



EDUCATION DOCTORAL STUDENTS' SELF-STUDY OF THEIR IDENTITY DEVELOPMENT: A THEMATIC REVIEW

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ABSTRACT

Aim/Purpose	Doctoral students' experiences in PhD programs could be a journey of identity evolution. Existing research on doctoral students' identities has typically been conducted by faculties. As the main character in the identity evolution process, it is critical to understand doctoral students' interpretation of their own identities and identity development in PhD programs. The purpose of this paper is to examine how and what education doctoral students discovered when they used self-study and relevant qualitative methodologies (e.g., auto-ethnography) to investigate their identities and identity development through their own practices in PhD programs.
Background	This research began as part of a larger project to synthesize studies on doctoral students' identities. A cluster of articles was identified in which students were examining their experiences as developing individuals from the perspective of identities and identity development. In contrast to most of the previous research on doctoral education, this collection of articles was written by doctoral students as part of their academic and professional practice.
Methodology	The larger qualitative systematic review (i.e., qualitative evidence synthesis) of doctoral students' identity development began with database searches that were not restricted by year (e.g., PsycINFO, Education Research Complete, and Education Resources Information Center). Thirteen articles written by doctoral students discussing their identities and identity development in PhD programs were further identified from selected articles ranging from 2009 to 2021. These articles and their implications were analyzed using a qualitative research synthesis approach.
Contribution	Although scholars have looked at doctoral students' identities and identity development from various viewpoints, the current investigation deepens the

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	<p>understanding of this focus from doctoral students' own perspectives. Doctoral students are trained investigators with research skills and mindsets. As novice researchers and educators, their open and honest reflections about their challenges, opportunities, and development are worthwhile to identify significant aspects of their identities and identity development in PhD programs.</p>
Findings	<p>There are two dimensions to the findings: the Approach Dimension and the Content Dimension. The Approach Dimension is concerned with how doctoral students investigated their identities and identity development, whereas the Content Dimension is concerned with what they found. Findings in the Approach Dimension show that doctoral students applied the self-study inquiry approach or used the notion of self-study inquiry to interpret their identity and identity development. The self-study inquiry encompasses five main features, including (1) Self-Initiated and Focused, (2) Improvement-Aimed, (3) Collaborative/Interactive, (4) Reflective Data Collection, and (5) Exemplar-Based Validation. Doctoral students examined the five self-study features both directly and indirectly in their studies. The investigation revealed four major themes in the Content Dimension, including (1) Identity Development as a Dynamic Process, (2) Multiple Identities, (3) Learning Contexts, and (4) Socialization.</p>
Recommendations for Practitioners	<p>The findings suggest that practitioners in PhD programs should be aware of the existence, process, and dynamics of identity evolution in doctoral programs. The best possible way for PhD program administrators, faculties, and advisors to support doctoral students' growth and identity development is to incorporate doctoral students' own insights into practice. Given the unprecedented influence of the COVID-19 pandemic on the educational environment and the diversity of doctoral students, it is crucial to discover how doctoral students use structured research methods to reflect, learn, and self-support their identity development during their PhD programs. The self-study inquiry process would be a helpful and effective approach to support doctoral students' advancement. For instance, PhD programs could create self-evaluation assignments or courses that incorporate both self-study and identity development concepts.</p>
Recommendations for Researchers	<p>When studying doctoral students' identity development, it is critical to emphasize the essence of identity, which is people's perceptions of who they are. We recommend that researchers who study doctoral students could further integrate doctoral students' insights about their own identity status (e.g., multiple identities) into research.</p>
Impact on Society	<p>Successful completion of PhD programs is a critical foundation for doctoral students to serve society as expert researchers and educators. Support for the growth and development of doctoral students could facilitate the completion of their doctoral programs and strengthen their sense of agency through the lens of identity.</p>
Future Research	<p>Future research could go beyond the field of education and expand to more disciplines to identify common and diverse factors influencing doctoral students' identity and identity development across domains. Future research on the post-COVID-19 era and its implications for online programs must also be studied in connection with doctoral students' identities and identity development.</p>
Keywords	<p>doctoral students, identity, identity development, self-study, first-person perspective</p>

INTRODUCTION

PhD education is undergoing a “paradigm shift” in today’s globalized world, requiring the next generation of doctoral students to be equipped with a wide range of competencies, such as research skills and ethics, professional abilities, and cultural and collaborative capabilities (Colbeck, 2008; Gardner & Barnes, 2007; Nerad, 2012). Identity development is important for doctoral students’ growth throughout their PhD journey, and it is linked to how they develop their competencies, gain autonomy in research and life, and prepare for future careers (Baker & Lattuca, 2010; Bitzer & Van den Bergh, 2014; Gardner, 2008). For instance, in PhD programs, doctoral students experience identity development as they progress from doctoral students to doctoral candidates and finally to graduates, grow from student researchers to scholars, or evolve from teaching assistants to independent lecturers. Existing empirical research has employed qualitative, quantitative, or mixed methods research to study doctoral students’ identity development and its association with successful completion of doctoral programs, which is normally conducted by faculties (e.g., Buss & Avery, 2017; Kim et al., 2018). However, a number of these studies have been conducted and authored by doctoral students themselves to examine their identity and identity development in PhD programs mostly using qualitative approaches.

As a group of investigators trained with research knowledge, mindsets, and skills, doctoral students examined their identity and identity development with specific research purposes, following research approaches, and interpreting their findings empirically (e.g., Cutri et al., 2011; Foot et al., 2014; Murphy et al., 2014). Reflective practice on self can play a critical role in doctoral students’ identity development. This self-reflective process could form an individual’s identity in terms of self-categorization and self-identification (Stets & Burke, 2000; Stets & Serpe, 2013, 2016). Through their first-person perspectives, rather than relying on the findings of other researchers’ investigations, doctoral students study themselves and generate insights into their identity development process, which are valuable for them in navigating their own progression in PhD programs.

We approach the current study from our respective perspectives as a doctoral student in education and as a former director of a PhD program in education. We originally began the systematic review interested in identifying doctoral education broadly. Through our systematic review, a subset of articles focused on reflective methodologies authored by doctoral students themselves emerged. While doctoral students have conducted research on their identity and identity development, it is critical to synthesize how they did and what they found in order to address potential gaps between the faculties’ emphasis and doctoral students’ direct observations and interpretations of what aspects impact doctoral students’ identity development the most in PhD programs. In this article, we used the notion of self-study to analyze education doctoral students’ studies of their identity development to achieve two objectives. First, we explored how doctoral students have used self-study and self-related methodological approaches (e.g., auto-ethnography) to understand their development as educational researchers. Second, we captured the most discussed matters that doctoral students focused on, studied, and interpreted about their identity development in PhD programs. These objectives led us to explore two research questions, including: (1) How do doctoral students study their own identity development in doctoral programs by using self-study or related approaches? (2) What aspects of their identity development do they describe? Our findings suggest that the self-study inquiry is a helpful approach for doctoral students to study their identity development. Moreover, practitioners in PhD programs and researchers in doctoral education might benefit from doctoral students’ ideas and accounts of their identity development so that they could better assist doctoral students’ growth and future advancement.

LITERATURE REVIEW

IDENTITY DEVELOPMENT OF DOCTORAL STUDENTS

Doctoral students' identity development has been discussed from various perspectives, such as researcher or scholarly identity development and professional identity development. For example, identity trajectory has been used to study doctoral students' scholarly identity development through early-career academics (McAlpine et al., 2013). Identity trajectory stresses how agentive individuals could be involved in academic works, such as publications, interpersonal relationships, and institutional engagement. Frameworks for doctoral students' identity development during their programs often focus on their professional development. These focus on students' multiple identities that are grounded in both their background (e.g., gender, ethnicity, class) but also prior professional experience (e.g., work as practitioners) (Colbeck, 2008). Another common framework is communities of practice (Lave & Wenger, 1991), about how students develop within a scholarly community (e.g., Klenowski et al., 2011). Students are working through the expectations of the program (or faculty) and their own goals and interests (Reybold, 2003). Sociocultural theories can also support developing an understanding that integrates identities, particularly for doctoral education that crosses disciplinary boundaries (e.g., Baker & Lattuca, 2010; Klenowski et al., 2011).

Furthermore, by employing the stage model of doctoral education and theoretical framework of development networks and sociocultural perspective on learning, Baker and colleagues (2011, 2013, 2014) conducted several studies discussing doctoral students' identity development in different stages in PhD programs. According to the stage model applied in the United States, doctoral students experience three main stages, including: Stage 1. "knowledge consumption" involving the admission process and first-year coursework; Stage 2. "knowledge creation" involving coursework completion and advanced to candidacy; and Stage 3. "knowledge enactment" involving dissertation defense (Baker & Pifer, 2014, p. 137). Specifically, in stage 2, doctoral students are going through a dual identity development process that needs them to grasp the student identity while also accepting and enacting their researcher identity (Baker & Pifer, 2011). In stage 3, doctoral students also go through a parallel identity development process that requires them to learn how to be a researcher and a professional community member, as well as apply their knowledge to maneuver the processes of dissertation completion and job hunting (Baker & Pifer, 2014).

Additionally, characteristics of doctoral students' identity development have been studied by a number of researchers. Chen (2014) discussed three components of doctoral candidates' researcher identity that doctoral candidates should think of themselves as, act as, and be considered as researchers. Regarding professional identity development, Bentley et al. (2019, p. 1) asserted that doctoral students' psychological mechanisms in terms of their perception of the identity compatibility between "current self and future self" may determine their career development. For doctoral students, integrating new identities with existing identities is difficult since multiple identities may arise at the same time (e.g., Foot et al., 2014) and the identity development process may be aware of doctoral students consciously or unconsciously (Bitzer & Van den Bergh, 2014). Overall, identity development is the reality for doctoral students' development in PhD programs, which is complex and multi-faceted (Baker & Lattuca, 2010; Colbeck, 2008). Even though researchers explored it from different perspectives, existing work about doctoral students' identity development is typically done by faculties rather than the subject of the identity process, doctoral students themselves.

REFLECTIVE PRACTICE, SELF-STUDY, AND DOCTORAL STUDENTS' IDENTITY DEVELOPMENT

"Self" is the key concept of identity theory (Stets & Serpe, 2013, 2016). In Stets and Burke's (2000) foundational work discussing the concept of identity, they highlighted that "the self is reflexive in that it can take itself as an object and can categorize, classify, or name itself in particular ways in

relation to other social categories or classifications.” (p. 224). Reflective practice in PhD programs involves the idea of self and contributes to identity development. Y. H. Choi et al. (2021) recommend that doctoral students “engage in purposeful reflection about one’s own identity development as scholar” (p. 110). Reflective practice is part of professional learning and development (particularly for researchers), so it is a natural connection to the process of learning to be a researcher for doctoral students. Practical understanding and tacit knowledge could be expanded and improved through critical reflection (LaBoskey, 2004). Even though critical reflection is involved in both reflective practice and self-study, and reflective practice and self-study are intertwined to some extent (Pinnegar & Hamilton, 2009), reflective practice is “not the same as self-study, it is foundational necessary but not sufficient” (LaBoskey, 2004, p. 829).

Self-study refers to “the study of one’s self, one’s actions, one’s ideas ... It is autobiographical, historical, cultural, and political ... it draws on one’s life, but it is more than that. Self-study also involves a thoughtful look at texts read, experiences had, people known and ideas considered.” (Hamilton & Pinnegar, 1998, p. 265). When it comes to the concept of self in self-study, self-study is self-initiated and focused (LaBoskey, 2004) and self-study researchers are interested in better learning themselves and their relationship with their practice and other people in their practice (Pinnegar & Hamilton, 2009). Pinnegar and Hamilton (2009) borrowed the positioning theory (van Langenhove & Harré, 1998) to explain that “the ways in which identities (conceptions of the self) emerge as we position others and are positioned by them” and that self-study researchers could apply this idea to explore “the space between self and the other in practice rather than simply a focus on self” (p. 12). Doctoral students’ identity development process involves how they perceive themselves and position themselves in and within the relationship with their environment. We argue that self-study will be beneficial for doctoral students, especially for education doctoral students.

METHODOLOGY

We employed a qualitative systematic review to examine the research conducted by education doctoral students on their identity and identity development in PhD programs (Bearman & Dawson, 2013; Major & Savin-Baden, 2010). Two research questions guided the selection and synthesis of our articles: (1) How do doctoral students study their own identity development in doctoral programs by using self-study or related approaches? (2) What aspects of their identity development do they describe?

SEARCH AND IDENTIFY ARTICLES

Database searches began with a comprehensive and qualitative systematic review (i.e., qualitative evidence synthesis) of doctoral students’ identities (Grant & Booth, 2009). Peer-reviewed articles were identified through the databases of PsycINFO, Education Research Complete (ERC), and Education Resources Information Center (ERIC) without year limitation. Since our target articles were in education, we chose the three databases because they cover a broad range of education-related journals and articles. All three databases were searched using keyword combinations, such as “research identity AND PhD or doctorate or doctoral”, “identity development AND PhD or doctorate or doctoral”, and “professional identity AND PhD or doctorate or doctoral”. Initial search results from the three databases were 263 articles in PsycINFO, 347 articles in ERC, and 265 articles in ERIC. To further examine how researchers study doctoral students’ identities, we categorized these articles by research inquiry as qualitative, quantitative, mixed-methods, and theoretical. While reviewing 45 qualitative studies, a cluster of articles written by doctoral students about their identity and identity development was further identified from selected qualitative articles. Once we recognized studies written by doctoral students as a specific interest, we also searched through certain journals that focus on self-study, such as *Studying Teacher Education*, to see whether there were additional self-study articles produced by doctoral students in education. Our article searches focused primarily on doctoral students discussing their identities and identity development in general. There were several articles that

discussed the diversity of doctoral students and their identities that were not in the scope of the current study.

We ultimately identified 13 articles in which doctoral students investigated their own identity and identity development ranging from 2009 to 2021. The authors were doctoral students in the field of education from different countries, including the United States, the United Kingdom, Canada, and Australia. The authors' research focuses were education, curriculum and instruction, educational administration, teacher education, higher education, and health education. These doctoral programs were further classified as Doctor of Philosophy (PhD), Doctor of Professional Studies or Professional Practice (DProf), and Professional Doctorate (EdD) (Table 1). We chose doctoral student-authored journal papers because we valued the empirical evidence gathered through doctoral students' self-observation and interpretation of their experiences.

Table 1. Key information from reviewed articles

Article	Research focus	Country	Degree	Author framing of inquiry	Theoretical and conceptual underpinning	Research purpose
Atkinson-Baldwyn (2009)	Education	UK	EdD	Narrative inquiry	N/A	To explore the role and influence of the author's changing identity by illustrating the context and issues she encountered during the PhD program.
Channa (2017)	Education	North America	PhD	Letter writing as an arts-based inquiry and reflective practice	Reflective practice (Boud et al., 1985; Louden, 1991; Schön, 1983)	To demonstrate the author's researcher identity transformation as a result of the course readings through letter writing that involved reflection-in-action and reflection-on-action.
Cutri et al. (2011)	Teacher Education	USA	PhD	Self-study	Funds of knowledge (Moll et al., 1992)	To investigate the relationship between the funds of knowledge possessed by the authors and their professional identity development.
Fenge (2010)	Higher Education	UK	DProf	Retrospective reflexive narrative	Sensemaking (Weick, 1995), Habitus (Bourdieu, 1973), Narrative (Polkinghorne, 1995), Reflexivity (Cunliffe, 2003), and Chair of Learner Identity (Lake, as cited in Waskett, 1995)	To examine how the learning culture influenced the author's experiences of the sense-making process and learner identity in the Doctorate program.
Foot et al. (2014)	Curriculum and Instruction	USA	PhD	Collaborative self-study	Identity development (e.g., McAlpine & Amundsen, 2009)	To explore how the authors' daily experiences and practices influenced their identities as doctoral student practitioners (e.g., emerging scholars).

Article	Research focus	Country	Degree	Author framing of inquiry	Theoretical and conceptual underpinning	Research purpose
Goodall et al. (2017)	Education	UK	EdD	Collaborative auto-ethnography	Identity shift (e.g., Clegg, 2008)	To identify major phases of identity shift experienced by the authors as learners, professionals, and in their personal lives.
Leach (2021)	Higher Education	USA	PhD	Autoethnographic Poetry Collection	N/A	To explore the author's scholarly identity formation through discovering her fractured identity.
McEachern & Horton (2016)	Teacher Education	USA	PhD	Narrative inquiry	Identity (e.g., Brownell & Tanner, 2012); Model the dual-identity concept (i.e., researcher and teacher)	To study how PhD programs influenced the authors' beliefs regarding the power of a researcher identity (i.e., research mindset).
McGinity (2012)	Education	UK	PhD	Ethnography	The fluidity of identity (Thomson & Gunter, 2011)	To integrate practical and philosophical concerns that have occurred during the course of the author's doctoral studies, recognizing the inherent complexity and duality of identity construction.
Murakami-Ramalho et al. (2008)	Educational Administration	USA	PhD	Personal narratives and collaborative portraits	Critical race theory (Solorzano et al., 2000)	To shed light on the complexity of establishing a research identity while finishing a PhD program by portraying the authors' experiences in their pursuit of research epistemologies and identities.
Murphy et al. (2014)	Teacher Education	Canada	PhD	Collaborative self-study	Gee's (2000) theory of identity	To explore the development of the authors' identities as teacher educator researchers while participating in a writing support group for dissertation writing for PhD students.
Richards (2015)	Applied Health – Education	UK	PhD	Autoethnography	Reflexivity (Finlay & Gough, 2003); The fluidity of identity (e.g., Razon & Ross, 2012)	To investigate how the author's development of a series of autoethnographies enabled him to reflect on his identity.
Soong et al. (2015)	Teacher Education	Australia	PhD	Reflexive autobiographical narratives	Identity formation and reformation (e.g., McAlpine & Akerlind, 2010; McAlpine, 2012)	To highlight the dynamic and complex aspects of identity formation as intercultural doctorate students.

ANALYSIS PROCEDURE

After identifying a data collection (i.e., selected articles), we used a codebook that includes various categories (e.g., Research Questions, Theoretical Frameworks, Main Findings, and Key Takeaways) to manually record extracted key information and noteworthy excerpts from the articles and our comments on the retrieved information. To begin, we gathered basic article information regarding the authors' definitions of identity, theoretical frameworks, research questions, research objectives, statements of problems, methodology, and main findings. Then, we filled out the category of "Key Takeaways" and "Notes" which featured articles with information on doctoral students' identities that we believed to be distinguishable and significant. Following that, we had a category called "Summary, Comments, and Reaction" in which we leveraged our insider knowledge to provide our initial comments and analysis on these articles. In particular, the first author is a doctoral student in educational psychology who has been experiencing identity development processes in the PhD program. The second author directed a doctoral program in education for three years and mentored doctoral students for 15 years. She has also conducted self-study research about her own teaching (blinded for review). While we have different experiences of the same program from the perspective of the student and the professor, the program includes doctoral students from different backgrounds, multiple specializations in education, and multiple career pathways in education research (e.g., in academia, government, non-profits, and schools). While analyzing the articles, we recognized that aspects of our own experiences aided us in interpreting other doctoral students' identity development experiences. Next, we highlighted a variety of keywords or key phrases that described characteristics of these articles, such as multiple identities, socialization, and reflectivity, as preliminary steps toward identifying emergent themes (Grant & Booth, 2009).

The qualitative research synthesis approach was further used to assess the selected articles and their implications (Major & Savin-Baden, 2010; Sandelowski & Barroso, 2007). We chose LaBoskey's (2004) self-study inquiry as the analysis framework for the first objective to explore how doctoral students employed self-study and related methodological approaches to evaluate their identity development. Self-study inquiry was used in certain articles directly (Cutrie et al., 2011; Foot et al., 2014, Murphy et al., 2014). While not all the remaining articles were technically self-study pieces, they did contain common features of self-study inquiry. We considered them to be informative in terms of how doctoral students reflect and analyze identity and identity development using the concept of self-study. LaBoskey's (2004) five self-study characteristics: (1) Self-Initiated and Focused; (2) Improvement Aimed; (3) Collaborative/Interactive; (4) Reflective Data Collection; and (5) Exemplar-based Validation, were employed to examine the selected articles. We identified how these aspects were reflected in the studies. To achieve the second objective of capturing what doctoral students discussed the most regarding their identity development, we first wrote our reactions to the examined articles in terms of pre-existing notions on identity development. Following that, we uncovered emergent themes by analyzing articles through the employed conceptual frameworks, the research goals, the findings and implications, and the study's character (e.g., some studies were collaborative, some studies had a single investigator).

FINDINGS

Among the selected articles, doctoral students interpreted their identity and identity development from two different angles. Some doctoral students suggested a research approach (e.g., self-study) for studying their identity and identity development, whereas some doctoral students analyzed and summarized certain traits or characteristics of their identity and identity development in PhD programs. We recognize that both angles are essential for understanding doctoral students' "self" or "selves" from two distinct viewpoints and that they may complement each other to some extent. As a result, the findings are presented in two dimensions: the Approach Dimension and the Content Dimension.

Table 2. Findings summary

Findings dimensions	Summary
<p>Approach Dimension</p>	<p>LaBoskey's (2004) five characteristics of self-study inquiry were employed to analyze Approach Dimension. The five self-study characteristics are (1) Self-Initiated and Focused, (2) Improvement-Aimed, (3) Collaborative/Interactive, (4) Reflective Data Collection, and (5) Exemplar-Based Validation.</p> <p>Our findings show that the five characteristics were expressed explicitly or implicitly in doctoral students' articles, regardless of whether they utilized the self-study approach directly or other qualitative approaches.</p>
<p>Content Dimension</p>	<p>We identified four themes through doctoral students' interpretation of their identities and identity development in PhD programs:</p> <ul style="list-style-type: none"> ▪ Identity Development as a Dynamic Process: Doctoral students were undertaking a process of transformation that involved either changing their current identities or merging new identities into their existing ones through reflective practices. ▪ Multiple Identities: Given a range of commitments and responsibilities that required doctoral students to engage in a variety of activities (e.g., coursework, research, and teaching), multiple identities (e.g., students, researchers, and teachers) were a reality for doctoral students in PhD programs. ▪ Learning Contexts: Two distinct types of learning contexts were identified, including the coursework structure and the research agenda. While completing coursework or conducting research, doctoral students reflected on their identities and how they contributed to their identity development in PhD programs. ▪ Socialization: Doctoral students construct their identities through socialization. The form of socialization included creating a sense of self through social activities, connecting and communicating with others, and receiving support from others.

APPROACH DIMENSION

Doctoral students examined their identities and identity development through a variety of reflective qualitative methods, such as self-study, art-based letter writing, research diary, autoethnography (i.e., collaborative autoethnography or school-based ethnography), autobiography, retrospective reflective narrative, stories, and poems. These methods were employed as mechanisms for documenting reflection. Through these reflective practices, doctoral students extracted reflective data from their diverse experiences and backgrounds (e.g., research or life) in their situated contexts for further analysis and interpretation. To capture how doctoral students studied “self” or “selves” in terms of identity and identity development, we used LaBoskey’s (2004) five characteristics of self-study inquiry to analyze and interpret the findings of the Approach Dimension. The five self-study characteristics are (1) Self-Initiated and Focused, (2) Improvement-Aimed, (3) Collaborative/Interactive, (4) Reflective Data Collection, and (5) Exemplar-Based Validation. Among the thirteen articles that we chose, three of them employed self-study directly. Although the other ten articles did not present their works as self-study, our analysis revealed that the five self-study characteristics were all reflected in doctoral students’ studies of “self” or “selves.” Because of the small number of studies, we did not make claims

about methodological quality. Instead, we attempted to specify common concerns raised by the doctoral students in their publications and reflections on their experiences.

Self-study cases

Three studies directly employed self-study as an approach to studying identities and identity development in PhD programs. Specifically, Foot et al. (2014) investigated how daily experiences and practices shaped their emerging scholar and practitioner identities during their PhD program. Cutri et al. (2011) examined how self-identified as poverty PhDs studied their own professional identity development process. Murphy et al. (2014) described how a dissertation writing group supported them in developing their identities as teacher educator researchers by initiating a collaborative self-study as a way to make sense of their experiences. Murphy et al. (2014) viewed writing groups as a sort of practice that can facilitate the identity transition of doctoral students in PhD programs. Although the three studies had varied contexts and research objectives, the authors all recognized that self-study was an effective method for advancing their understandings of identity development in PhD programs and aiding them in authentically navigating the process.

The five characteristics of LaBoskey's (2004) self-study inquiry were directly applied by Foot et al. (2014) and Cutri et al. (2011) as theoretical foundations for interpreting their findings. For instance, regarding the Improvement-Aimed characteristic, although LaBoskey discussed it in the teacher education context, Foot et al. (2014) believed that "conducting successful research in doctoral work is a catalyst for encouraging positive identity experiences and improving our work as emerging scholars" (p. 106). Cutri et al. (2011) also asserted that their self-study matched the Improvement-Aimed characteristic by demonstrating that they were able "to become better educator professionals" and "better able to identify and offer a contribution our own funds of knowledge" (p. 302). Regarding the characteristics of Reflective Data Collection, Foot et al. (2014) gathered various data types, such as personal journals, activity logs, Critical Incident Reports (CIR) that recorded important events, and ongoing dialogue. Additionally, Cutri et al.'s (2011) interactive processes of data collection and analysis (i.e., personal stories in the form of written narratives) facilitated another characteristic of LaBoskey's framework, the Exemplar-Based Validation. Cutri et al. (2011) used the Exemplar-Based Validation process to generate findings of a concept they dubbed "poverty funds of knowledge". By connecting their experiences to established research frameworks (e.g., funds of knowledge), these authors were able to delve deeper into their identities.

While Murphy et al. (2014) did not explicitly apply LaBoskey's (2004) inquiry, the key ideas they emphasized corresponded to the five self-study characteristics to some extent. For example, the characteristic of Self-Initiated and Focused and the characteristic of Improvement-Aimed was expressed through the authors' motivation to become successful teacher educators and complete their dissertation writing; the idea of studying and researching personal experiences reflected the Reflective Data Collection characteristic; and the idea of recognizing the value of collaborative self-study in their dissertation writing group conveyed the Collaborative/Interactive characteristic. In sum, these applications of LaBoskey's self-study inquiry demonstrate that self-study can be employed in a variety of contexts when doctoral students study their identity and identity development.

Moreover, the three articles underscored the benefits of self-study when it comes to studying one's "self" or "selves". By distinguishing it from other qualitative inquiries (e.g., phenomenology), Foot et al. (2014) identified three unique features of self-study that should be incorporated into doctoral students' self-study. In particular, they highlighted the uniqueness of "the ontology of the personal undertaking the study", which meant that "doctoral students need to investigate their ways of being in the world and how this influences their daily practice," as well as the uniqueness of "dialogue," which they saw "as a way to begin to see the world and the way we act within it" (p. 113). They added that self-study is unique in that it is "a voluntary endeavor in which people have a particular interest in learning about themselves" (Foot et al., 2014, p. 113). Additionally, self-study emphasized the practitioner self, and this perspective may help doctoral students overcome hardships associated with their

identity change by examining their professional and research practices. For instance, Foot et al. (2014) advocated self-study as “a systematic and independent research experience”. Cutri et al. (2011) also believed that self-study enriched their professional practices by allowing them to acknowledge their personal histories and self-identities. They indicated that “Recognizing her poverty funds of knowledge empowered Ramona to purposefully incorporate stories of her own poverty background into the curriculum of her teacher education courses.” (p. 312). Ramona was a pseudonym of one of the authors in Cutri et al. (2011).

Taken together, the three articles demonstrated the value and applicability of self-study for doctoral students conducting research on their identity and identity development in PhD programs. Foot et al. (2014) concluded that “utilizing self-study to encourage students to examine their daily experiences and underlying values, beliefs, and assumptions will assist doctoral students in transitioning to confident scholars.” (p. 115). Our interpretations of the three self-study articles aided in our subsequent step of examining self-study characteristics in the other studies we chose.

Other cases with self-study characteristics

While the authors of the remaining studies did not label their works as self-study, they did exhibit the five self-study characteristics (LaBoskey, 2004) both implicitly and explicitly in their research on their identity and identity development in their PhD programs. Concerning the characteristic of Self-Initiated and Focused and the characteristic of Improvement-Aimed, we consider that the completion of these articles implicitly revealed these two self-study characteristics. LaBoskey (2004) noted one question about “who? - both who is doing the research and who is being studied” (p. 842) when explaining the characteristic of Self-Initiated and Focused. Regarding the characteristic of Improvement-Aimed, LaBoskey (2004) pointed out that “self-study methodology is designed to understand and improve our professional practice settings.” (p. 845). The “self” or “selves” pertaining to doctoral students included both “the self as the researcher and the self as the researched” (LaBoskey, 2004, p. 844). These articles would never have been completed and published without the motivation embedded in the characteristics of Self-Initiated and Focused, and Improvement-Aimed. These articles showed how doctoral students studied their learning, research, and life experiences in PhD programs in ways that were intertwined with and contributed to their identity development from their first-person perspectives. Doctoral students were researchers who studied “self” and “selves” through the application of their acquired research knowledge and skills, participants who were studied by themselves, and authors who completed the writing of these articles.

Regarding the three characteristics in terms of the Collaborative/Interactive characteristic, the Reflective Data Collection, and the Exemplar-Based Validation, doctoral students explicitly discussed them in their work. First, several doctoral students collaborated on the article writing processes (e.g., Goodall et al., 2017; McEachern & Horton, 2016; Murakami-Ramalho et al., 2008; Murphy et al., 2014; Soong et al., 2015). They arrived at their findings and conclusions through sharing personal identity-related stories and insights, as well as the incorporation of “alternative perspectives and interpretations” (LaBoskey, 2004, p. 847). Second, doctoral students collected reflective data using a mixture of multiple research methods, primarily qualitative, such as narratives and dialogue (e.g., storytelling), which reflected a feature of self-study “in which researchers and practitioners use whatever methods will provide the needed evidence and context for understanding their practice” (Hamilton & Pinnegar, 1998, p. 269). For instance, Channa (2017) used letter writing as a reflective practice to document and evaluate experiences and researcher identity construction, which aided in his “self-evolution, identity change, self-introspective, and self-awareness” (p. 367). Moreover, ethnographic methods, such as school-based ethnography (McGinity, 2012), and autoethnography (Richards, 2015), were also used by doctoral students to investigate their identity development throughout their research projects. According to Richards (2015), autoethnography as a reflective practice integrates personal experiences and cultural experiences in order to make sense of identity. In addition, Murakami-Ramalho et al. (2008) used personal narratives as the unit of analysis and the collaborative portraiture methodology “as means to shed light on the complexities of developing a research identity while

journeying through a doctoral program” (p. 807). Leach (2021) composed poems to express her feelings, understanding, perceptions, and expectations regarding her scholarly identity throughout her doctoral studies.

Third, as they conducted their studies, doctoral students frequently connected their personal experience to established research theories and frameworks, which was consistent with the self-study characteristic of Exemplar-Based Validation. Exemplar-Based Validation is intended to ensure validity in terms of sufficient trustworthiness, such that research findings can be warranted and relied upon by other investigators (LaBoskey, 2004). For example, Murphy et al. (2014) used Gee’s (2000) theory of identity to describe the fluidity of their identity. Channa (2017) used letter writing to facilitate introspection and dialogue with his inner self about the formation of his evolving researcher identity, utilizing the theoretical framework of reflective behaviors (i.e., reflection-in-action & reflection-on-action) (Schön, 1983). Channa (2017) was able to articulate his identity crisis in terms of a shift in ideology and epistemology, a better understanding of the nature of research, and a projection of his future identity as a researcher. Murakami-Ramalho et al. (2008) is another example. They referred to social frameworks (e.g., Lave & Wenger, 1991) and defined research identity as “a role position that doctoral students develop and occupy as scholars in the academy” (p. 808).

Along with theories, doctoral students employed models in their studies to illustrate the nature of identity development. For instance, Fenge (2010) used and expanded upon the Chair of Learner Identity (Waskett, 1995). The Original Chair of Learner Identity incorporated more psychological experiences from childhood, whereas Fenge (2010) integrated more “social elements of individual identity development”, which included four major components: “Structural influences”, “Previous learning experiences”, “Family background”, and “Personal motivation” (p. 652). Fenge (2010) used the chair of learner identity model to depict a holistic picture of the factors that would influence doctoral students’ identity formation, highlighting that identity was not isolated but contained multiple identities.

CONTENT DIMENSION

Four themes emerged from our analysis of doctoral students’ perceptions of their identities and identity development in the Content Dimension, including (1) Identity Development as a Dynamic Process, (2) Multiple Identities, (3) Learning Contexts, and (4) Socialization.

Identity development as a dynamic process

Identity development as a dynamic process is a broad theme that encompasses doctoral students’ personal growth perspectives on their identity development. Numerous terms were used to describe this process in the studies we reviewed, including identity development, identity transition, identity formation, identity construction, identity change, identity reconstruction, and identity shift. Even though the terms used to describe the process varied, they all conveyed the same central idea: doctoral students were undergoing a transforming process that involved either shifting their current identities to another or incorporating new identities into their current identities through reflective practices. For instance, in his educational research study, Channa (2017, p. 358) described his process of developing his researcher identity as “shuffling, shifting, and shaping” through his reflective practice (i.e., letter writing). Foot et al. (2014) also stated, “The doctoral journey is as much about identity transitions as it is about becoming an expert in research and teaching within a discipline” (p. 103).

We identify two instances in which doctoral students initiated their self-exploration of personal identity development. The first instance was when doctoral students sought to document and reflect on their personal growth through various experiences that shaped their identities, such as lived experiences, research experiences, or participation in academic activities (e.g., writing group). For example, Murakami-Ramalho et al. (2008) mentioned that “Our personal narratives have demonstrated that experiences in our early years began the evolutionary process of the formation of our identities and how these identities were to influence the development of our research identities” (p. 819).

The second instance was when doctoral students encountered and attempted to resolve psychological conflicts as they progressed through their doctoral journey. In this context, we use the term “psychological conflicts” to refer to a broad category that includes inner conflicts over underlying beliefs, values, and emotions. For example, Atkinson-Baldwyn (2009) possessed twenty years of business experience. In comparison to her peers in the Education PhD program, Atkinson-Baldwyn perceived herself to have a more positivist view of the world. As a result, she had a conflicted worldview between her previous background in business and her new identity as a doctoral student of education. Toward a transitional period in her doctoral program, Atkinson-Baldwyn also struggled with conflicting feelings between her old self in the comfort zone (i.e., in the course work phase) and new environments (i.e., in the thesis writing phase). Thus, Atkinson-Baldwyn (2009) chronicled a range of her emotional responses, including fear, anxiety, self-doubt, struggling, avoidance, isolation, and painful consciousness. To continue her studies in the PhD program, such struggles prompted her to further examine, think about, and reflect on her identity. As another example, Leach (2021) used poetry to express her feelings about doctoral life, her expectations, and her understandings of scholarly identity. She wrote a poem titled “There’s a Tension in Unlearning” in which she expressed her anxiety: “I don’t know who my committee is going to be, and the anxiety dreams are already starting. I don’t know what my dissertation is going to be about, and the anxiety dreams are already starting” (p. 3). Another poem, “My Fractured ‘I,’” explored Leach’s confusion about scholarly identity: “My scholarly identity is being born in a series of in-between spaces. I am both in the academy and of it. I am in my graduate program’s community and outside of it. I am committed to being successful and I satisfice in order to keep up. The ‘I’ in this narrative is fractured, not fully in one space and not fully whole” (Leach, 2021, p. 3).

Regarding the dynamic nature of identity development, we analyzed it through the lens of how doctoral students viewed themselves as evolving individuals (e.g., McEachern & Horton, 2016). Doctoral students were constantly adapting to changing environments and were compelled to resolve conflicts or struggles between their pre-existing perceptions and current circumstances. For instance, McGinity (2012) and Richards (2015) both stressed the complexities of identity development and indicated that identities were not fixed but fluid (i.e., the fluidity of identity). Concerning his researcher identity development, McGinity (2012) stated that “power and identity within the research process are slippery, messy, often contradictory and important notions with which to engage” (p. 772) and “... the dialogic and fluid nature of how the researcher’s identity is constructed, co-constructed and deconstructed throughout the research process, and highlights the on-going importance of reflexivity in supporting integrity throughout. How the researcher chooses to act, react and engage with the various perceptions of their identity may have important consequences for the development of the research process” (p. 770). Richards (2015) also described the fluid nature of identity as “What emerges from this is a realization that ‘identity’ is not fixed on being a ‘researcher’, ‘student’, ‘son’ or ‘father’, but instead your identity is ‘fluid’, which captures the conflicting, flexible nature of researchers and participants. Instead, research is a dynamic process, with multiple strands to our identities, not being bound and static, but ever moving and changing” (p. 825). Overall, doctoral students experienced a dynamic and complex identity development process with multiple layers in PhD programs.

Multiple identities

Through the dynamic identity development process, doctoral students progressively nurture themselves along the developmental trajectory of a particular identity, such as from a new doctoral student to a senior doctoral student or from a novice researcher to a skilled researcher. However, there was no isolated or single identity, and multiple identities are a fact of life for doctoral students in PhD programs. In general, doctoral students had a variety of obligations and responsibilities that required them to engage in diverse activities, including coursework, research, and teaching (e.g., Foot et al., 2014). Consequently, doctoral students were labeled based on the different roles they have, such as researchers, teachers, parents, practitioners, or students (e.g., McGinity, 2012), which further shaped their identities. In particular, doctoral students could have dual roles as researchers and participants in

research practice, asking them to reflect on and delineate clear boundaries for those roles (Murakami-Ramvalho et al., 2008).

Given that doctoral students had multiple identities, the question was how these identities were navigated. Ambiguous relationships among different identities can be complementary and contradictory (Fenge, 2010; Soong et al., 2015). Doctoral students pointed out that multiple identities caused them confusion and uncertainty, challenging them to establish confidence in their new identities (Foot et al., 2014; Soong et al., 2015). As international doctoral students studying in Australia, Soong et al. (2015) emphasized the process of mediating their multiple identities in terms of academic, personal, and cultural identities as a means of self-empowerment and self-reconstruction. Soong et al. (2015) recognized that “the process of mediating and harmonizing these differences and contradictions is part of the journey of ‘becoming’ an intercultural doctoral student. The awareness of these multiple identities, the conditions that they come into existence, and how they shape our ways of being and becoming are essential for our continual process of professional learning and reflection” (p. 444). Additionally, Fenge (2010) argued that “The boundaries between the fields of education and practice on my learning journey were permeable and I have developed a deeper insight into how my identity as student/researcher/practitioner were both complimentary and contradictory” (p. 654). Therefore, overcoming obstacles and difficulties associated with their multiple identities enabled doctoral students' continued development, growth, and evolution in PhD programs.

Learning contexts

In the current study, learning contexts are characterized as the conditions that enable doctoral students to develop their identities as they complete coursework and learn how to conduct research in PhD programs. We analyze learning contexts in terms of coursework structure and research agenda. Reflective writing assignments, as a component of coursework, may stimulate doctoral students to reflect on what they know and believe, which in turn, triggers a research identity crisis due to shifting ideological and epistemological orientations. For example, Channa (2017) stated in his reflective letter to his professor that “the readings of your course questioned and challenged what I believed. They let me to my existentialist crises” (p. 361), and he began to doubt whether the knowledge derived through scientific methods were reliable and valid. Further, Channa (2017) discussed how his new identities formed as a result of his research beliefs crisis, stating that “This new identity was formed through problematization of the positivist concepts that underlie quantitative paradigm of research. My emergent researcher self is now more inclined toward qualitative research and my reflective writing has conveyed this evolving of a new identity” (p. 367).

McEachern and Horton (2016) also reflected on how their doctoral coursework shaped their researcher identities. They stated that “Four years of intensely though-provoking, and equally pedagogically formative, doctoral-level coursework ignited within me an internal identity struggle. I began to question what my real purpose was as a teacher and what constitutes knowledge” (p.450). Through continuous reflection on these internal struggles, McEachern and Horton (2016) highlighted the importance of the research mindset developed in the PhD program that not only assisted them as educators but also influenced their teaching in order to cultivate students as “critical consumers of the wide variety of scientific information they will encounter throughout their adult lives” (p. 450). Therefore, coursework in PhD programs is critical for challenging doctoral students' preconceived notions, pre-existing beliefs, and assumptions about knowledge and research, as well as reorienting their ways of knowing and potential pedagogical approaches, all of which contribute to doctoral students' identity development.

Similarly, the research agenda or the types of studies in which doctoral students are involved may influence their perception of their researcher identity. According to one of the authors in Murakami-Ramvalho et al. (2008), “my research agenda has become my research identity” (p. 806) and discussed how collaborative research activities with partners aided her researcher activities in terms of research design, data collection, and analysis, and writing of findings. Moreover, McGinity (2012)

demonstrated a reciprocal relationship between the researcher identity and the research process. In particular, the research process shaped her researcher identity in the way: “Ethnographic approaches to educational research have contributed valuable ontological reflections on the importance of the positioning of the researcher’s identity when undertaking qualitative inquiries in school-based settings” (p. 761). Furthermore, her researcher identity influenced the research process because “the dialogic and fluid nature of how researcher’s identity is constructed, co-constructed and deconstructed throughout the research process and highlights the on-going importance of reflexivity in supporting integrity throughout. How the researcher chooses to act, react and engage with the various perceptions of their identity may have important consequences for the development of the research process” (p. 770).

Additionally, Richards (2015) argued that the method he used to study his researcher identity, autoethnography, as a reflective practice that combined doctoral students’ personal experiences and cultural experiences, and enhanced his more nuanced understanding of research, such as research processes and participants. He stated that “The aim of writing autoethnographically for me was to demonstrate that by reflecting on my ‘epiphanies’ about identity, I came to a deeper understanding of the research process and the participant’s lives” (p. 832). Similarly, Murakami-Ramalho et al. (2008) suggested that “development of a research identity can be studied as an objective field of research realized through the understanding of self (of the meaning of personal experiences) and defined by the researcher through the continuous process of incorporating self with acquired research techniques and delivered through established research interests and practices” (p. 808).

Socialization

Doctoral students develop their identities through socialization, which entails developing a sense of self through social activities, connecting and communicating with others, and receiving support from others. Social activities may help shape a person’s self-concept. For example, Foot et al. (2014) introduced the concept of self-inefficacy. Self-inefficacy can be triggered by social comparison, fear of failure, or isolated feelings in PhD programs. The process of conquering self-inefficacy, such as through interacting with others, would have a positive impact on doctoral students’ identity development (Foot et al., 2014). Fenge (2010) also stated that “Developing self-awareness and self-reflection concerning the multiple aspects of my learner identity led to a positioning of myself within the social nexus of practices” (Fenge, 2010, p. 654). Moreover, as Foot et al. (2014) stated, “Self-reflection and dialogue with peers are both essential to learning and identity development” (p. 115). Social interaction with peers supports doctoral students in pushing through their tough times in PhD programs. For example, Atkinson-Baldwyn (2009) encountered both emotional and physical issues triggered as a result of the stress associated with proposal writing. Her peer in the discussion group assisted her in releasing tension and refocusing on tasks, resulting in an “epiphany” moment in which she rediscovered her interests and enthusiasm for writing (p. 818). Atkinson-Baldwyn (2009) mentioned that “My friend and I return to the group, I have agreed to listen, no pressure for input – I know her, trust her. She helps to ease the gaps, smooths things over when I am asked what I am doing, helps to deflect the focus to another. It’s really not so bad, as long as I don’t have to talk; I feel the tension leave my body” (p. 817).

PhD programs are structured to allow doctoral students to socialize and enable them to develop various identities. For instance, Murakami-Ramalho et al. (2008) indicated that “The support of the program structure, faculty, and peers seemed to assist in the preparation of novice researchers. Particularly, through the cohort programmatic structure, we were able to receive and provide encouragement, support, and information to each other, and enjoy social interactions, which helped in acquiring skills, jargon, and knowledge of the research community. Research opportunities with faculty also provided venues for framing our research identities ...” (p. 829). Goodall et al. (2017) also mentioned that “The structure of the programme not only attracted us but also helped to retain our engagement, scaffolding our learning and building our confidence as we progressed. The social element of the programme, learning with and from fellow participants, was important in developing our

knowledge and understanding” (p. 184). Furthermore, certain activities integrated into the structure of PhD programs (e.g., writing groups) enabled doctoral students to collaborate and appreciate the value of critical friends in constructing their identities (e.g., teacher educator and researchers). For instance, Murphy et al. (2014) stated that “the importance of a supportive writing group in developing an identity as a teacher educator, developing research and writing skills through being a critical friend, and preparing graduate students for the complex role of teacher educator” (p. 239). Murphy et al. (2014) further concluded that “Our writing support group functioned as a bridge from our identities as teachers and graduate students to three aspects of our new identities as teacher educator researchers: pre-service classroom instructors, supervisors of student research, and educational researchers” (p. 252).

Additionally, mentorship influences doctoral students' identity formation and personal development to a certain extent. For instance, when Atkinson-Baldwyn (2009) was under pressure and felt isolated, she struggled and eventually decided to confide in her advisor. Seeking assistance is critical for doctoral students, and a mentor is a critical supporter. Goodall et al. (2017) also emphasized the importance of matching doctoral students with supervisors. They stated that “The relationships with our thesis supervisors clearly affected all of us, for different reasons. Again, establishing ‘ground rules’ between supervisors and learner at the outset of the relationship, in which expectations and boundaries are clearly articulated, is likely to be beneficial to all parties” (p. 184). Soong et al. (2015) also depicted their interactions with supervisors and highlighted the importance of taking into account international doctoral students' “vulnerability as well as the tensions and dilemma” (p. 445). In Soong et al. (2015), one of the authors described how his supervisor interpreted “kindness” toward doctoral students in order to assist her students succeed in the PhD program. “She also said she had a notion of ‘kindness’ which could be different from students. For her, ‘kindness’ means helping students write a good thesis, gain a doctoral degree” (p. 442), the author stated. “During these years, my supervisor has been not only an immense source of wisdom but also emotional support for me.” Another author in Soong et al. (2015, p. 443) remarked on her supervisor's support for her identities as a mother and a doctoral student.

DISCUSSION

Identity development is a critical component of doctoral students' PhD journeys, as it not only supports their growth during the PhD program but also helps them establish a foundation for their future career and life advancements. The current study analyzed a cluster of articles on identities and identity development from doctoral students' first-person perspectives. The findings were presented in two dimensions: the Approach Dimension and the Content Dimension. Given that these articles were about studying “self” in terms of personal identity development, we interpreted the Approach Dimension findings using the five characteristics of self-study inquiry from LaBoskey (2004), including Self-Initiated and Focused characteristic, Improvement Aimed characteristic, Collaborative/Interactive characteristic, Reflective Data Collection, and Exemplar-based Validation. Despite the fact that doctoral students employed a variety of qualitative inquiries to examine their identities and identity development through a range of reflective practices, we discovered that all five of the self-study characteristics were applied explicitly or implicitly in the articles. Therefore, considering the dynamic and complex nature of identity development in PhD programs, our findings suggest that self-study is a useful and effective tool encompassing theoretical and practical foundations to support doctoral students investigating their identity development in PhD programs.

As the main characters in their stories of identity development, doctoral students' insights are firsthand information and should be heard. Thus, we further analyzed the Content Dimension by identifying the most frequently discussed identity-related topics in doctoral students' open and honest reflections on their challenges, opportunities, and growth regarding identity development. These topics were Identity Development as a Dynamic Process, Multiple Identities, Learning Contexts, and Socialization. These identity-related topics that were closely associated with doctoral students'

studies, research, and lives could be used constructively by PhD programs to aid doctoral students' development.

IMPORTANCE OF EXPLICITLY DISCUSSING IDENTITY DEVELOPMENT

Even though doctoral students may anticipate some form of identity transition/development/formation during their doctoral journey, it is not common sense for all doctoral students unless explicitly stated. Goodall et al. (2017) indicated that “continuing opportunities to meet in a safe dialogic space to make sense of our new identities have been crucial to moving on” (p. 184). Students have varying degrees of knowledge about PhD programs and about themselves. Some of them may not even be aware that there is such a thing as identity, and their identity will evolve over time. They may believe who they are, but such a broad question can result in increased confusion and self-doubt. For example, when doctoral students experience negative emotions and hardships, it may be because they are unaware that an identity transition is taking place and they are in the status of “becoming” (Murphy et al., 2014). It is important to help doctoral students become aware that they are in the process of a dynamic change in their identities. Thus, being explicitly told or having a space to discuss identity is critical for doctoral students to fulfill their responsibilities and develop themselves more effectively.

SELF-STUDY AS AN IDEAL APPROACH FOR DOCTORAL STUDENTS TO STUDY IDENTITY DEVELOPMENT

According to LaBoskey (2004), “If we want to generate the knowledge and understanding that we need, we must engage in appropriate forms of inquiry” (p. 818). Qualitative researchers have employed various qualitative approaches to investigate doctoral students' identities and identity development, such as narrative inquiry, autoethnography, and phenomenology (e.g., Bendix Petersen, 2014; Brazill, 2021; L. J. Choi, 2021; Creely & Laletas, 2020; Inouye & McAlpine, 2017; Leshem, 2020; Mantai, 2019; Murakami-Ramalho et al., 2013). The current study demonstrates that doctoral students were able to use various reflective methods to study their own identity development and generate meaningful insights regarding their personal stories. Doctoral students have been trained to be able to draw connections between things with disparate forms in order to see the nature or truth beneath appearances. Doctoral students are also a group of individuals who are either naturally reflective or have been encouraged to be so. If the research mindset and the reflective mindset are types of their “genes”, it is beneficial for doctoral students to apply them in their developmental processes in PhD programs.

In terms of identity development, we recommend that PhD programs encourage students to use a structured approach, such as self-study, to examine their own identity development. We believe that the self-study features could be a good fit for the purpose and outcomes of doctoral students' identity development, as well as provide structure for doctoral students' interpretations of their experiences. Just like Foot et al. (2014) indicated, self-study could be employed “as an authentic and positive experience to help doctoral students understand their scholarly identity development” (p. 103) and “the systematic and critical approach of self-study inquiry is a valuable and currently under-utilized method for encouraging doctoral students to undertake traditional scholarship while critically reflecting on their doctoral experiences and identity development” (p.104). Foot et al. (2014) also suggested for the doctoral program, “Based on the self-study and doctoral literature, coupled with our own experiences of self-study scholarship, we have suggested criteria that can guide doctoral program coordinators and faculty as they strive to create experiences to socialize doctoral students to the academy, and encourage students to reflect on their emerging identities as doctoral students and scholars” (p. 115). Our set of articles was not large enough for the synthesis of self-study at different developmental stages, such as those suggested by Baker and Pifer (2011), however, studies such as Murphy et al. (2014) point to self-study as a mechanism for exploring transitions from stage to stage as doctoral students' identities evolve over time.

From a more practical stance, we suggest the Framework-For-Inquiry Planner and Framework-For-Analysis of self-study from Pinnegar and Hamilton (2009) which provide step-by-step guidance for self-study practitioners. We recommend doctoral students ask themselves a set of questions before they proceed with their self-study. For the Framework-For-Inquiry Planner of self-study, doctoral students could ask themselves a couple of questions regarding research topics, concerns and issues, methods, or influential work in their field, to initiate their self-study. Specifically, doctoral students could ask “what am I interested in exploring?” to identify any topics or practical problems they aim to explore in their experience as researchers or doctoral students. They may also ask themselves “how could I explore these concerns and issues” to determine the research context and participants, “what methods might I use” for the purpose of collecting relevant evidence, as well as “what research will guide my inquiry” to delve deeper into underlying beliefs and values and their potential contribution to the body of knowledge (Pinnegar & Hamilton, 2009, p. 39). The self-study process also includes connecting to existing research to situate the study of one’s own practice in broader implications and frameworks (Samaras & Freese, 2006).

For the Framework-For-Analysis of self-study, doctoral students could further operationalize their study by asking more in-depth questions. These questions can aid in the incorporation of more detailed information, such as “The purpose of a self-study – any study – should be obvious to the reader”, “Evidence of the data collected, like excerpts from fieldnotes or interviews, and so on, helps readers see the connections the researcher identifies”, and “The ways the researcher situates self-provide evidence of self-study” (Pinnegar & Hamilton, 2009, p. 41). For doctoral students, evidence might include journals, artifacts of practice, interviews with other doctoral students, or other documentation about their work as researchers. These frameworks provide self-study structures that doctoral students can use to examine their PhD journeys. Self-study also encourages engagement with critical friends to analyze artifacts, discuss emergent findings, and collectively analyze variations on common experiences (Samaras & Freese, 2006), which could be especially valuable for doctoral students for whom finding supportive peers and developing connections within a scholarly community is important for their development (Y. H. Choi et al., 2021; Klenowski et al., 2011).

IMPACT OF COVID-19 PANDEMIC ON DOCTORAL EDUCATION

We began this project prior to the start of the COVID-19 pandemic, but our understanding of the findings is now situated in doctoral education which is undergoing a transformation as a result of the pandemic. Under the impact of the COVID-19 pandemic, PhD education is confronted with global challenges and the format of teaching and learning has shifted considerably (Chakma et al., 2021; Cullinane et al., 2022; Dhawan, 2020; Hodges & Fowler, 2020). During the pandemic, university lockdowns, social isolation, and travel restrictions have altered people’s ways of living, working, and communicating (Favale et al., 2020). As Dhawan (2020) mentioned, “As per the World Economic Forum, the COVID-19 pandemic has also changed the way several people receive and impart education” (p. 17). In this context, it is unavoidable that doctoral students’ identity development would be influenced accordingly. Doctoral students’ identity development is inextricably intertwined with their learning, teaching, and research activities. This abrupt transition to online mode can isolate doctoral students from peers, mentors, professors, and colleagues to a great extent. Doctoral students who work alone may find it difficult to effectively communicate with others, stay motivated and engaged in academic activities, or feel isolated, all of which can have an impact on their identity development.

While research is still emerging, a few examples of studies of identity have surfaced. For example, Greene and Park (2021) in the United States used the concept of reflexivity to study their emerging qualitative researcher identity and a graduate faculty identity during the COVID-19 pandemic. They documented how the COVID-19 pandemic influenced their research and teaching activities (e.g., using the Zoom platform and Google Docs), which had significant influences on their identities and positionalities. Seyri and Razaee (2022) in Iran employed narrative inquiry to investigate doctoral students’ online identities in the context of the COVID-19 pandemic, highlighting how the shift from

face-to-face to an online context affected doctoral students' identity development in terms of sense of self-development, the role of instructors, social interactions and collaborations with peers, and their perceptions. Chakma et al. (2021) in Australia used reflective autoethnographic narratives to study their writer and learner experiences through actively constructing an online metacognitive environment during the COVID-19 pandemic. All the above studies can demonstrate the impact of the COVID-19 pandemic on global doctoral students' identities and identity development.

Because the pandemic began in 2020, there is limited research available and there will undoubtedly be more as a result of the pandemic's impact on the educational environment. Broadly speaking, it is undeniable that there will be effects from the larger context on individuals, meaning the COVID-19 pandemic has altered the educational system as a whole. The same holds true for doctoral education. When we are talking about doctoral students' identities and identity development, we are referring to each of them individually, and every single one's experience should be recognized. As significant changes in the broader environment occur, it becomes even more critical for researchers and educators to focus on individual doctoral students. Doctoral students' unique stories reflecting their personal observations and interpretations of their identities and identity development are more valuable for the line of literature. For doctoral programs, it is also particularly critical to listen to the voices of doctoral students. Nevertheless, further inquiry into how doctoral students' identities develop in this context is still required. We recommend that self-study can assist doctoral students in learning about themselves in order to develop their identities and grow in PhD programs, as well as survive and thrive in the post-COVID-19 era.

CONSIDERATION OF THE DIVERSITY OF DOCTORAL STUDENTS

The current research is primarily concerned with doctoral students' identities and the evolution of their identities in general. However, it cannot be overlooked that doctoral students come from diverse cultures, educational backgrounds, disciplines, ethnicities, and genders. Murakami-Ramvalho et al. (2008) and Soong et al. (2015) present examples of how diverse identities are part of self-study projects by doctoral students. Each attribute may contribute to individuals' identity development. Some doctoral students have recognized their characteristics and studied their characteristics with identities and identity development, such as international students' personal agency and cultural and linguistic diversity, and motivation (Li, 2021; Ye & Edwards, 2017), immigrant and female doctoral students' social construction (Morgenshtern & Novotna, 2012), non-traditional-age doctoral students' challenges and achievement in doctoral studies (Miles et al., 2019). Given the focus of the current study, we have limited space in the current study to address all facets of PhD students' identity formation. Nevertheless, it is important to be cognizant of the complexities inherent in the development of doctoral students' identities and identity development because of their individual differences and unique experiences. Taking these individual characteristics into account, self-study is an effective strategy for assisting students in using structured methods to tell their own story. Furthermore, findings from these self-studies could also provide insights for other researchers and PhD program administrators who strive to support doctoral students' development and success in PhD programs.

CONCLUSION

Doctoral students must successfully complete their doctoral program in order to begin serving society as expert researchers and educators. Support for doctoral students' growth may help them complete their doctoral programs and strengthen their identity agency. To examine doctoral students' identity development, it is critical to emphasize the essence of identity: what or who people believe about themselves (Y. H. Choi et al., 2021). The current study reviewed and synthesized doctoral students' research approaches and insights into their identities and identity development in PhD programs, which may help bridge the gap between researchers' findings and doctoral students' own observations and interpretations. The current study's findings suggest that practitioners must be aware of the existence, process, and dynamics of identity evolution during their doctoral programs. It is

important and necessary to explicitly discuss identity development among doctoral students. Moreover, given the unprecedented impact of the COVID-19 pandemic on the educational environment and the diversity of doctoral students, it is critical to hear from doctoral students about how they might use structured research methods to reflect, learn, and self-support their identity development during their doctoral programs. Doctoral program directors, faculty members, and advisors can best support doctoral students' growth and development by incorporating their own perspectives and individual characteristics. Self-study could be recommended for doctoral students to study themselves and provide an example of an opportunity for reflection about identity development as suggested by Y. H. Choi et al. (2021).

PhD programs, for example, may create a self-evaluation course that incorporates both self-study and identity development concepts. PhD programs could also organize a seminar for doctoral students to explicitly reflect on and share their experiences regarding their identities and identity development. For example, doctoral students can conduct self-study or collaborative self-study to examine their identities and identity development in various academic activities (e.g., research, writing, or coursework). Research findings from their self-studies can be shared in seminars and discussed among doctoral students, professors, or PhD program administrators. The outcomes of such seminars could also be shared with stakeholders in PhD programs who would benefit from them. We also recommend that researchers could incorporate more doctoral students' insights into doctoral studies regarding doctoral students' identity development, such as how doctoral students perceive themselves as researchers and develop their capacity to be researchers. Doctoral students from different disciplines are all experiencing identity development. One of the limitations of the current research is that only focuses on students in education. Future research could be expanded to include additional disciplines, not just education, in order to identify common and diverse factors across domains that influence the identity development of doctoral students. Future research on the post-COVID-19 era and its implications for online programs is also necessary to be explored in conjunction with doctoral students' identities and identity development.

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