Indigenous Student Achievement in Higher Education: the Influence of Cultural Factors on Self-Efficacy

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Self-efficacy is a significant variable in student learning because it affects students' motivation and learning. Self-efficacy is defined as beliefs about one's own ability to be successful in the performance of a task and includes mastery experience, vicarious experience, social persuasion, and emotional arousal (Bandura 1977). Self-efficacy is not created by easy success; it requires experience in overcoming obstacles and difficult situations through maintained effort and persistence. Students obtain information about their own capabilities by observing others, especially peers who offer suitable possibilities for comparison. Students often receive information that affirms and persuades them that they are able to perform a task and this is most effective when people who provide this information are viewed by students as knowledgeable and reliable, and the information is realistic. This paper investigates the literature on the relationship between self-efficacy and higher education student participation and achievement, and highlights the significant gap of what is known within the Indigenous context, both nationally and internationally.

Key words
Self-efficacy, Indigenous student achievement, higher education, participation

Introduction

The research on self-efficacy since the seminal work of Bandura (1977) has been extensive and widely accepted, and it is agreed that students with higher levels of self-efficacy are more likely to be successful in scholastic endeavours (Chemers, Hu & Garcia 2001). This review specifically includes literature on academic self-efficacy. Academic self-efficacy is defined as personal judgments of one's capability to organize and execute courses of action to attain designated types of educational performance (Schunk, 1984; Zimmerman, 1995). Academic self-efficacy is about a person's beliefs concerning the confidence in performing various academic tasks (Bandura 1997). Academic self-efficacy has also been found to be a successful predictor of academic achievement, and there has been a recent increase in research on academic self-efficacy and ethnic and Indigenous students, predominantly in the USA and Canada (Gloria & Robinson Kurpius 2001; Weenie 2002; Golightly 2006; Edman & Brazil 2009; Lewis 2011; Gokavi 2011; Gota 2012) with some of these focusing on the post-secondary context. Research on academic self-efficacy in the Australian/South Pacific context is scant (Goulton 1997; Phan 2007; Cumming-Ruwhiu 2012). Whilst we acknowledge the limitations of applying a predominantly Western theoretical orientation, international experience shows its applicability to Indigenous higher education contexts has

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merit. The literature review concludes with some future research recommendations and implications in this regard.

Methodology

The purpose of the review is to focus on the literature that deals with self-efficacy and academic success and to compare and contrast the key findings. A specific focus is the literature on the relationship between self-efficacy and Indigenous student participation and achievement. The review included grey literature, especially theses, reports and conference presentations, as well as research literature from books, book chapters and peer-reviewed journal articles. The review used several key terms to search electronic databases including self-efficacy; undergraduates (Australian Indigenous, Maori, Native American, First Nations); academic self-efficacy; academic success; academic persistence; academic performance; higher education; academic performance; and ethnic minorities. The search used a combination of keywords for example 'self-efficacy *and* undergraduate *and* Australia Indigenous'; 'self-efficacy *and* academic performance *and* ethnic minorities'. The electronic sources for journal articles, theses, book chapters and books included Google Scholar, Digital Commons (sociology; educational psychology; social psychology; higher education and teaching; educational assessment, evaluation and research), JSTOR, Expanded Academic, AEI-ATSIS, and ProQuest Dissertations and Theses. The articles that were focused on in this review were those that researched and addressed self-efficacy in higher education studies, including those relating to equity groups. The literature review found that most of the research was quantitative in nature, and very few studies that dealt specifically with the Indigenous higher education experience.

Related Concepts

This paper briefly reviews related theory as well as broad efficacy concepts, before turning to address self-efficacy and academic self-efficacy.

Social Cognitive Theory

Social Cognitive Theory (Bandura 1977) proposes that learning occurs in a social context with a dynamic and reciprocal interaction of the person, environment, and behaviour. Bandura's Social Cognitive Theory suggests that the cognitive, behavioural, and environmental factors affect learning (Bandura 1991). Bandura's proposition is that virtually all learning phenomena can occur by observing other people's behaviour and the consequence of that behaviour (Bandura 1986). Self-efficacy (Bandura 1977) is at the core of social cognitive theory and refers to belief in one's capability. Self-efficacy is closely tied to other concepts and approaches such as *resilience*, which has become widespread particularly in the education and early childhood sector (Gilligan 2001; Healey 2007); the adoption of *strengths-based or assets-based approaches,* which have become commonplace in social work, human services and positive psychology practice (Pollio, McDonald & North 1997; Blundo 2001; Brun & Rapp 2001; Snyder & Lopez 2007); and salutogenesis which has become frequently applied in health promotion and public health contexts (Lindstrom &

Eriksson 2005; Eriksson & Lindstrom 2006). However, for the purposes of this review, we have limited search terms to 'self-efficacy'.

Self-efficacy

Self-efficacy, as a key element of social cognitive theory, is a significant variable in student learning, because it affects students' motivation and learning. Bandura (1997: 3) defined self-efficacy as "the belief in one's capabilities to organize and execute the courses of action required to produce given attainments." Put simply it is the belief about one's own ability to be successful in the performance of a task.

Other related concepts

The coining of self-efficacy as a psychological construct gave rise to a range of related concepts, including self-regulatory efficacy, collective efficacy, cultural efficacy, bicultural efficacy and general self-efficacy.

Self-regulatory efficacy is people's beliefs and perceptions for relating their actions in accord with personal norms when facing pressure for engaging antisocial activities. In an academic setting, self-regulatory efficacy refers to one's belief in his/her capability of managing academic demands (Caprara, Barbaranelli, Pastorelli & Cervone 2004; Zimmerman 1995).

Bandura (1977) defined collective efficacy as a group's shared belief in being able to organise together and execute required actions, and that it is concerned with the performance capability of a group as a whole. Donohoo (2016) provides an example of collective efficacy operating with the context of a school where teachers collectively organise and act on initiatives that result in a positive effect on students:

> Collective efficacy is high when teachers believe that the staff is capable of helping students master complex content, fostering students' creativity, and getting students to believe they can do well in school. When efficacy is high, educators show greater persistence and are more likely to try new teaching approaches. Educators with high efficacy encourage student autonomy, attend more closely to the needs of students who are not progressing well, and are able to modify students' perceptions of their academic abilities (Donohoo 2016: para. 5).

Kalssen (2004) believes that collective efficacy might supplant self-efficacy depending on cultural contexts where there is a collective identity, group solidarity, and duty. Laarhuis (2016: 11) differentiates between collective efficacy and group efficacy where 'group efficacy is the consensus of the group with regard to their own efficacy, while collective efficacy is the individuals' perception of efficacy.' This has similarities with the Kaupapa Maori educational approach that draws on Maori traditions of self-determination to improve students' educational achievements (Bishop 2003).

In their research on psychological models and interventions aiming to improve health outcomes for Māori, Houkama & Sibley (2010: 382) make reference to cultural efficacy. They define cultural efficacy as:

> reflecting the extent to which the individual perceives they have the personal resources required (i.e., the personal efficacy) to engage appropriately with other Māori in Māori social and cultural contexts. These personal resources include the ability to speak and understand Te Reo Māori (the Māori language), knowledge of Tikanga Māori (Māori cultural practices and customs), marae etiquette (meeting house etiquette), and the ability to articulate heritage confidently (e.g., recite whakapapa or genealogy).

Nunez (2000), in discussing women's health education, prefers cultural efficacy over the term ''cultural competence". The latter Nunez (2000: 1072) implies "a discrete knowledge set that focuses on the culture of the patient only as something 'other' and therefore aberrant from the norm." Nunez (2000: 1072) provides an example within a medical encounter where there is a tri-cultural interaction:

> the culture of the physician, the culture of the patient (which is rarely exactly the same as that of the physician), and the medical culture that surrounds them. In this model, it is important that students learn how to see their own cultures and the impacts of their behaviours on others whose cultures differ — and the impacts of the patients' behaviours on them, the students. With this view, they can gain a broad appreciation of interactions among cultures, rather than just memorising characteristics of certain broad groups.

LaFromboise, Coleman, and Gerton (1993: 404) propose the concept of bicultural efficacy. They define bicultural efficacy as "the belief, or confidence, that one can live effectively, and in a satisfying manner, within two groups without compromising one's sense of cultural identity", and that one can also develop and maintain effective interpersonal relationships in two cultures. Ivory (2010: 143) believes that bicultural efficacy is "an individual's perceived expectation regarding his or her ability to handle the challenges of living within two cultures (without negative psychological outcomes) or having to compromise his or her personal and cultural identity'." Bicultural efficacy is considered a crucial factor in acquiring and developing bicultural skills.

General self-efficacy is described as reflecting generalisations across various domains of functioning in which people judge how effective they are. General self-efficacy may explain a broader range of behaviours and coping strategies when the context is less specific, and if there is a focus on multiple behaviours simultaneously (Luszczynska, Gibbons, Piko & Tekozel 2004).

The next section of the review focuses on the concept of self-efficacy and its sources: performance accomplishments, vicarious experience, verbal persuasion, and physiological state.

Self-efficacy

Bandura (1977) first proposed self-efficacy as a theoretical explanation of behaviour change in therapy. Bandura (1977: 192) emphasised the importance of self-efficacy in that "efficacy expectations determine how much effort people

will expend and how long they will persist in the face of obstacles and aversive experiences." He also predicted that individuals who are confident in their abilities are more likely to attempt difficult tasks, put forth greater effort toward mastery of those tasks, and persist in attempts despite difficulties. Pajares (1996) and Schunk (1991) affirmed that self-efficacy influences academic motivation, learning, and achievement.

Self-efficacy is not created by easy success as it requires continued effort and persistence in overcoming obstacles and difficult situations. Self-efficacy, as a key element of social cognitive theory, appears to be a significant variable in student learning, because it affects students' motivation and learning (van Dither 2011: 96). Compared with students who doubt their capabilities to learn or to perform well, those with high self-efficacy participate more readily, work harder, persist longer, show greater interest in learning, and achieve at higher levels (Bandura 1997). Bandura (1997) made it clear that self-efficacy is not the only influence on behaviour, and that no amount of self-efficacy will produce a competent performance when students lack the needed skills to succeed (Schunk & Pajares 2009).

Bandura posited that individuals receive information about their ability to accomplish tasks through four principal sources:

1. performance accomplishments;
2. vicarious experience;
3. verbal persuasion; and,
4. physiological states.

Performance accomplishments

Performance accomplishments are best defined as the conglomeration of past successful or unsuccessful experiences with a given behaviour. Successful experiences can boost a person's self-efficacy; whereas failure can lower self-efficacy. This source is also described in the research as mastery experience, enactive attainments, personal accomplishments or past successes. Regardless, this source is related to an individual's past performance where past successes can build a strong belief in one's efficacy, whereas failure can weaken it (Barouch-Gilbert 2016). Golightly (2006) states that if an individual has some successful experiences in an area, then they are more likely to believe in subsequent successful experiences of the same or similar behaviours (Golightly 2006). Likewise, Gokavi (2011: 42) states that "when an individual succeeds at a task or experiences a sense of personal accomplishment, the individual will likely believe they can succeed at the task again in the future and experience a corresponding increase in his or her self-efficacy." Bandura (1997: 195) explained the importance that successful experiences play in forming efficacy beliefs:

> Successes raise mastery expectations; repeated failures lower them, especially if the failures occur early in the course of events. After strong efficacy expectations are developed through repeated successes, the negative impact of failures is likely to be reduced. Occasional failures that are later overcome by determined effort can then strengthen persistence and efficacy expectations because of

> the perceived ability to better overcome obstacles to achieve a mastery level. The effects of failure (and success) on personal efficacy is, therefore, dependent not only on the pattern of experiences but the timing of experiences in which failures occur.

Self-efficacy requires authentic successes in dealing with a particular situation. This provides students with authentic evidence that they have the capability to succeed at the task. A large body of research has demonstrated the importance of past success and its effects on efficacy beliefs and many researchers have examined the relationship between self-efficacy beliefs and academic performance. The majority of these studies focusing on this source are quantitative in nature.

Vicarious experience

Vicarious experience can be understood as observing others successfully perform certain tasks. This source is also described in the research as modelling. Golightly (2006: 3) describes this source 'as an individual's experience with people similar to him/her that have successfully executed behaviour(s) in a given domain … [which] instils a sense of confidence that an individual can similarly accomplish the tasks in that domain.' Bandura (1977, 1997) identifies three main factors that create good role models: age and expertness; the similarity between models and observers; and, the difficulty of tasks to be performed. Witnessing the success of peers, role models, or mentors can raise one's self-efficacy just as witnessing a peer's failure can lower self-efficacy. Bandura (1977: 197) gave the following explanation of vicarious experience:

> Seeing others perform threatening activities without adverse consequences can generate expectations in observers that they too will improve if they intensify and persist in their efforts. Individuals persuade themselves that if others can do it, they should be able to achieve at least some improvement in performance.

Some studies have shown modelling to have a positive influence on academic achievement, promoting learning, and increasing academic self-efficacy (Schunk 2003). Research shows that appropriate models can inform and motivate students who have previously been unsuccessful in their attempts to succeed in school and, that these models can provide information about actions that lead to success (Chin & Kameoka 2002). Research also indicates that student improvement correlates with exposure to successful models (Schunk 2003). Role models are of significant importance when individuals view them as similar to themselves (Lewis 2011). Students obtain information about their capabilities by observing others, especially peers who offer suitable possibilities for comparison. Students often receive information that affirms and persuades them that they are able to perform a task, and this is most effective when people who provide this information are viewed by students as knowledgeable and reliable, and the information is realistic. West, Usher, Foster and Stewart (2014: 14) suggest, "relationships, connections, and partnerships are critical elements of creating a welcoming and supportive environment." Vicarious experience is

the second most studied source of efficacy information behind performance accomplishments, with most research being quantitative.

Verbal persuasion

Verbal persuasion is understood as an individual's susceptibility to being persuaded of capability (or incapability) to perform certain behaviours; that is, it is easier to sustain efficacy if significant others convey belief in one's capability (Barouch-Gilbert 2016). These 'significant others' may include parents, other close family members, and other individuals who have particular influence with an individual (Golightly 2006). This source is sometimes also known as social persuasion. Verbal persuasion is a means of strengthening students' beliefs in their ability to succeed academically. Individuals who are persuaded by others of their ability to succeed at tasks are more likely to make and maintain effort over a period of time than individuals who are not persuaded (Bandura 1997). There are many examples of how verbal persuasion can occur, one being motivational speeches by models or mentors which increase individual's beliefs that they are capable of success. A study conducted by Turner and Lapan (2003) with Native American secondary students found that they perceive their parents as the most relevant source of verbal persuasion to instill a strong sense of academic efficacy beliefs. In an educational setting, verbal persuasion could have a variety of sources such as a teacher's verbal encouragement, praise, performance feedback and constructive critiques.

Physiological states

Physiological states could be defined as the amount of emotional arousal or anxiety a person feels about performing given tasks. When a person experiences negative thoughts and fears about their capabilities, such as making a presentation in front of a large group, these affective reactions can lower self-efficacy and trigger additional stress and agitation that help ensure the inadequate performance they fear. Bandura (1977) asserted that stress-provoking experiences and demanding situations can bring about emotional arousal which may affect a person's ability to complete a task. Nevertheless, Bandura (1986: 365) cautioned against giving too much weight to emotional arousal as a source of self-efficacy:

> Perceived self-inefficacy leads people to approach intimidating situations anxiously, and experience of disruptive levels of arousal may further lower their sense that they will be able to perform well. However, people are much more likely to act on self-percepts of efficacy inferred from mastery experiences (past successes) and social comparison of capabilities (modelling) than to rely heavily on the stirrings of the viscera.

One way to raise self-efficacy is to improve physical and emotional well-being and reduce negative emotional states. Individuals have the capability to alter their thoughts and feelings so that enhanced self-efficacy can influence their physiological states. A person who engages in a task free from anxiety and feeling of being in a threatening situation is claimed to be more self-efficacious

(Goulton 1997). Higher self-efficacy can be achieved when a person feels calm and composed, rather than nervous and worried when preparing for and performing a task (Bandura 1986). A positive outlook that draws on positive emotions can strengthen a person's self-efficacy. Research in an academic setting shows that confidence in one's relevant abilities can play a major role in a student's successful negotiation of challenging situations, and that students who hold high expectations for themselves do so in part because "they trust in their capabilities and part because they see the world, and their ability to respond to it, as less threatening" (Chemers, Hu & Garcia 2001: 62).

When self-efficacy is applied to the educational domain, it can also be referred to as academic self-efficacy (Barouch-Gilbert 2016). Academic self-efficacy forms the next section of the literature review.

Academic self-efficacy

Academic self- efficacy is informed by self-efficacy and social cognitive theories (Bandura 1977). The term academic self-efficacy suggests that self-efficacy concerning academic behaviours may influence scholastic persistence and performance. Academic self-efficacy is defined as "confidence in mastering academic subjects" (Chemers, Hu & Garcia 2001: 56). Academic self-efficacy focuses on a person's belief about themselves regarding academic tasks. Research has established the validity of academic self-efficacy as a predictor of students' learning, motivation, persistence and achievement of all ages and levels of education and in various subjects (Bandura 1977; Zimmerman 2000). There are several studies about academic self-efficacy within the post-secondary education context (Becker & Gable 2009; Chemers, Hu & Garcia 2001; Edman & Brazil 2009; Khan 2013) but limited studies on academic self-efficacy, ethnic minorities and Indigenous people.

Academic self-efficacy, ethic minorities and Indigenous people

There are relatively few studies which examine academic self-efficacy within ethnic minority or Indigenous contexts, although Bandura (1977) stressed the importance of testing how well self-efficacy applied to diverse populations. The limited research findings suggest that self-efficacy can explain deficits in academic achievement in ethnic minorities (Golightly 2006). This calls for further research concerning the development of efficacy beliefs in culturally diverse populations (Bandura & Locke 2003; Schunk 2003). This information could be invaluable for the development of interventions aimed at strengthening self-efficacy (Lewis 2011).

Research conducted by Bryan (2003) suggested that efforts to improve academic self-efficacy could positively impact on academic performance of Navajo students. Research by Golightly (2006: 19) suggests that Navajo students' low levels of academic self-efficacy are "one of the factors possibly contributing to lower than expected rates of academic achievement and low post-secondary education retention rates." The study by Gloria & Robinson Kurpuis (2001) provided a broad perspective of non-cognitive factors influencing the academic non-persistence decisions of American Indian undergraduates. They found that self-efficacy is essential for navigating

potentially negative and discriminatory environments (Gloria & Robinson-Kurpius 2001).

Research by Weenie (2002) intended to contribute to an understanding of the resilience processes that enable First Nations students to persevere and succeed in higher education studies in spite of great adversity. Using a narrative inquiry method, Weenie (2002) interviewed six graduates, from the Saskatchewan Indian Federated College, Indian Education Program, and analysed the data from a self-efficacy perspective. Weenie (2002: 99) states that for one of the participants - Gloria - the theme of self-efficacy was evident as she related her experiences in residential school:

> She began to believe in herself, primarily, through her interactions with the nun and the nurse. They had 'moved [her] in a positive direction' by focusing on her talents and abilities rather than allowing her to continue to live with the negativity. Gloria also developed self-efficacy through her academic achievements. Building on these successes, she was able to develop more self-confidence and self-esteem in other areas of her life. Gloria's philosophy of life is to take on the challenges as they come and she understands the need to walk through them 'to feel successful in [her] heart.' For Gloria, self-efficacy developed from 'the victory of being able to start verbalising and then being able to look for solutions to [her] own feelings' and experiencing success in this area has helped her to overcome 'those times that [she] wants to hang back.

Research by Cumming-Ruwhiu (2012: 45) investigated the determining factors that that influence Māori to succeed in higher education. The participants in her research provided insights into their lives that impacted on their decisions that lead to success. Some of these narratives address self-efficacy, for example, one of the participants Awhina reflects on the vicarious experience of observing her mother:

> The moment I decided to go to uni was the moment that I stood up and did a haka for my mum at her Māori graduation. I was like 13, 14 maybe ... So seeing my mum graduate when she was a solo mum of two children ... I watched everything that she did, all her hard work into her studies for four years and then she graduated. That was kind of like the moment, 'no yeah, I'm going to go and follow in her footsteps, cause if she can do it solo then I can do it just being me'.

As noted earlier, research on academic self-efficacy in the Australian/South Pacific context is minimal, and the reviewers were hard-pressed to identify any research that focused particularly on self-efficacy in the Australian Indigenous higher education context. While there has been a strong focus on the barriers and challenges to Indigenous participation (for example, Andersen, Bunda & Walter 2008; Ellender, Drysdale, Chesters, Faulkner, Kelly & Turnbull, 2008; Oliver, Grote, Rochecouste, & Dann, 2015; Thomas, Ellis, Kirkham & Parry, 2014), the self-efficacy literature may provide indicators to better support the access, participation, retention and graduation of Indigenous higher education students.

Conclusion: recommendations

This review supports the view that considerable research has been devoted to the study of self-efficacy beliefs in education, but most of the work has been situated in Western contexts. Several studies conducted in the higher education sector have found that academic self-efficacy had a significant and positive effect on academic achievement (Gota, 2012). Findings show that students who have high levels of academic self-efficacy beliefs are positive, motivated, persistent, capable, and are not challenged or unnerved by difficult academic tasks (Bandura, 1977, 1994; Pajares, 2002; Schunk, 1991, 1995).

Self-efficacy can be enhanced (Bandura & Schunk, 1981), in a number of ways. Gokavi (2011) suggests that among other measures, students could be assigned to mentors. Becker and Gable (2009: 17) suggest that it:

> would be highly useful to measure student self-efficacy before and after teachers have learned techniques they could use to help their students develop their self-efficacy. This is the great promise of self-efficacy research. If increasing self-efficacy leads to greater academic performance, then learning how to enable students to develop it has profound implications for those currently constrained by environmental forces and underserved by the educational system.

Pajares (2006: 153) concurs that teachers have a significant and important role in "the self-beliefs of their pupils, for it is clear that these self-beliefs can have beneficial or destructive influences." Sarra (2014) encourages teachers and principals to have high expectations of their students, and of students having high expectations of themselves. Research shows that it is possible to influence students' self-efficacy within higher educational programmes, as stated by van Dither, 2010: 104-105):

> intervention programmes that were based on social cognitive theory were more effective in influencing students' self-efficacy than interventional treatments with underlying theories other than social cognitive theory; enactive mastery experiences are stated as the most powerful source of creating a strong sense of efficacy … Higher educational institutions put effort into helping their students develop the required knowledge, skills and competencies. Although competent behaviour largely depends on acquiring knowledge and skills, it is obvious that students' self-efficacy plays a predicting and mediating role about students' achievements, motivation and learning. Therefore, it seems crucial that institutions of higher education pay attention to students' developing self-efficacy. Knowing the factors that affect the development of students' self-efficacy can help higher educational institutions in developing and planning educational programmes that enhance students' self-efficacy.

Research conducted with Native American students could have some parallels for the Australian Indigenous case. Gloria and Robinson-Kurpius (2001: 99)

concluded that “the most powerful non-cognitive factor was social support” and that the “central dimension of social support was faculty/staff mentorship.” This, they state, suggests some things:

> academic and university personnel working in academic settings need to develop programs that foster mentoring relationships and other social support networks … students need opportunities and encouragement to connect with potential mentors … encouraging culture-specific student group can create supportive networks to enhance student retention … having a support group of peers who are coping successfully with university challenges can model persistence behaviours … and academic personnel need to work actively to foster a university environment in which American Indian students feel welcomed and in which their values and culture-specific behaviours are respected and accepted.

Regarding further research recommendations, Klassen (2004: 206) asserts that “though self-efficacy has been shown to be a strong predictor of performance with Western populations, less is known about how self-efficacy beliefs operate with non-Western individuals and cultural groups.” Klassen (2004) suggests that considerable further research would assist in understanding how cultural factors influence and modify self-efficacy theory.

The review also suggests other areas that are under-researched or do not appear in the research literature at all. In regards to vicarious experiences, support from significant others contributes to student success especially when these sources are viewed as knowledgeable. However, are most non-Indigenous lecturers working with Indigenous students seen as knowledgeable about the lives of Indigenous students, and does this matter? Are Indigenous parents and other community members seen as knowledgeable about university, and does this matter? What impact does deficit discourses and experiences, such as racism and white privilege, have on Indigenous students’ sense of self-efficacy? How does cultural capital intersect with notions of Indigenous student’s self-efficacy? Support programs for Indigenous are important but do they provide emotional support in addition to academic support? Culturally safe spaces for students can support wellbeing, a sense of belonging and identity but are universities culturally safe places? These questions and others need to be answered to fill the significant research gap within the Indigenous education context, both nationally and internationally.

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