher-participant perception of developing agency during the interview and then deferring individual action to others in the journal and another teacher enjoying the workshops but disliking the journal writing. The PIE workshops required very high levels of engagement from teacher-participants within four consecutive sessions. Teacher-participants were not afforded the opportunity to interact effectively with all the character assets and practices of Principled Innovation, and, possibly, some teacher-participants could have used much more time to understand how their students and practice could engage them in ongoing professional development and to ascertain the value of engaging in these types of professional development. Brown et al. (2021) noted that longer time spans and continuous attempts help teachers to recognise the value of engaging in transformative practices. In addition, teacher-participants were not able to engage in multiple types of reflective activities such as alternatively recording reflections. Future iterations of this research could require participants to choose from multiple types of reflective activities. They could write or record their reflections as a means of sharing them.

Future studies that use the PIE workshop model should use a longer time frame such as an entire semester or an academic year to provide more space and scope for participants to experience, adjust and understand innovative methods. Such longitudinal studies should also examine the sustainability of gains from the PIE workshops, whether reflection decline or is sustained, any tension between expectations and participants' reality, and any long-term impact on the classroom and educational practice. For examples of how the intervention could be expanded to fill a longer time, see Chapter 4.

A final limitation of the study is my role as both researcher and instructor who singlehandedly coded and analysed the qualitative data. Multiple coders would reduce biases and enhance the trustworthiness of the findings.

Conclusion

The objective of this case study was to support teacher-participants as principled innovators through transformative professional development at a time when it has become imperative for the education system in Guyana to transform in alignment with rapid economic advancement in the country. The findings in this study indicated that the PIE workshops were successful in creating an empowering professional learning environment that supported transformative learning for the study participants. At the time of my research, the Faculty of Education and Humanities had launched an International Centre of Excellence in Educator Innovation, Learning and Development (ICEEIPLD) with the aim of meeting the university's aspirational focus on adaptability and innovation. Life-long professional development, evidence-based, and transformative pedagogies are all components of the approach of ICEEILD. Principled Innovation can contribute to this area. It can strengthen ongoing professional development efforts in this context and can potentially shift efforts from traditional transmission models to more transformative learning models. Transformative models have the potential to support teachers as collaborators engaged in ongoing learning conversations that promote critical inquiry leading to a better understanding of how to adjust, adapt and develop agency to improve their practice.

CHAPTER 4

REFLECTIONS

Lessons Learned

One lesson learned during the PIE workshops concerned the choice of course to implement Principled Innovation (PI). Journal writing spilled outside of the scheduled two credit hours for the course. Given this issue, the PIE workshops might be better suited for a four-credit course in future iterations. In addition, teacher-participants spent four weeks in collaborative engagement, and because of the nature of the course, they had to shift from collaborative work to individual research proposals. This course in which teachers are required to produce individual research projects might not be the ideal condition under which to implement the PIE workshops. A course that would sustain prolonged collaborative engagement toward a joint enterprise such as a group project might allow for deeper collaborative engagement and interactions with the practices of PI.

The second lesson related to the content of the workshops. Teacher-participants struggled initially with integrating the character assets to frame research projects and design their own activities. Some workshops, for example, workshop 3 titled *Collaborating to Problem Solve* could have been split into two to create additional workshops and more support for teacher-participants to engage in deeper reflections with more PI character assets and practices and subsequently move to a better level of comfort with unfamiliar areas.

The third lesson concerned the time frame and schedule of activities. Writing of the research proposals started in the fifth week of the semester after teacher-participants had

completed the workshops. Completion and submission of their final reports extended beyond the course deadline and decreased the amount of time I spent providing guidance on writing the literature review. Bearing this in mind, these PIE workshops could serve as useful pre-research support for teachers who want a head start on their research projects or are struggling to find research problems to investigate prior to the start of their research courses.

Finally, it is also important that the Faculty of Education and Humanities be willing to adopt new pedagogical strategies. During my previous cycle of action research, other teacher educators who have supervised the research class mentioned that some teachers were recycling past projects and not investing in their research projects. My data helps to shed light on this perception from the teacher-participant's perspective. From the critical pedagogy lens (Friere, 2011), a teacher-participant's observation and questions helped me to understand that as teacher educators we must examine how our learners perceive and interpret our actions and their experience, and how our actions contribute to their experience. The teacher-participant remarked that she noticed *what's going on with some other research courses is either lecturers telling the learners I want you to do this and do it this way or not offering any guidance, but telling the learners, I'm waiting on your research*. As teacher educators, we must seek better and more meaningful ways to engage learners in decision-making related to research. In addition, the teacher-participants pushed me to reflect deeply in the interview when she asked: *What has been your perception about our response to the workshops, our general response, not the specific questions that you asked?* For critical pedagogy to succeed in this context, teacher educators must be prepared to embrace the level of discomfort that emerges when

boundaries between learners and teachers become blurred and power structures are dismantled. How prepared are teacher educators in this context to break the sage philosophy and engage wholeheartedly with a problem-posing philosophy? The problem-posing cycle continues.

Implications for Practice

Principled Innovation is an emerging area of innovative practices that places character and values at the centre of decision-making and actions (Mary Lou Fulton Teachers College, 2023). At the time of this study, it had not as yet been widely used as a professional development tool. This study adds Principled Innovation to the literature on transformative professional development models for educators. Even though the PIE workshops were initially met with skepticism and apprehension by teacher-participants, their exposure to ways of reflecting on and collaborating to make better decisions toward improving their practice garnered not just their interest but also their investment and commitment to improving their professional and classroom practice. Teacher-participants were also able to generate interest from other teachers when they voluntarily used the PI deck of cards as a professional development tool within their schools. This action suggests that the PI approach could be used as a professional development model to catalyse ongoing professional learning within programmes that target professional development.

In addition, the PIE workshops could serve as a powerful vehicle for developing agentive educators who understand their roles and how to use this understanding as they prepare to make decisions to effect positive change. A common finding in this study was that teacher-participants became more aware of their roles and the impact they can have

with that renewed understanding of these roles. The PIE workshops stimulated them to think more than they normally do and commit and invest critically in exploring their roles, character assets and identities that relate to those roles. Teachers developing and using this expanded understanding of these areas to improve their practice are necessary conditions for them to become better decision-makers and problem-solvers in an evolving educational landscape.

Given that the PI approach has the potential to create an empowering learning space, it can be leveraged in course assignments to enhance professional growth, inspire a sense of exploration, and instill optimism to strengthen teachers' decision-making and problem-solving practices. Teacher-participants in this study struggled initially to identify ways to address problems they encountered in practice but reported developing confidence and feeling less overwhelmed with classroom problems as they progressed through the workshops and adjusted their views on how problems could be addressed. They shifted from a passive focus on administration and policymakers to identifying what they as individuals can scope and manage within their sphere of influence. This finding is indeed positive for PI. It holds promise to create improved problem-solving experiences and increased optimism that make educators feel better prepared to deal with challenges in their practice.

Implications for Research

The goal of using PI in this context was to increase professional learning through a transformative professional development model. If we are to make PI accessible on a larger scale and create more opportunities for its use, additional research beyond the scope of this study is required. With this in mind, implications for research follow:

First, this case study used a small sample that included only females. To validate the findings of this study and increase its generalisability, in future iterations, I would use a larger sample size and diverse participants from both campuses and a wide range of programmes in the Faculty of Education and Humanities. In addition, I would collaborate with other faculty mentors and engage more investigators not only to enhance coding reliability, but also to see how they implement the PIE workshops and measure the effects.

Second, in addition to increasing the sample size and investigators to mitigate the limitations of a qualitative case study, I would use a mixed methods approach and add a quantitative survey to increase both the methods and sources of data. Thus, data triangulation would be strengthened not only by multiple sources but also by multiple methods.

Lastly, to promote PI as a model for continuous ongoing professional development, broad-based research needs to be conducted on its diverse use. For example, its use could be embedded in regular courses as a part of course assignments and in the research methods course where teachers do group assignments and gain initial understanding of how to conduct research. These uses could provide the foundation for research into PI and its impact. Findings from such research could determine whether it would be worthwhile creating a course at the University of Guyana called Introduction to Principled Innovation to support creating empowered educators and forming innovative professional hubs at the national level to address national education challenges.

Recommendations

The use of PI in this context is an exploratory attempt at embedding a transformative model of professional development through the lens of professional learning. Teacher-participants and I as a researcher observer perceived the attempt to be successful and the PIE workshops to be impactful. Bentley (2009) indicated that innovation is the most impactful when it is embedded in or replaces existing systems and succeeds when it addresses “participants repeated and practical efforts to solve problems and challenges they encounter in the course of trying to improve what they currently do” (p. 41). The necessary conditions for impact as outlined by Bentley (2009) were met in this exploratory use of PI. However, when educators are introduced to new models of professional development, there is an ethical obligation to support them as they move forward from understanding to implementing in their dynamic real world of practice. This ethical obligation raises the question of how we support educators for prolonged and sustained engagement with the new practice. From this lens, three crucial recommendations in this study follow:

1. Replicate the use of PIE workshops in other courses not only to validate the findings in this study but also to increase the number of educators who have exposure to this practice so that the practice is sustained with individual educators as well as groups of educators who can engage collaboratively in professional learning within and across school settings.
2. Explore options for collaborations between the university and policymakers to create conditions conducive to supporting educators to implement PI in meaningful ways in their professional and classroom practice. In this way,

developing innovative practices to improve classroom practice, navigate challenges and deal with unpredictability can become more attainable goals as we move toward a more transformative education landscape in Guyana and increase the university's contribution to this mission.

3. Future research needs to investigate whether the PIE workshops hold possibilities as a tool for improving teacher collaboration and collective efficacy to make better decisions about problems that emerge in their practice. A condition for impact as outlined by teacher-participants in this study related to their individual agency with collegiality and collaborative learning being important contributors to their reflexive disposition. Both Meizrow (2012) and Friere (2011) recognised the social dimension of learning, and a focus on this area would provide a rich background for understanding the process of professional learning. Would the sustained engagement with PI increase educators' collective efficacy?

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APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL (IRB)



EXEMPTION GRANTED

Ruth Wylie
 Division of Educational Leadership and Innovation - Tempe
 480/727-5175
 Ruth.Wylie@asu.edu

Dear [Ruth Wylie](#):

On 9/13/2022 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	Supporting Teachers as Principled Innovators
Investigator:	Ruth Wylie
IRB ID:	STUDY00016499
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	<ul style="list-style-type: none"> • Consent_recruitment_methods-13-09-2022.pdf, Category: Consent Form; • Intervention Overview, Category: Other; • IRB Protocol 09-13-2022.docx, Category: IRB Protocol; • Site Permission Letter of Support, Category: Other; • supporting documents 06-09-2022.pdf, Category: Measures (Survey questions/Interview questions /Interview guides/focus group questions);

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 (1) Educational settings, (2)(I) Tests, surveys, Interviews, or observation (non-identifiable), (2)(II) Tests, surveys, Interviews, or observation (low risk) on 9/9/2022.

APPENDIX B
INTERVIEW PROTOCOLS

Pre-Intervention Focus Group Questions

1. Help me to understand your experience with addressing problems in your classroom.
2. Help me to understand the most challenging parts of addressing problems.
3. How prepared are you for addressing the problems?
4. What are your biggest challenges with addressing problems?
5. What would you like to be done to address any of the challenges?

Post-Intervention Interview Questions

1. What did you enjoy?
2. Which activities did you not like?
3. What activities would you like to see changed?
4. Which activities if any influenced your professional development?
5. In what ways if any do you perceive that the workshops influenced your thinking about problems in your practice?
6. In what ways if any do you perceive that the workshops influenced your ability to identify problems?
7. In what ways if any do you perceive that the workshops influenced your ability to generate new ideas for problem solving in your practice?
8. In what ways if any have you used the PI cards outside of the workshops?
9. In what ways if any would you continue to use the PI cards after the workshops conclude?

APPENDIX C
MODULES FOR CYCLE 1

Planning for Action Research

MODULE 1

INTRODUCTION TO ACTION RESEARCH

Nature, processes and application

Overview

In this module, we begin to develop an initial understanding of action research, its goals processes and stages. We explore the nature of action research as an approach for inquiring into your practice and reflect on how action research can be applied in your educational context.

Objectives

This module targets the following learning outcomes:

1. Explore how action research is different from other kinds of research.
2. Discuss the importance of action research in the field of education.

Pre-task

Tasks 1 and 2 are to be completed before meeting with your colleagues.

Task 1: Act

1. Read pages 1-5. Alberta
<https://kstatelibraries.pressbooks.pub/gradactionresearch/chapter/chapter1/>
2. Write three to four key words that are repeated about action research.
3. Share your key words with your colleagues and decide together which key words you would select to explain what action research is.

Task 2. Reflect and Link

1. Examine Figure 1 that shows the difference between action research and traditional research.
2. Consider, the key words you identified in Task 1, do your key words fit into any of the blocks on the organizer?
3. Examine Figure 2 on the steps and processes of planning action research. How are the processes and stages of action research different from traditional research? Consider how you would explain the difference.

Figure 1.

Traditional Research vs. Action Research

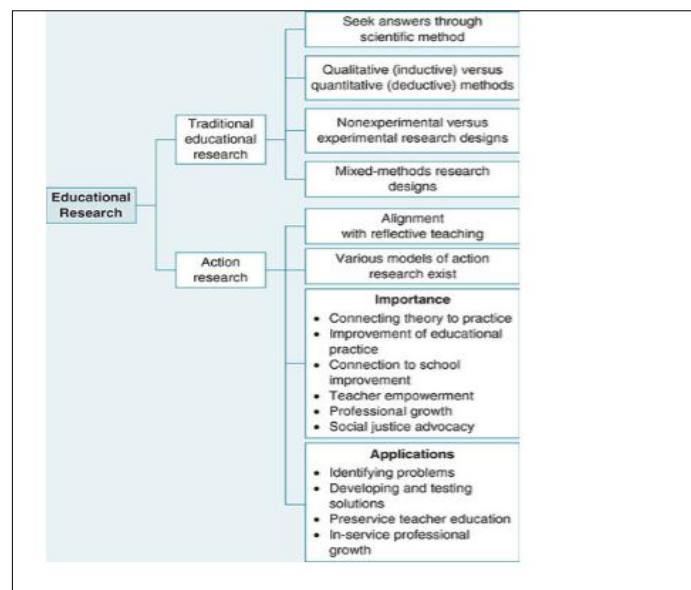


Figure 1. Chapter 1 Organizer. Adapted from “Action Research: Improving Schools Empowering Educators”, Craig Mertler, Los Angeles: Thousand Oaks, p.2.

Figure 2

The Process of Action Research

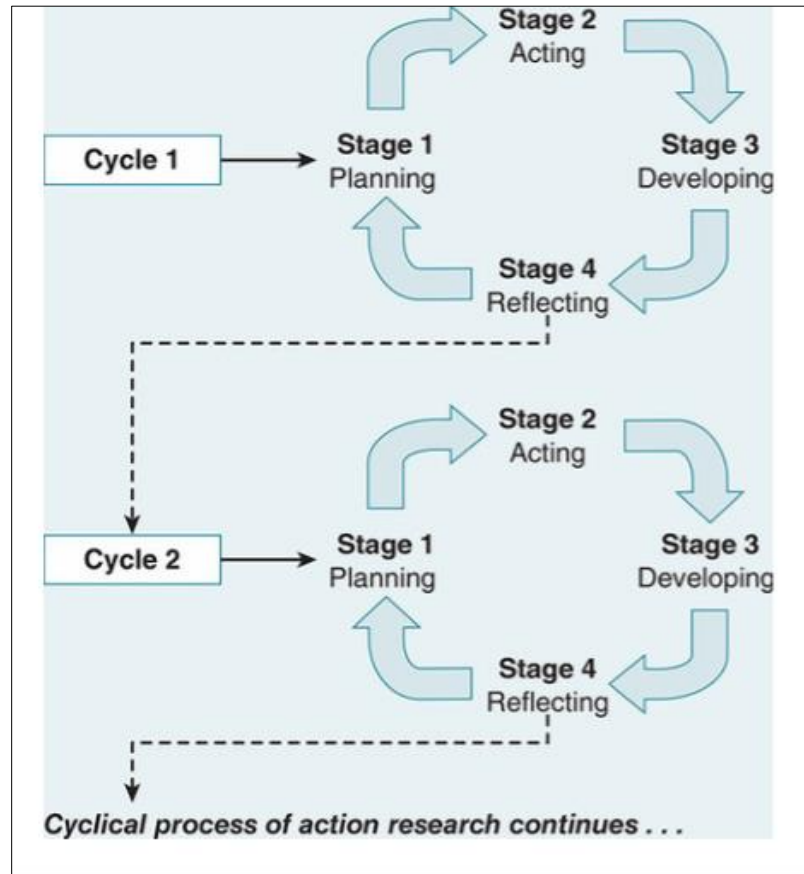


Figure 2. Figure 2.2. The Process of Action Research. Adapted from "Action Research: Improving Schools Empowering Educators", Craig Mertler, Los Angeles: Thousand Oaks, p.37.

Figure 3

The Stages of Action Research

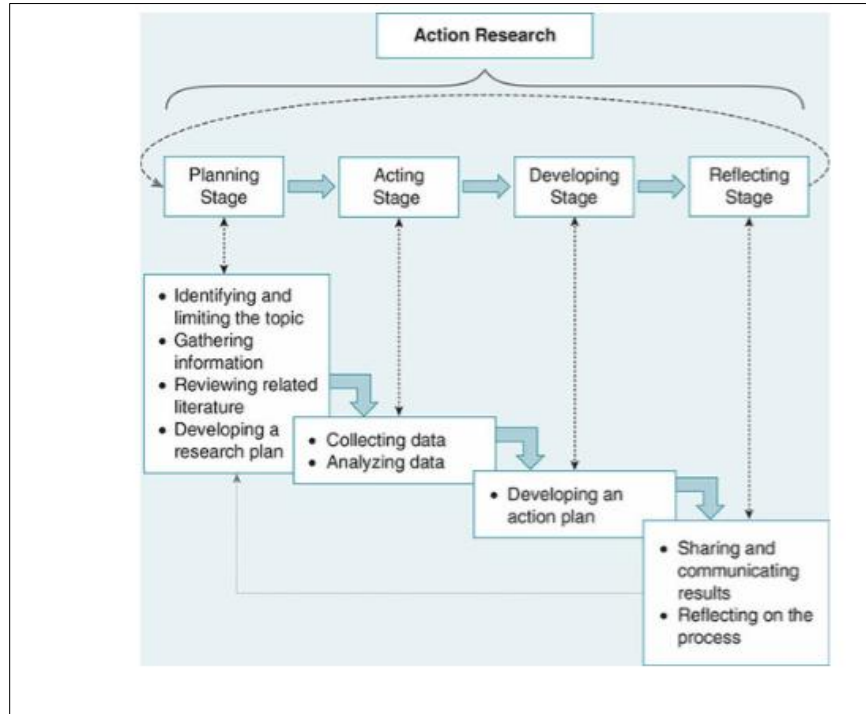


Figure 3. Figure 2.1. Integration of Two Organisational Schemes for the Step-By-Step Process of Action Research. Adapted from "Action Research: Improving Schools Empowering Educators", Craig Mertler, Los Angeles:

Main Task

This task is to be completed when you meet with your colleagues and instructor.

Task. Reflect

Consider what you learned about action research and your research programme and then discuss.

1. How can you use action research in your practice?
2. Where does aspects of your current research course (EEN 5101) connect with areas of action research during this semester?
3. Discuss what you think action research would like in this course.
4. What questions do you have about action research?
5. What fears do you have?
6. What areas of discomfort do you have?

Post Task

Task. Reflect and Act

1. Consider your educational context and identify at least three areas in which problems/issues exist or changes are required. Watch the YouTube video <https://youtu.be/pvsNeKlbbss> and reflect on action research.
2. Conduct a quick google search on participatory action research, practitioner action research and critical action research.
3. Next to each area in (1), write which type of action research you think would best address the problem/issue or need for change.
4. Share your list on WhatsApp with your colleagues and explain your

Planning for Action Research

MODULE II

IDENTIFYING PROBLEMS OF PRACTICE

Nature, process and perspectives

Overview

In this module, we begin to develop a more refined understanding of problems of practice as we clarify and shape our thinking. We also reflect on the importance of questioning personal assumptions about the problem of practice by engaging multiple

Objectives

This module targets the following learning outcomes:

1. Explore problems of practice as the focus of action research
2. Discuss the importance of multiple perspectives on problems of practice.
3. Justify your selection of a problem of practice.

Pre-task

This task is to be completed before meeting with your colleagues.

Task. Act

1. Critically review the list you compiled in the previous module and determine which would be the most important issue to address. Justify your choice.
2. Talk to at least three persons with different roles or functions in your school or community about the issue you selected.
3. Make a note of their perspectives on the issue. Are their perspectives similar or different from yours? Discuss when you meet with your colleagues.

Main Task

This task is to be completed when you meet with your colleagues and instructor.

Task 1. Reflect and Link

Figure 4

The 5 Whys

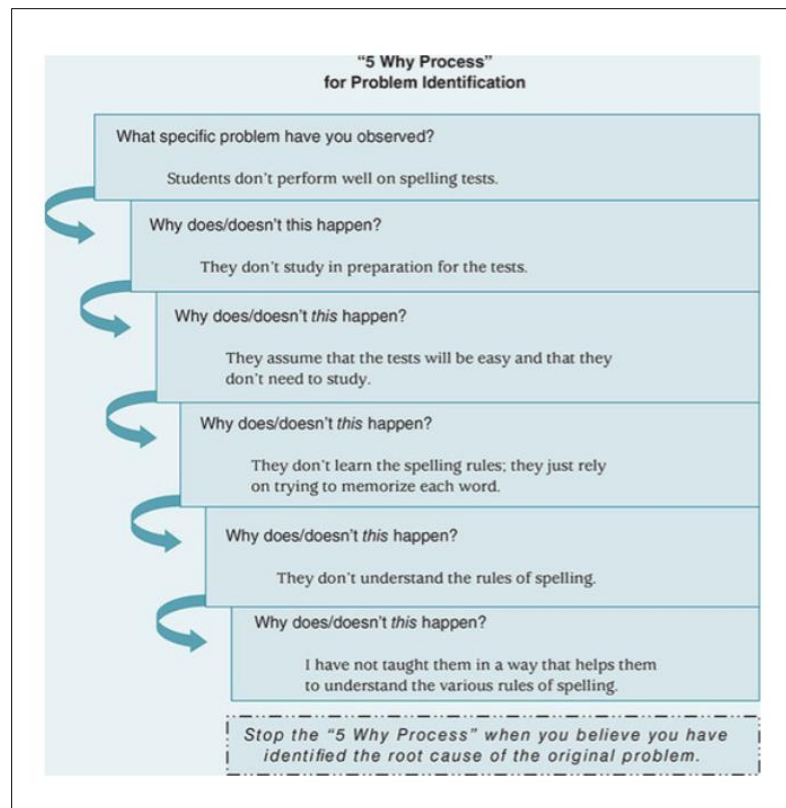


Figure 1. The 5 Why Process for Problem Identification. Adapted from

1. Examine Figure 4, the 5 Why process for problem identification.
2. Consider the problem or issue/change you want to address and the different perspectives which you collected in your notebook.

Task 2. Reflect

3. Complete a 5 why process for the problem you selected.
4. Share your 5 why process with your colleagues to get their views on it.

Post Task

Task 1. Reflect and Act

1. Consider what aspect of the problem you will investigate in your action research study.
2. Examine your course outline and identify where in the outline, the problem of practice would fit. Justify your choices.

Planning for Action Research

MODULE III

FOCUSING AND SHAPING PROBLEMS OF PRACTICE

Clarify and refine

Overview

In this module, we will refine our understanding of problems of practice. We will explore ways of clarifying and refining our focus.

Objectives

This module targets the following learning outcomes:

1. Distinguish between broad and narrow topics.
2. Identify ways of narrowing the focus.
3. Recognise important dimensions of problems of practice.

Pre-task

This task is to be completed before meeting with your colleagues.

Task. Act

1. Read Figure 5 on the next page and make note of the differences between broad and narrowed topics.

Pre-Task Cont'd

Figure 5

Broad and Narrow Topics

Broad Topic		Narrowed Version of Topic
What teachers' lives are like outside of school	→	Leisure activities of elementary teachers and the amount of time spent on them
Factors that affect learning among culturally diverse students	→	Hispanic students' perceptions of factors that make academic success more difficult
Use of computers in the classroom in helping students revise drafts of written stories	→	Effectiveness of a word-processing program in helping students revise drafts of written stories
Importance of reading practice in developing reading skills	→	Effect of reading practice with fifth-grade "buddies" on the developing reading skills of first-grade students
Virtual dissection versus real dissection of lab specimens	→	Tenth-grade biology students' perceptions of virtual and real animal dissections

Figure 5. Table 3.1. Examples of Broad and Narrow Topics for Action Research. "Action Research: Improving Schools Empowering Educators". Craig Mertler. Los Angeles: Thousand Oaks. p.59.

Main Task

Task. Reflect and Link

1. Consider your problem of practice.
2. Create a broad topic for your problem of practice.
3. Create a narrowed version of your problem of practice.
4. Share your version with your colleagues and instructor to

Post Task

Task. Reflect and Act

1. Examine your problem of practice.
2. Identify the who what, where, when and how aspects of your topic.
3. Share your ideas and discuss with your peer.

Planning for Action Research

MODULE IV

READING AND WRITING PROBLEMS OF PRACTICE

Consult literature

Overview

In this module, you will be guided to develop and refine your ideas related to your problem of practice by consulting the relevant literature.

Objectives

This module targets the following learning outcomes:

1. Identify key words related to your problem of practice.
2. Search and identify literature relevant to your problem of practice.
3. Use the literature to develop and refine ideas relevant to your problem of practice.

Pre-task

This task is to be completed before meeting with your colleagues.

Task. Act

1. Examine the narrowed version of your problem of practice.
2. Circle what you think are the key words in your narrowed version.
3. Do a google search of the key words and identify at least five articles that you can read to get more information about your problem of practice.

Main Task

Task. Reflect and Link

]

1. Consider your problem of practice and provide some background explanations for the problem of practice.
2. Discuss whether any of the articles that you saved could provide insights into the background of the problem.
3. Identify what additional literature you would need to read and integrate in the background to better provide context for the problem

Post Task

Task. Reflect and Act

Read the action research study and reflect on how the literature explains the problem of practice. Consider your problem of practice and decide on your research questions and methodology (design of your study, data, etc.)

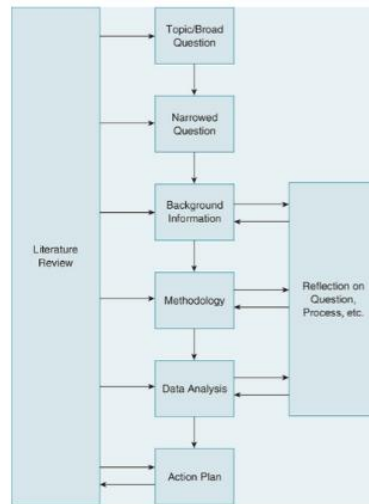


Figure 5. Figure 3.2. Integration of Literature into the Action Research Process Depicting Steps at Which It Provides

Planning for Action Research

MODULE V

DEVELOPING A RESEARCH PLAN

Action research road map

Overview

In this module, you will use insights from the literature to develop a road map and show how you intend to action your problem of practice.

Objectives

This module targets the following learning outcomes:

1. Consult the literature to create an action plan.
2. Identify the elements of a research plan.
3. Develop a research plan.

Pre-task

This task is to be completed before meeting with your colleagues.

Task. Act

Conduct a literature search of research relevant to your topic and identify the following elements on the next page:

Pre-Task Cont'd

1. What aspects of your problem of practice the literature examined and why?
2. What research questions did they ask?

Main Task

Task. Reflect and Link

Consider your problem of practice and complete the template.

1) My potential action research topic is: 	→	2) The purpose of my study is to:
3) My fundamental research question(s) is (are): 	↙	4) The most appropriate type of data for me to collect is: <input type="checkbox"/> qualitative <input type="checkbox"/> quantitative <input type="checkbox"/> both (mixed-methods) Why?
5) The specific data that I will collect are: 	→	6) Based on my previous responses, my research design can best be described as:

Post Task

Task. Reflect and Act

1. Review your template for the research plan.
2. Complete the Data Planning matrix below.
3. Share and discuss your matrix with your colleagues.

Data Planning Matrix

What do I want to know?	Why do I want to know this?	What kind of data will answer the question?	Where can I find the data?	Whom do I contact for access to the data	Timeline for accessing the data
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APPENDIX D

GENERATIVE AND REFLECTIVE QUESTION CARD DECK

ASU Arizona State University Teachers College

Use Idea 1

Group Discussion

A single question is often the simplest way to start a conversation.

1. Identify a topic of discussion or challenge you're facing.
2. Each group member picks one card from the deck.
3. Participants discuss how each question relates to the identified topic/challenge.

Extend the discussion

1. Identify how your perspective on the topic or challenge shifted after using the cards.
2. Discuss the "big picture" and how your topic/challenge fits into the larger scope of your work.

ASU Arizona State University Teachers College

Use Idea 2

Self-Reflection Journal Prompt

Personal growth occurs when we can look at a situation and find ways to reframe it.

1. Choose a card from the deck and journal about how the question applies to a professional and/or personal situation in your life.
2. Review what you wrote - has your perspective on the situation shifted? Did your response bring up any additional questions to explore?

ASU Arizona State University Teachers College

Use Idea 3

Learning Experience Reflection

Use questions from each character asset to help your learning experience stay human-centered.

1. Identify an area in a current project/assignment where you would like to bolster the focus on character.
2. Randomly choose one card from each of the four character assets and use the questions to reflect on the project/assignment.
3. If there are any character assets that are not represented in your learning experience, how might you intentionally integrate them?

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Use Idea 4

Collaborative Meeting

Think about using questions to collaboratively address a dilemma or to jumpstart a meeting.

1. Before a meeting, look at the meeting topic or agenda to get a sense for what will be discussed.
2. Choose a card that could serve as a warm-up question to jumpstart everyone's thinking or questions that could help engage new perspectives on a dilemma or challenge your team is facing.
3. If you are reviewing current work or launching new projects, choose a question from each asset that could spark ideas and perspectives to further your work.

Design Your Own!

Think about designing your own reflection activity. This could be for individual or group reflection as it relates to:

- Group work/collaboration
- Project goals/outcomes
- Curriculum planning and development
- Debrief event or challenge
- What else?

We'd love to hear more about the ways you're using these cards and any activities you design! Share your ideas and experiences with our team - pi@asu.edu

APPENDIX E
PRACTICES OF PRINCIPLED INNOVATION



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APPENDIX F

GUIDE TO DECISION MAKING THROUGH PRINCIPLED INNOVATION

A Guide to Decision-making through Principled Innovation

Facilitation Guide

What is it?

This guide outlines one possible process to integrate Principled Innovation into decision-making through the use of what are called “generative” and “reflective” questions. The questions help users to explore their own Principled Innovation scenarios from different perspectives and to anticipate intended and unintended consequences prior to taking action.

How does it support Principled Innovation?

In Principled Innovation, we work with other people—such as students, other educators, parents, colleagues, or other members of our communities and organizations—to take each other’s perspectives and seek to empathetically understand them (Practice C2). We work inclusively to understand the challenges that children or adults are facing in these contexts (Practices C1 and I1) and to design creative solutions that could solve those problems.

But the final step of decision-making (PI Practice M2)—picking the best course of action based on the best of our knowledge—is one of the hardest practices to enact, because the future is uncertain. Navigating that uncertainty takes courage, but that courage needs to be balanced with careful planning to attempt to minimize the unintended consequences from our decisions and actions (Practice P2).

The questions in this decision-making tool are designed to help innovators to bring together the fruit of this PI process into a practical wisdom that helps them reflect on the course of action they are about to make.

How do I use it?

Starting a new reflective practice can be challenging. Try to continue moving through the process without getting stuck on one specific step.

1. **Immerse.** Immerse yourself in the challenge and clearly state the facts. What is the dilemma or challenge you are facing? Describe the challenge as if you are an observer. Focus on the relevant facts, removing opinions and emotions from the equation.
2. **Reflect.** Reflect using the questions in the decision-making guide to prompt your thinking about the dilemma or challenge. These are suggested questions to get you started. Frame the questions in the context of your situation and reflect either individually or as a team. Try journaling to deepen your reflection.
3. **Act.** Make the decision that feels like the right fit and take action. It’s better to try a solution than be paralyzed by the fear of making a mistake.
4. **Examine.** Examine your choice... How did it go? What have I learned from this specific situation? What would I do differently next time? Reflection is a continual process and key to the development of practical wisdom as we learn from our experiences.

APPENDIX G
WORKSHOPS



DECISION-MAKING AND PRINCIPLED PRACTICES

Welcome to the first Principled Innovation Educators (PIE) Workshop in which we take a deep dive into decision-making. We use the questions to explore principled practices related to key aspects of decision-making, your values, roles, assumptions, actions, perspectives, resources, etc. We also explore how the questions and practices relate to challenges in your practice and connect with your larger educational context. Then you write reflections in your learning journals.

Part 1 Group Discussion

15 minutes

- Identify a challenge faced in practice. Each member picks a card from the deck.
- Discuss how each question relates to the identified challenge.

Part 2 Individual Learning Experience Reflection

15 minutes

- Select a card and explore the relationship to the challenge.
- Some thinking/talking/discussion points:
 - Which questions on the cards seem challenging and why?
 - Why do you select that card?

- What relationship (if any) do you see between the questions on the card and the challenge you identified?

Part 3 Collaborative Meeting

30 minutes

- Analyse and share perspectives.
- Some thinking/talking/discussion points:
 - What did you think of the challenge in your practice before using the cards?
 - What do you think of it now after exploring the questions on the cards?
 - Have the questions influenced your thinking in any way?
 - In what ways do you see the challenge fitting into the larger context/perspective of your work? (If it does, what connections do the questions help you to make and how do they help you to do so?)

Part 4 Individual Reflective Journal Entries

60 minutes (post-workshop)

- Follow the self-reflective journal prompts in the Learning Journal to complete your entries.



HUMANIZING LEARNING EXPERIENCES

Welcome to the second Principled Innovation Educators (PIE) Workshop in which we focus on humanizing learning experiences. In the previous workshop, we took a dive into decision-making and how we anchor them in the character assets of principled practices. This week we continue to explore principled practices related to humanizing learning experiences. We anchor learning experiences in human-centeredness and begin to explore how to frame projects to address challenges. We close with writing reflections in the learning journals, but before we begin the workshop, it would be useful to consider what we mean by human-centredness.

Part 1 Group Discussion

15 minutes

- Identify and discuss four questions from the character assets that you think are important to anchor your learning experience in human-centredness.

Part 2 Individual Learning Experience Reflection

15 minutes

- Consider a current research project where you would like to focus on the challenge.

- Explore a card with a character asset and connect it to the project.
- Some thinking/talking/discussion points:
 - Do you want to do this project?
 - Do you think you can do it?
 - Do you really want to do this project?
 - Should you do it?
 - Should the project be done?
 - What relationship (if any) do you see between the questions on the card and the challenge you identified?

Part 3 Collaborative Meeting

30 minutes

- Reflect on the project.
- Choose a card from each character asset and reflect on the project.
- Some thinking/talking/discussion points:
 - What did you think of the project before using the cards?
 - What do you think of it now after exploring the questions on the cards?
 - Have the questions influenced your thinking in any way?
 - In what ways do you see the project fitting into your teaching and learning? (if it does, what connections do the questions help you to make and how do they help you to do so?)
- Integrate a character asset into the project.
How would you integrate any character asset not represented in your learning experience to frame the project?

Part 4 Individual Reflective Journal Entries

60 minutes (post-workshop)

- Follow the self-reflective journal prompts in the Learning Journal to complete your entries.



COLLABORATING TO PROBLEM SOLVE

Welcome to the third Principled Innovation Educators (PIE) Workshop in which we work collaboratively to problem solve. In the previous workshop, we explored principled practices related to humanizing learning experiences. This week we work collaboratively to engage new perspectives on the challenge. We will consider questions to spark ideas to collaboratively address the challenge in a project. We close with writing reflections in the learning journals.

Part 1 Group Discussion

15 minutes

- Choose a card. Look at the challenge and explore how the card relates to it.

Part 2 Individual Learning Experience Reflection

15 minutes

- Engage new perspectives on the challenge using questions from different character assets.

Part 3 Collaborative Meeting

30 minutes

- Reflect on a project to address the challenge.
- Choose a question from each character asset and reflect on the project:
- Some thinking/talking/discussion points:
 - How does the question make you think about the project?
 - Have the questions influenced how you would conduct the project?
 - In what ways do you see the question influencing how you would conduct the project?

Part 4 Individual Reflective Journal Entries

60 minutes (post-workshop)

- Follow the self-reflective journal prompts in the Learning Journal to complete your entries.



GENERATING IDEAS FOR SOLUTIONS

Welcome to the fourth and final Principled Innovation Educators (PIE) Workshop in which we work to generate ideas for solutions. In the previous workshop, we explored principled practices related to collaborating to problem solve. This week we work collaboratively to frame and understand the challenge. We will consider ideas to address the challenge in a research project. We close with writing reflections in the learning journals.

Part 1 Group Discussion

15 minutes

- Using the cards, design a reflection activity to reflect on the challenge or research project.

Part 2 Individual Learning Experience Reflection

15 minutes

- Think about a research project to address the challenge.
- Use questions from the reflection activity or character assets to frame the project.

Part 3 Group

30 minutes

- Use the reflection activity to reflect on the project.
- Choose a card to jumpstart the discussion.
- Some thinking/talking/discussion points:
 - How does the reflection activity make you think about the project?
 - Has the activity influenced how you would conduct the project?
 - How useful were the cards?

Part 4 Individual Reflective Journal Entries

60 minutes (post-workshop)

- Follow the self-reflective journal prompts in the Learning Journal to complete your entries.

APPENDIX H
CODE MAP

Table 6*Attribute Codes in Cycle 1*

Codes	Description
Focus Group Interview_30092022	Pre-intervention focus group interview conducted with four teacher-participants on September 23, 2022
Journal_Christina, Sem. 1,2022 Journal_Andi, Sem 1, 2022 Journal_Nylah, Sem 1, 2022 Journal_Xanadu, Sem 1, 2022	Journal entries created by four teacher-participants after each of the four workshops
Interview 1_Christina, 02112022 Interview 2_Andi, 03112022 Interview 3_Nylah, 07112022 Interview 4_Xanadu,01122022	Individual post-intervention interviews that were conducted from November 2, 2022, to December 1, 2022, with the four teacher-participants
Participant Observer's Field Notes JE_07102022_28102022 - Journal Entries_ Workshop 1_07102022 - Journal Entries_ Workshop 2_1102022 - Journal Entries_ Workshop 3_21102022 - Journal Entries_ Workshop 4_28102022	Researcher's observations of the journal entries for four PIE workshops that were conducted with teacher-participants from October 7, 2022, to October 28, 2022
Participant Observer's Field Notes WS_07102022_28102022 - Participant Observer Field Notes, WS1_07102022 - Participant Observer Field Notes, WS2_1102022 - Participant Observer Field Notes, WS3_21102022 - Participant Observer Field Notes, WS4_28102022	Researcher's observations of the four PIE workshops conducted with teacher-participants from October 7, 2022, to October 28, 2022

Participant Observer's Field Notes IN_07112022_01122022 - Christina_ IN1_02112022 - Andi_ IN2_03112022 - Nylah_ IN3_07112022 - Xanadu _ IN4 _01122022	Researcher's observations of the four post-intervention interviews conducted with teacher-participants from November 7, 2022, to December 1, 2022
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Table 7

Topical Codes in Cycle 2

Topical Code	Description
<i>Approach</i>	Implementation strategy/action/method, general design features of the PI approach, tool (cards) (e.g., giving teacher-participants autonomy, questioning)
<i>Collaboration</i>	Collaborative activities (e.g., conversations in breakout rooms, discussions in whole group setting with other participants and or instructor)
<i>Confidence</i>	Improved beliefs in personal abilities to use knowledge, make decisions, act (e.g., engage stakeholders, generate solutions)
<i>Critical Reflection</i>	The interpretation of issues, challenges, assumptions, values, beliefs, evidence, arguments and the refining or modification of these areas in some way (e.g., identify commonalities, diverse perspectives)
<i>Disorienting Dilemma</i>	The processing of a new experience (e.g., self-interrogation of practice)
<i>Idea Generation</i>	Discussion of new insights, practices, decisions (e.g., options, alternatives)
<i>Integration</i>	Application of new information into action (e.g., intentionally using what they have learned)
<i>Perspective Shift</i>	Change in existing perspective (e.g., new awareness, realisations, understanding)
<i>Problem Identification</i>	Specification of challenges or issues that need to be addressed or solved (e.g., students' indiscipline, teachers disconnect)
<i>Self-Reflection</i>	Introspection (e.g., individual reflection on growth, learning experience or workshop activities)

Table 8*Open Coding in Cycle 3*

Code	Description
Academic	Subject, content knowledge and intellectual development
Accomplishment	Feel a sense of achievement
Agency	Feel empowered to act
Anxiety	Express dread or fears
Apathy	Express a failure to address students' needs
Apprehension	Feel uneasy, nervous, scared
Assessment	Grading or rating of performance
Assistance	Reach out to others for help or support
Assumptions	Express speculations
Attitude	Demonstrate negative or positive behaviour
Autonomy	Ability to choose
Awareness	Growing understanding
Barriers	Obstacles that need to be overcome
Benefit	Usefulness of something
Biases	Expression of prejudice
Care	Doing what is best
Challenge	Difficult problem or situation
Change	Adjust attitude, behaviour, role, practice, perspective in some way
Classroom practice	The teaching and learning process
Classroom culture	Values, behaviours, relationships within the classroom
Clueless	Inability to think of or find a means of addressing
Commonalities	Common ground across areas
Communication	Sharing thoughts and feelings with others
Compassion	Showing concern or interest
Complexity	Complicated and not easy to understand
Conversations	Speaking to persons in their practice
Concern	Worrying about something
Courage	Persevering despite the consequences
Curriculum delivery	The process of teaching subject areas
Decision making	Considering possibilities to make choices
Difficulty	Being uncertain about how to react or perform a task perceived as hard
Discomfort	Experiencing uncomfortableness
Disconnect	Not understanding how to engage and resolve
Discussions	Intentional exchange of ideas
Duties	Responsibilities as part of teaching
Efficient	Well-organised
Empathy	Understanding of students' needs
Empower	Feeling confident to address, execute, implement something

Engagement	Intentional and active participation
Enjoyment	Expressing feelings of pleasure in response to something
Enlightened	Develop new awareness of something
Expectation	Anticipation
Flexibility	Ability to change or compromise
Frustration	Dissatisfaction with being unable to achieve or accomplish something
Honesty	A sense of integrity
Humanization	Engaging with moral aspects of humanity that develop compassion
Humility	Humbleness
Impact	Recognise the outcomes of a course of action
Improvement	Refine or create new behaviour, actions
Influence	Make an impact or create a change
Insight	Acknowledge new learning and perspectives
Instructional strategy	Resources and procedure used in classroom practice
Interaction	Intentional engagement with others
Investment	Commit time for benefits
Learning	Increase in knowledge, skills
Moral	Determine right and wrong behaviour
Overwhelmed	Feel overcome by struggles or challenges
Passive	Not being very active or not doing something required
Patience	Display kindness, composure, and restraint
Performance	Improve achievement or results
Personal development	Improve growth and potential
Persistence	Continue working on something
Perspectives	Multiple, diverse viewpoints
Potential	Consider possibilities
Professional practice	Workplace behaviours, responsibilities, roles
Professionalism	Take responsibility and accountability
Questioning	Make inquiries to learn more
Realisation	Develop new awareness of something
Reflection	Review, evaluate experience
Relationship	Establish connection with others
Responsibility	Obligations, roles, duties within practice
Satisfaction	Fulfillment of expectations or desires
Scaling	Distinguish large from small, important from less important
Scoping	Reduce magnitude to make more manageable
Self-consciousness	Develop self-awareness
Sensitivity	Display consideration and care
Sincerity	Display seriousness and genuineness
Solution	Deal with a challenge or problem
Stakeholder	Individual or group with a vested interest in something

Thoughtful	Deep thinking, reasoning, trying to make sense of something
Time frame	Specific period for activities
Tolerance	Develop endurance
Truthfulness	Trustworthiness and frankness
Unsympathetic	Feel unconcerned or insensitive
Understanding	Display consciousness and make sense of experience
Unfamiliarity	Not accustomed to something
Vulnerability	Display discomfort with exposing areas where growth and development are required