APPLYING FUNDS OF KNOWLEDGE THEORY IN A NEW ZEALAND HIGH SCHOOL: NEW DIRECTIONS FOR PEDAGOGICAL PRACTICE

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Abstract

In New Zealand teacher practice is expected to be inclusive and supportive of all learners (Ministry of Education, 2007). However, diverse evidence highlights inequitable school experiences for Māori and Pasifika students. This study explored the application of funds of knowledge (FoK) theory within a New Zealand high school, with a focus on impacts for Māori and Pasifika students. FoK has been defined as knowledge and skills gained from life world experience. Participants included high school teachers (n=5), students (n=11) from their current classes, and students' parents (n=5). Data collected over six months fieldwork included: interviews, focus groups, samples of student work, and meetings. Teachers developed two ways to apply students' FoK to support academic learning: drawing on and drawing out their life experiences. Improvements in learning behaviours and achievement gains were reported by students, parents, and teachers.

Keywords

Funds of knowledge; culturally responsive pedagogy; high school; multicultural education.

Background

In New Zealand, social justice imperatives in educational policy require teachers to develop pedagogical practices that are inclusive and supportive of diverse learners (Ministry of Education, 2007, 2012). However, the ongoing minoritised status of Māori and Pasifika school students is evidenced by academic achievement data (NZQA, 2010), school discipline statistics (Ministry of Education, 2005), and students' own reports (Bishop & Berryman, 2006; Spiller, 2013). The need for approaches to address this issue has become more urgent, as the student population becomes increasingly diverse and the teaching workforce remains relatively homogenous (Howard, 2010).

Conceptual framework

Funds of knowledge (FoK) theory, developed by Moll, González, and colleagues from the University of Arizona (Moll, González, & Amanti, 2005; Moll & Greenberg, 1990) offers a conceptual framework for informing effective practice for minoritised students that is oppositional to prevalent deficit discourse. Although scholars use the term in nuanced ways, FoK generally refers to knowledge and skills arising from life experiences, rather than schooling (Hogg, 2011). Applying FoK theory involves focusing on people's strengths and skills, emphasizing engagement with individuals and evidence rather than groups and assumptions. As González (2005) explains, many individuals are cultural hybrids, because within a globalised environment, we take up (or resist) aspects of culture from many sources. In New Zealand, application of FoK theory could be transformative because stereotyping and subsequent unhelpful teacher behaviours affect both Māori (Turner, Rubie-Davies & Webber, 2015) and Pasifika school students (Spiller, 2013). An important feature of applying FoK theory successfully is attending to the dynamic complexity of people's lives, evidencing, for instance, the many ways to be Māori, or to be Pasifika (for example see Webber, 2008).

With knowledge of students' FoK, teachers can attend to students' experiences and priorities, validate their knowledge and values, and develop ideas to make academic learning relevant and accessible.

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International studies consistently demonstrate that when teachers learned about the rich and diverse FoK associated with minoritised students' families, greater respect for families as legitimate sites of knowledge ensued and improvements in teacher-student relationships and engagement occur (Messing, 2005). Training and collaborative reflection were key elements that supported teachers' learning about FoK, attending to the complexities and application to practice (González, Moll, & Amanti, 2005; Messing, 2005).

Pedagogical application of FoK addresses students' affective and cognitive needs. Affectively, it can offer caring, relational pedagogy (Camangian, 2010). Cognitively, it enables academic skill development through teachers guiding students to draw on FoK within meaningful tasks (Moll & Greenberg, 1990). Furthermore, without teachers' deliberate attention to students' FoK, they remain hidden and can unconsciously subvert new learning (Moje et al., 2004).

A review of the literature highlights categories of pedagogical applications of FoK theory in schools, with some overlap between these: drawing on students' FoK; and drawing out students' FoK, within differentiated learning, inquiry learning, authentic learning, and transformative learning (Hogg, 2015).

I use the term *drawing on* students' FoK to refer to a two-step process of firstly learning about students' actual FoK and then designing learning activities (or whole modules) that relate. In many examples, students' FoK were identified using home visits (González, Moll, & Amanti, 2005); other approaches include neighbourhood walks (Nasir, 2013) and sharing personal artifacts (Zipin, 2009). Some teachers who drew on students' FoK became more strategic in relationships with parents: deliberately building rapport, finding out their talents and work to garner pedagogical ideas, and tapping into parents' expertise by involving them in classroom learning and curriculum development (Hensley, 2005). Drawing on students' FoK can inform design of authentic learning experiences which empower students and develop their sense of agency relative to issues that matter to them (Bouillion & Gomez, 2001).

I use the term *drawing out* students' FoK as a one-step approach to activating students' FoK through dialogic discussion or task design. A number of studies reported tasks which drew out the FoK of students, their family members and/or their community members. Diverse examples include writing (Macias & Lalas, 2014), and sharing home practices such as recreation and nutrition (Calabrese Barton & Tan, 2009). Some studies related inquiry learning to students' FoK, such as oral history projects (Olmedo, 1997), and researching socio-political influences on personal challenges (Camangian, 2010). These tasks enact differentiated learning (Tomlinson, 2014), because by allowing choice, they legitimise diverse FoK in classroom learning. Dialogic teaching can also draw out students' FoK, through facilitating discussion which centralises students' voices, although many teachers found it difficult to shift from a teacher-centred approach (Woodrow, 2013).

Studies of application of FoK theory in New Zealand related mainly to early childhood settings (for example Hedges, 2015). Cowie, Jones and Otrell-Cass (2010) reported higher engagement in high school science when students' FoK were activated, raising questions about how deliberate exploration of FoK theory might affect high school teachers' ideas about professional practice, including pedagogical decisions.

Methodology

The research was a case study, which explored valued outcomes that occur when high school teachers learn about their Māori and Pasifika students' FoK. For the purpose of this study, FoK was defined as knowledge and skills developed from life experience outside formal schooling. The study was conducted in a school comprising 42% Māori, 46% Pākehā, and 10% Pasifika students. Participants included high school teachers (n=5), students (n=11) from their current classes, and several students' parents (n=5). Participants were organized into five teams, with each including a teacher, two or three of their students, and (where possible) a parent of those students. In each team, members negotiated an agreed strategy(s) to enact FoK theory, implemented these and evaluated both outcomes and process. The researcher enacted a participant observer role in each team, and facilitated team events to ensure a consistent approach.

Volunteer teacher participants were recruited first. Each teacher nominated several Māori and/or Pasifika students, which guided student and parent recruitment. Teachers' autonomy regarding whom

to invite was judged as important, since teams would work closely over several school terms. Data collected over six months fieldwork included: transcripts and field notes from 19 interviews, nine focus groups, and 14 team meetings; as well as 20 video recording of events in which teachers purposefully learnt about students' FoK, using agreed strategies. Documents analysed included student work and participants' written reflections. The main approach to data analysis was thematic coding analysis (Robson, 2011).

Findings

Teachers used different approaches to apply their learning about students' FoK to pedagogical practice. Examples in this section highlight findings from three themes that emerged from inductive data analysis: how teachers applied students' FoK to support academic learning; perceptions of impacts held by students, parents and teachers; and challenges experienced in the work. All names are pseudonyms.

Drawing on students' FoK to support new academic learning

Drawing on students' FoK involved firstly learning about students' actual FoK and then designing learning activities (or whole modules) that related. Three examples were chosen to illustrate nuances.

Example 1: Personalized learning scaffolding

Kate (Team B) used this approach to support the learning of Dan, a Māori male in her Year 13 Classics class. Reflecting on Dan's FoK about Māoritanga learned through observation, Kate scaffolded Dan's learning about Roman warriors, through an activity in which he considered traditional burial practices for Māori warriors, and predicted traditional burial practices for warriors in ancient Rome. Kate reported:

> So the way I thought I'd do it with Dan… is that we'd actually do it in two lines. So actually discovering a Māori tomb first, and attaching stuff for a Māori warrior, and instantly matching that stuff with someone in Rome… and all he has to do is mirror it completely with someone in Ancient Rome. It'd be so much easier.

Dan recalled "She just gave me a sheet, and I followed every question", suggesting he could complete the task independently. He found it helpful to "look at both (the Māori and Roman warrior)… the Māori one was pretty easy". This smooth learning experience was not typical for Dan—he earlier stated that he relied on Kate's guidance to complete tasks.

Example 2: Students as co-planners

An alternative first step to draw on students' FoK was co-planning a relevant and motivating module of learning, which Lizzie (Team A) invited Thor and Sonny Bill to do. They were 13 year-old boys in her Science class. The class had an integrated studies programme, and themes from the novel Diego Run (which the students had read in English) provided the focus. In a one-hour meeting, Sonny Bill and Thor recalled the novel's plot, and recent Science topics, and suggested topics related to their FoK and personal goals—such as how to look after your body and avoid injury when you play sport—and topics they wanted to learn about (e.g., what different drugs do to you and how they make you addicted). Various factors appeared to affect students' confidence as co-planners. Thor's family's FoK gave him confidence. He stated:

> I know we've got good ideas, it's like, yeah, that's… only 'cos my mum used to be a nurse and then she didn't want to be that and then she became a radio station person, then now she's doing midwifing [sic].

The biggest challenge of co-planning for students was determining what was a valid suggestion. Helpful factors to address this challenge were Lizzie's openness to students' ideas and creative thinking around the possibilities from the novel/module title Diego Run. Also, students' knowledge of the novel and non-technical module title made the task more manageable.

Lizzie considered the main benefits were that "their input was validated and was integrated in what we did in the classroom, and that was good for them". She subsequently decided to routinely seek students' input into planning, and developed other pedagogical ideas to apply students' diverse FoK. For example, in a genetics module, students investigated genetic traits within their own families and presented findings as a family tree, whakapapa, or pepeha. They also displayed baby photos and tried to match each to its owner. Sonny Bill stated "I reckon it's made class a working class, more fun, because I reckon—well I don't know if it's because of this—but it's quite fun work". For Thor, attendance, engagement, perseverance and enjoyment in Science all improved and this was evident, in Lizzie's view, on a daily basis. Prior to the study, Thor said Science was "okay" and Lizzie observed he sometimes truanted. Later, Lizzie stated, "He's committed to his classwork and his homework, which are all improvements… he tries and tries, he doesn't give up" and Thor said Science was going "super well". Thor's face was radiant as he described changes in his school life, which for him were transformative.

Example 3: Student behaviour management

Troy (Team B) was a 16-year-old student with a long-standing negative reputation. He was often removed from class, and frequently on daily report (which required him to report to a senior manager each day). Troy's teacher Kate observed him playing indoor netball to learn about his FoK, and witnessed strengths and skills which were not apparent at school, such as strategic thinking, calmness, patience, resilience, and perseverance. These FoK suggested Troy's classroom behaviour related to contextual factors, conflicting with a popular view that Troy was inherently aggressive and disruptive.

Observing Troy's FoK inspired Kate to advocate for new ways to manage Troy's behaviour. She shared her new knowledge with colleagues and sought help for Troy to learn how to apply his FoK in classroom situations. However, her colleagues, who had worked with Troy for many years, and were not study participants, were unwilling. Kate became a provider of advice, guidance, and a safe place for Troy in times of difficulty, stating that, "it's made me look out for him and have his back when he needs it." Troy's mother considered that finally Troy had a strong support system. When Troy successfully completed the school year, gaining the qualification he aimed for, his mother reflected: "If we weren't a part of this I don't think Troy would have made it through the year".

Drawing out students' FoK to support academic learning

Drawing out students' FoK involves the teacher activating students' FoK in class through drawing them out in discussion or through task design. Three participating teachers chose this approach including Georgia (Team C).

Example 4: Co-designing activities

It was initially challenging for Georgia to imagine how to apply FoK theory and also progress learning for Briar and other students in the Year 11 English class learning for NCEA Level One—all class time needed to be worthwhile, that is, focused on learning for assessments. However, the researcher and Georgia co-designed an activity to draw out class members' FoK that provided creative writing practice and contributed to understanding of Romeo and Juliet. In the activity, students reflected on and described a boy/girlfriend their family would find totally abhorrent. Briar and Georgia agreed that the class engaged wholeheartedly with the task. Students eagerly shared their work with each other, suggesting they regarded the topic as worthwhile. Earlier, students had reported that they wanted personal relationships with their teachers, and Briar stated:

> With that action we did in class I feel that it not only gave me an idea of the students but it also gave the students a better idea of themselves.

Consequently, Georgia decided applying FoK theory would become a systematic part of her lesson planning.

Discussion

Initial exploration of FoK theory by these New Zealand high school teachers led teacher, student and parent participants to highly value what the approach had to offer. The range of pedagogical approaches utilised, highlights the rich potential of FoK theory, and how and why it can work, raising questions about how teachers can be supported to utilise more diverse pedagogical approaches.

Pedagogical applications designed and used in this study and other settings highlight the importance of context in determining what approach might work for a particular teacher and students, and diverse ways to enact FoK theory to respond to different contexts. Studies highlight that teachers and researchers need to tailor pedagogical planning which enacts FoK theory to meet their situational needs—such as students' age, achievement objectives, and teacher skills (Calabrese Barton & Tan, 2009; Camangian, 2010; Nasir, 2013; Zipin, 2009).

Pedagogical applications related to and went beyond categories found in international literature. Although pedagogical applications reported elsewhere, linked students' FoK to learning academic concepts (e.g., Bouillion & Gomez, 2001; Macias & Lalas, 2014; Olmedo, 1997), in this study FoK theory offered a new type of strategy to nurture the key competency of managing self (Ministry of Education, 2007). In the New Zealand context, drawing out and drawing on students' FoK could offer new opportunities for developing other key competencies required in the national curriculum, such as using language, symbols and texts, relating to others, and participating and contributing.

Findings confirm that this work is not necessarily straightforward, because of the new perspectives, role, and skills required of teachers, which necessitate deliberate focus, time, and support (e.g., Cremin et al., 2012; González, Wyman & O'Connor, 2011). Taking a FoK approach positions teachers in the new role of learners of their students. As in other studies (e.g., Nasir, 2013), teachers' first steps were supported by the researcher, affirming recommendations that teachers who want to explore applying FoK theory to classroom practice are supported and work within a collaborative learning group (González, Moll & Amanti, 2005). Initially, mandated curriculum and assessment requirements threatened teachers' efforts towards pedagogical innovation and ideas about how to relate FoK to academic learning. However, as teachers experimented, they became adept in applying students' FoK to classroom pedagogical practice, in ways that were congruent with external requirements.

In conclusion, results verify the value of applying FoK theory as an approach to multicultural education (Moll & González, 2004) for Māori and Pasifika students in New Zealand. Applying FoK theory to pedagogy offers a potentially rich tapestry of teaching and learning possibilities, mining commonalities and differences between students' FoK, involving students looking inward or outward, enhancing motivation through personal relevance and through fun, scaffolding learning, and offering potential for transformation.

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