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ARTICULATING A MĀORI EDUCATOR'S PEDAGOGICAL CONSTRUCTS: A CO-CONSTRUCTED CASE STUDY

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We agreed, as a non-Māori manager and a Māori educator, to use personal construct theory (PCT) methods to articulate and reflect on the second author's (SA's) pedagogical meaning-making which she had intentionally aligned with a tikanga Māori approach to teaching a mixed group of non-Māori and Māori learners on a new – and by all accounts successful - foundation-level programme, *Te Tuapapa Hauora* (translated: *firm foundation in health*). We elicited SA's pedagogical constructs, using four role titles she was positively disposed to, and four she viewed as opposites. We included SA's choice of 10 constructs in a repertory grid. Her ratings allowed us to generate grid-based probes for reflecting on her pedagogy. We analysed post-grid interview data, identifying several key themes in her meaning-making which were consistent with key factors perceived as enabling Māori learners' success (Chauvel & Rean, 2012). We arrived at a dual outcome: a co-constructed account of SA's tikanga Māori pedagogy and an exemplar of how educators could use repertory grid analysis for reflective purposes.

Keywords: Māori values, constructs, elicitation, repertory grid

INTRODUCTION

In this article, we report how, as a non-Māori manager and a Māori educator, we used repertory grid methodology (Kelly, 1955; Fransella, Bannister & Bell, 2004) in a co-operative inquiry (Butt, 2003) to generate a co-constructed account of the latter's pedagogical meanings. Educators draw on their networks of pedagogical meaning-making, either tacitly or explicitly, when they design tasks, create interactional learning spaces, and define learners', as well as their own, roles. Educators' meaning-making systems impact on their instructional choices (Borg, 2003; Freeman, 2002; Woods, 1996). Borg (2003, 81) articulates this premise, viewing educators as "active, thinking decision-makers who make instructional choices by drawing on complex, practically-orientated, personalised, and context-sensitive networks of knowledge, thoughts and beliefs". We attempt to show that two PCT methods (constructs elicitation and the repertory grid) can be used to articulate an indigenous educator's pedagogical belief system. We have two foci: the PCT methods and the indigenous educator's meaning-making.

We opted for constructs elicitation and repertory grid analysis for good reason. The first method allowed us to catalogue ten of SA's pedagogical constructs. The second method yielded ratings that could be analysed, using, among others, cluster analysis to show how constructs were relationally placed within a construct network. One of the outputs of a cluster analysis, a dendrogram, offers an easy-to-interpret holistic account of such construct networks. The notion of a holistic view of one's meaning-making appealed to the Māori educator. We explored the idea, reflecting, among others on the weaving metaphor in Māori culture. In this view, weaving objects generally capture individualised holistic narrative accounts of culturally valuable messages (Te Kanawa, 2009). In our view, the dendrogram could be seen as a numerically-based visual that captures the Māori educator's strands of pedagogical meanings, woven into a coherent and relational construct network.

Second author (SA) adopted a pedagogy firmly rooted in tikanga Māori. The phrase has various meanings, referring, among others, to established truths (tika) embedded in Māori protocols, customs and traditions, which have been passed on from one generation of Māori to the next (Gallagher, 2015; Te Taura Whiri i te Reo Māori, s.a.; Papa Panui website, 1996). We refer to tikanga Māori as "Māori ways of being and doing". Externalising these ways, we agreed,

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would make explicit the meanings the educator was using with a recently established Māori stream. In our view, such externalising was a form of embodied reflective practice, intended to convert tacit knowhow from her lived experience as a Māori educator into an explicit account of such knowledge (Gascoigne & Thornton, 2013; Kinsella, 2007).

Our point of orientation was Macfarlane, Glynn, Grace, Penetito and Bateman (2008), who argue that "Māori worldviews provide an extensive and coherent framework for theorizing about human development and education" (p. 103). Following these authors, we view a tikanga Māori approach as associated with specific culturally defined terms (Grace, 2005, cited in Macfarlane, et al., 2008) such as *tātaritanga* (thinking and meaning-making), *manaakitanga* (relating to others, relationships of care, and respectful engagement), *rangatiratanga* (managing self as a leader and autonomous agent in the group) and *whakawhānaungatanga* (building and maintaining relationships), as well as *whai-wāhitanga* (participating and contributing).

These concepts, Macfarlane, et al.(2008, 103) point out, have to be interpreted in terms of the "concepts of *whānau* (extended family) and *whakawhānaungatanga* (building family-like relationships) (which) … indicate both a sense of *belonging* to and a sense of *relating to* others, within a collective identity and responsibility".

The non-Māori manager (First Author, henceforth FA) viewed the co-operative inquiry as potentially having many purposes. First, it could be viewed as evidence-based reflective practice for both participants whose purpose was to build mutual understanding and take more informed decisions in their respective roles, as they explored how better to support Māori and non-Māori learners. Second, our joint report could be recorded as an explicit narrative (Gascoigne & Thornton, 2013) and boundary text (Thomas, Hardy & Sargent, 2007), serving as a point of orientation for stakeholders at the institute. Third, the inquiry could serve as a case study of how the institute could acknowledge Māori ways of being and doing, giving substance to its recently adopted Māori Capability Framework (Wintec, 2013), the relevant strategic priorities of the New Zealand Tertiary Education Strategy (2014-2019) (NZ MoE, 2014), and the Tertiary Education Commission's recently published outline of key factors perceived as enablers of Māori learners' success (Chauvel & Rean, 2012).

Our interactions, we agreed, occurred in the context of our personally held constructs. Although our focus would be on the Māori educator's pedagogical meaning-making, our account would be influenced by the non-Māori manager's meaning-making. In this context, FA was explicit about his meaning-making in relation to his organisational role as a literacy-embedding practitioner and manager.

In brief, FA expressed two of his constructs, relevant in the context, as follows. First, he deemed transformative engagement with SA as key in his meaning-making as opposed to a superficial and pragmatic "tick-box-type" engagement. The project, he believed, would move both parties to a heightened awareness of a pedagogy rooted in an indigenous Māori worldview. He also viewed the process as a form of voicing meanings within a collaborative and reciprocal framework as opposed to silencing or not hearing all the voices (*voicing versus silencing meaning-making* and *reciprocal versus superficial engagement*).

METHOD

Aim

Our dual research aim was to articulate SA's pedagogical constructs, couched in tikanga Māori values, and at the same time, illustrate that PCT methods were useful in doing so.

Our process

We followed three stages.

The preliminary stage

In this stage, FA first secured SA's willingness to engage in a co-operative inquiry. At our first meeting, we discussed basic ideas in PCT, the repertory grid, its focus of convenience, role titles and bipolar constructs. We followed Fransella, et al. (2004), Bell (2003), and Feixas and Cornejo (2002), identifying the focus of convenience of the intended grid as "SA's peda-

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gogical meanings, rooted in a tikanga Māori worldview, intended to improve outcomes for Māori and non-Māori learners on a foundation-level programme".

In a follow-up 40-minute interview, we used dyads of 'positive' elements (Fransella, et al. 2004) to elicit SA's constructs. We used four role titles SA was positively disposed to, and four she viewed as opposites of the first four. The four positive elements were the following: 'the educator's current practices' (role title 1), 'the educator's future practices' (role title 2), 'a favourite teacher who served as a role model' (role title 4) and a scenario as role title 6: 'Shaping learning experiences learners are willing to embrace; enacting inclusion, participating and contributing to the collective, as well as fostering high-trust relationships.'

For each 'positive' element, we then asked: what would the opposite be? These opposites were the following: 'when you were expected to teach outside your pedagogical meanings' (role title 3); 'a teacher you could not adopt as role model' (role title 5); a scenario, defined as 'a person who merely talks about active care in relation to the group; pursues task completion regardless of relationships; and tolerates self-centredness and limited inclusion within groups of learners' (role title 7) and a second scenario, defined as 'when you were required to teach in ways inconsistent with Māori values, principles and practices' (role title 8).

We included the scenarios (one positive and two opposite), following Wright (2008), who argues that these can be used profitably in eliciting constructs. Our choice of elements, we reasoned, continued to meet the principle of homogeneity of elements (Fransella, et al., 2004), as SA associated the "people" elements with how they enacted a tikanga Māori pedagogy. In rating elements, SA consistently considered the focus of convenience of the study.

For constructs elicitation, FA used dyads of positive elements. He would typically ask "if you compare your current practices (E1) and your favourite teacher (E4), how are they similar? SA would answer: "They are the same because my favourite teacher showed me how to build caring relationships with learners in the collective". FA would then ask: What would the opposite pole be? SA would refer to groups associated with self-directed, and limited care from

and for others. Thus, we followed the opposite method of construct elicitation (Epting, Suchman & Nickeson, 1971, cited in Fransella, et al., 2004).

SA reminded FA that she viewed constructs as inspiring actions and processes that unfold in the life of the group. We attempted to capture this aspect in our formulations, casting all of them in the *gerund + complement* construction (-ing word + direct object) (Leech and Svartvik, 1992). We captured 17 tentative formulations of constructs, which we crafted until SA felt relatively comfortable with the language in which they were couched. SA then selected her 10 top-priority constructs from the list for inclusion in the grid.

The implementation stage

Next, FA entered the elements and the constructs into a repertory grid, reversing emergent and contrast poles for five of the ten constructs. We used a 7-point Likert scale, which, in our analysis was converted to a +3 to -3 scale. Once we had drawn up the grid, consisting of 8 separate pages, FA spent an hour with SA who then rated all elements in terms of her constructs, completing each page without referring back to completed ratings. FA processed the data, applying grid focusing which included reverse scoring (Feixas & Cornejo, 2002). Then, he performed the statistical analyses in the Social Package for the Social Sciences (SPSS) (Version 22), generating descriptive statistics (i.e. means, standard deviations and standard errors), Pearson correlations and cluster analyses for constructs-based ratings. The ratings in the Excel data set were then transposed so that the same analyses could be performed with elements as column headers.

FA used the following procedure to prepare probing questions for the post-grid interview. First, he looked at the dendrograms to identify significant clusters. He then cross-checked these against the correlations which allowed him to identify the level and direction of the association among elements and among constructs. He interpreted these findings in the light of the constructs elicited from SA. Each probe consisted of a statement outlining statistical findings, followed by a probing question.

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Post-grid interview and analysis

In using grids, FA views their statistical outputs as potential numerical probes for shared meaning-making with the individuals who produce the grid ratings (Greyling & Lingard, 2015). FA's role was to formulate these tentative and open-ended probing questions for use in a post-grid interview. SA's role was to respond to these probes, and then to validate, contest or review FA's account of the interview, captured in this article. SA was viewed as the primary and FA the secondary knower in the exchanges (Berry, 1981) that dealt with her constructs.

In a post-grid interview, we explored the probes which focused, among others, on SA's experience of conflict in having to teach in ways that were inconsistent with her Māori worldview, as well as correlations among elements and among constructs. In the 90-minute interview, SA discussed the probes, elaborating on Māori ways of being and doing.

To triangulate our findings (Viney & Nagy, 2012), FA re-visited the interview data. After transcribing the interview, FA employed two concepts from discourse analysis, namely conversational topic and boundary markers (Bax, 2011), to demarcate topic-related turn-by-turn exchanges. After a first round of coding in NVivo software (Version 10) (2012) (Bazeley & Jackson, 2013), the so-generated codes (49 codes) were clustered manually into six categories (Cresswell, 2013). Using constant comparisons (Charmaz, 2014), we interpreted the sequences in the six categories in the light of SA's construct formulations and our findings for the probing questions (Charmaz, 2014). These categories represent a further elaboration of SA's tikanga Māori pedagogy.

In response to a reviewer's comments, we also elaborated SA's pedagogical meanings, laddering up and down the preferred poles of SA's constructs, asking successive why and how questions (Fransella, 2004). A very brief account is provided following headings marked as '*reasons*' and '*hows*' directly after each construct formulation.

FINDINGS

In this section we report the following findings: SA's top-ten constructs, descriptive statistics for the positive and the negative elements (Table 1); descriptive statistics for constructs (Table 2); as well as dendrograms for elements (Figure 1) and constructs (Figure 2). We also report two correlation matrices: Table 3 depicts the correlations among the elements in the grid, while Table 4 shows the correlations among constructs. In addition, we list the tentative and open-ended probes, followed by brief accounts of SA's responses. These include references to the 6 categories we deduced from the NVivo analysis.

SA's constructs

We outline SA's top-ten constructs below, with the emergent poles stated first. In response to a reviewer's comments, we decided to elaborate SA's constructs, using laddering to specify the significance of each pole and how to enact each. Thus, we added *reasons* and *hows*.

Construct 1: *Embracing the collective to enact our care* vs. *enacting self-directed and therefore limited care from and for others.*

- *Reasons*: Participants offer each other care in the group. Such care is a condition for mutual trust to develop. High-trust relationships assist participants to function optimally, survive challenges and grow. Participants develop skills, transferrable to other groups, in a safe, nurturing space. These skills, available to Māori and non-Māori alike, prepare them for the future, as well as how to thrive in and contribute to diverse social groups.
- *How*: Create regular opportunities to get to know each other. Deal with concerns and anxieties about their learning or whatever they may feel confident (and trusting) to share. Model how to value others. Guide respectful interaction through reflective discussion. Be explicit about (and model) how master-novice (tuakana-teina in Māori) role switches may be enacted in exchanges in the group. Be explicit about tikanga Māori values. Invite ex-students to provide a post-course perspective. Foreground tikanga Māori

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values and group dynamics as the context for completing learning tasks.

Construct 2: *Sharing food (kai) as a symbol of physical and spiritual wellness, as well as belonging to the group* vs. *sharing food primarily as a physical need and as a part of socialisation.*

- *Reasons*: Kai (food) is used to establish supportive relationships and bond. Physical needs impede learning; once these have been met, learners are more relaxed and able to contribute to group activity and achieve goals. Social exchanges allow group dynamics to be established where anyone, irrespective of level of ability, feel comfortable to contribute.
- *How*: Provide and create opportunities to share kai and eat together. Shared kai is an opportunity to enact different roles of care such as guest, host, social carer and group mana (i.e. authority to lead).

Construct 3: *Shaping learning spaces where participants may spontaneously evolve meaningful relationships* vs. *shaping learning spaces where relationships are less important than mastery of content.*

- *Reasons*: When learning spaces are shaped that allow informal communication, participants feel safe to contribute meaningfully. These spaces are the contexts for mutual validation. Such validation is an interpersonal measure of success in the group and a stepping-stone for developing self-confidence which impacts on the kind and level of participants' contributions. Participants diversify their roles within the life of the group in ways consistent with the reasons listed for constructs above.
- *How*: Design interactional spaces that allow, initially, for low-risk informal interactions, and then higher-risk formal interactions. Track how relationships evolve. Validate learner contributions. Encourage everyone to contribute. Model the preferred ways of acting. Apply reflective practice, making explicit how to contribute to the group and enact their roles.

Construct 4: *Shaping a communication-rich environment directed at all facets of learner experience including learning* vs. *shaping a space for communication directed at the mastery of content.*

- *Reasons*: Group communication deals with more than formal academic interaction. Reciprocal communication is maintained, group members keeping each other informed. Each participant can mobilise the information to his, her or the group's advantage. Group-based reflections on successes and failure are explicit, with all outcomes serving as learning opportunities for all. Group members may intervene when they observe fellow learners having difficulties, or collaborate with the educator to address challenges.
- *How*: Create various opportunities for communication (such as group reflections, educator-group, learner-learner, learner-group, and group-group interactions). Design learning tasks that require both informal and formal communication. Learners are encouraged to show leadership and take responsibility, not only for themselves but also for other group members.

Construct 5: *Fostering group dynamics directed at inclusion for all* vs. *fostering group dynamics directed at promoting a competitive spirit and limited inclusion.*

- *Reasons*: Māori and non-Māori students are included. Factors such as age, ethnicity, culture, and gender are irrelevant. A tikanga Māori approach values everyone. Māori assume that everyone is able – or should be enabled – to perform at their best and achieve success.
- How: Create opportunities (time, place, participants, kai) for Māori and non-Māori learners to interact. Reflect on the past, and plan for the future to avoid past failures. Take an interest in all learners' worlds of experience.

Construct 6: *Creating social landscapes where everyone spontaneously participates and contributes in pursuing outcomes* vs. *creating social landscapes where educators and learners are driven by achieving outcomes.*

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- *Reasons*: Spontaneity of response indicates low levels of anxiety and high trust as learners attempt learning tasks. Learners feel they belong, supported by a high level of care and mutual trust. Even if they fail, they will have the confidence and resilience to return to the course, or other forms of education. Using group-based dynamics to pursue multiple outcomes (instead of completions only) creates the opportunity for learners to develop resilience and tenacity, as well as coping skills for situations when the supportive group is not readily available.
- *How*: Create opportunities for social interaction among all group members. Facilitate opportunities for learner-learner, learner-group, learner-educator and group-educator exchanges. Reflect on how to establish supportive groups (beyond the course).

Construct 7: *Shaping high-trust relationships among all participants* vs. *shaping professional relationships between educators and learners, with trust less important than achieving learning outcomes.*

- *Reasons*: Educator effectiveness is related to the level of trust she is able to establish with learners. The level of trust is directly related to learners' experience of a safe learning environment where high levels of care are available within the group.
- *How*: The 'how' accounts for other constructs are relevant here.

Construct 8: *Guiding relationship-building by example and reflective shared talk* vs. *guiding relationships through instructional exchanges.*

- *Reasons*: Modelling roles and reflecting on relationship-building make indigenous knowledge explicit. Explicit knowledge of role relationships allows participants to make informed choices.
- *How*: Make explicit one's own role, as well as participants' multiple roles. Observe,

model and reflect on relevant roles. Track how learners enact tikanga Māori values.

Construct 9: *Pursuing active other-directed care within the collective* vs. *pursuing care as lip-service to the idea of supporting others.*

- *Reason*: The reasons present for construct 1 apply here.
- *How*: See the "how" sections above.

Construct 10: *Taking pride in embracing responsibility within the group* vs. *taking responsibility as the natural outcome of the educator's authority over learners.*

- *Reasons*: The preferred pole is important because learner success depends on participants committing to the group. Such commitment is key to their development and, if achieved, may impact positively on various domains of experience other than the academic.
- *How*: Create opportunities for learners to accept responsibility for reciprocal care and develop leadership skills within the group.

Descriptive statistics

In *Table 1*, descriptive statistics for elements are outlined. We report the number of constructs used in rating the elements (N=10), the range of means, means, as well as standard errors and standard deviations as measures of the variability of scores.

As anticipated, the positive role titles (elements 1, 2, 4 and 6) showed positive means for all constructs. As expected, the negative role titles (elements 3, 5, 7 and 8) yielded negative means. These results are consistent with SA's initial views of the positive and opposite elements.

Table 1: *Descriptive statistics for elements (N=10 constructs)*

Elements	N	Range	Mean	St err	SD
E1: Current practices	10	2 to3	2.5	.17	.53
E2: Future practices	10	2 to 3	2.9	.10	.32
E3: Teaching outside current meanings	10	-2 to 3	-0.5	.43	1.35
E4: Favourite, admired teacher	10	-1 to 3	1.8	.33	1.03
E5: Teacher who was not a role model	10	-2 to -1	-1.8	.13	.42
E6: Learner-centred, relationship-based	10	2 to 3	2.9	.10	.32
E7: Task-based relationships less important	10	-2 to -1	-1.8	.13	.42
E8: Having to teach non-tikanga style	10	-1 to -2	-0.5	.27	.85
Valid N (listwise)	10				

St err: Standard error; SD: standard deviation.

In *Table 2*, we report the descriptive statistics for constructs (N=8 elements). With four 'positive' and four 'negative' elements, we anticipated that the ratings on constructs would be located close to 0. Only two of these (on C4 and C5) were at 1 and 1.25, which show that the means were skewed towards the right of the distribution (positive means on the scale).

Table 2: *Descriptive statistics for constructs (N=8 elements)*

Constructs	N	Range	Mean	St err	SD
C1: *Embracing collective vs limited care*	8	-2 to 3	.88	.79	2.23
C2: *Sharing food as spiritual vs as physical*	8	-2 to 2	.75	.56	1.58
C3: *Meaningful relationships vs skills first*	8	-2 to 3	.50	.78	2.20
C4: *Holistic learner needs vs skills mastery*	8	-2 to 3	1.00	.82	2.33
C5: *Inclusive group vs competitive spirit*	8	-2 to 3	1.25	.68	1.90
C6: *Participative vs achieving outcomes*	8	-2 to 3	.63	.73	2.07
C7: *Pursue high trust vs outcomes*	8	-2 to 3	.50	.87	2.45
C8: *Reflective shared vs instructed control*	8	-2 to 3	.00	.80	2.27
C9: *Other-directed vs mere talk of support*	8	-2 to 3	.50	.87	2.45
C10: *Embrace vs direct responsibility*	8	-2 to 3	.88	.70	1.96
Valid N (listwise)	8				

St err: Standard error; SD: standard deviation.

In *Table 3*, we report correlations among elements. These results show a perfect positive correlation between elements 2 and 6 (correlation = 1.00, probability<0.01), a positive correlation between elements 5 and 8 (correlation = .930, probability<0.01), and an inverse relationship between elements 6 and 7 (correlation = -.667, probability<0.04). These findings provide partial support for the two-cluster dendrogram reported in Figure 1, specifically, elements 2 and 6 showing a direct relationship between two 'positive' elements, and an inverse relationship between a preferred (E2) and an opposite (E7) element. SA's ratings showed a high level of association between her future practices (E2) and learner-centred and relationship-based educational practices (E6), while future practices (E2) were inversely related to lip service being paid to active care in the group (E7).

Table 3: *Correlations among elements (Constructs = 10)*

Elements	E1	E2	E3	E4	E5	E6	E7	E8
E1 (r)	1	.33	.23	.41	0.00	.33	-.50	-.12
(sig)		.35	.51	.24	1.0	.35	.14	.73
E2 (r)		1	-.38	-.07	.17	1.00**	-.67*	-.21
(sig)			.27	.85	.65	0.00	0.04	.73
E3 (r)			1	.48	.20	-.39	.20	.34
(sig)				.16	.59	.27	.590	.34
E4 (r)				1	.10	-.07	.10	.18
(sig)					.78	.85	.78	.73
E5 (r)					1	0.17	-.25	.93**
(sig)						.65	.49	0.00
E6 (r)						1	-.67*	.21
(sig)							.04	.57
E7 (r)							1	.00
(sig)								1.00

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

In *Table 4*, we report the correlations among constructs, and again, as expected, the educator's construction of Māori values shows consistency, with all the emergent poles displaying high levels of correlation ranging from 0.76 to 0.99, significant at the 1% level. These results imply that the positive poles of SA's constructs are integrated into a coherent network of related constructs.

Table 4: *Correlations among constructs (Elements = 8)*

Constructs	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
C1 (r)	1	.96**	.94**	.99**	.95**	.92**	.90**	.82*	.90**	.85**
(sig)		.000	0.00	0.00	0.00	0.00	0.002	0.013	0.002	0.008
C2 (r)		1	.90**	.97**	.92**	.89**	.85**	.72*	.85**	.82*
(sig)			0.00	0.00	0.00	0.001	.008	0.045	0.008	0.013
C3 (r)			1	.95**	.92**	.99**	.98**	.89**	.98**	.94**
(sig)				0.00	0.001	0.00	0.00	0.003	0.00	0.000
C4 (r)				1	.93**	.92**	.90**	.76*	.90**	.85**
(sig)					.001	.001	.002	0.030	0.002	0.008
C5 (r)					1	.86**	.89**	.83*	.89**	.97**
(sig)						0.006	0.003	0.012	0.003	0.001
C6 (r)						1	.97**	.88**	.98**	.90**
(sig)							0.00	0.004	0.000	0.002
C7 (r)							1	.90**	1.00**	.94**
(sig)								0.002	.000	0.001
C8 (r)								1	.90**	.87**
(sig)									0.002	0.005
C9 (r)									1	.94**
(sig)										0.001

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Cluster analysis: Dendrograms

In *Figure 1*, the dendrogram for elements, as anticipated, clustered the positive and the negative elements as two separate configurations. To make sense of the dendrogram, we clarify some of the components of the graphic.

The dendrogram is read from left to right, with the numbers 1 to 8 (in inverted order, far left) indicating the stages of the analysis, with the elements (in clustering order) on the y-axis of the diagram. The vertical lines indicate the elements that are related, while the horizontal lines indicate the distance at which clusters are fused. This implies that within each cluster the means for the elements are closely related, reflected in small fusion distances (distances < 5), while the between-cluster distance is large, revealing the dissimilarity of the two clusters (distance = 25). The label "Rescaled Distance Cluster Combine" refers to ratio-based rescaling of observed ratings to assume values in the range 1 to 25 (see top of *Figure 1*). The "Ward Linkage" refers to how distances were calculated, in this case, combining elements where variance within the cluster is minimised (Cluster analysis, s.a.).
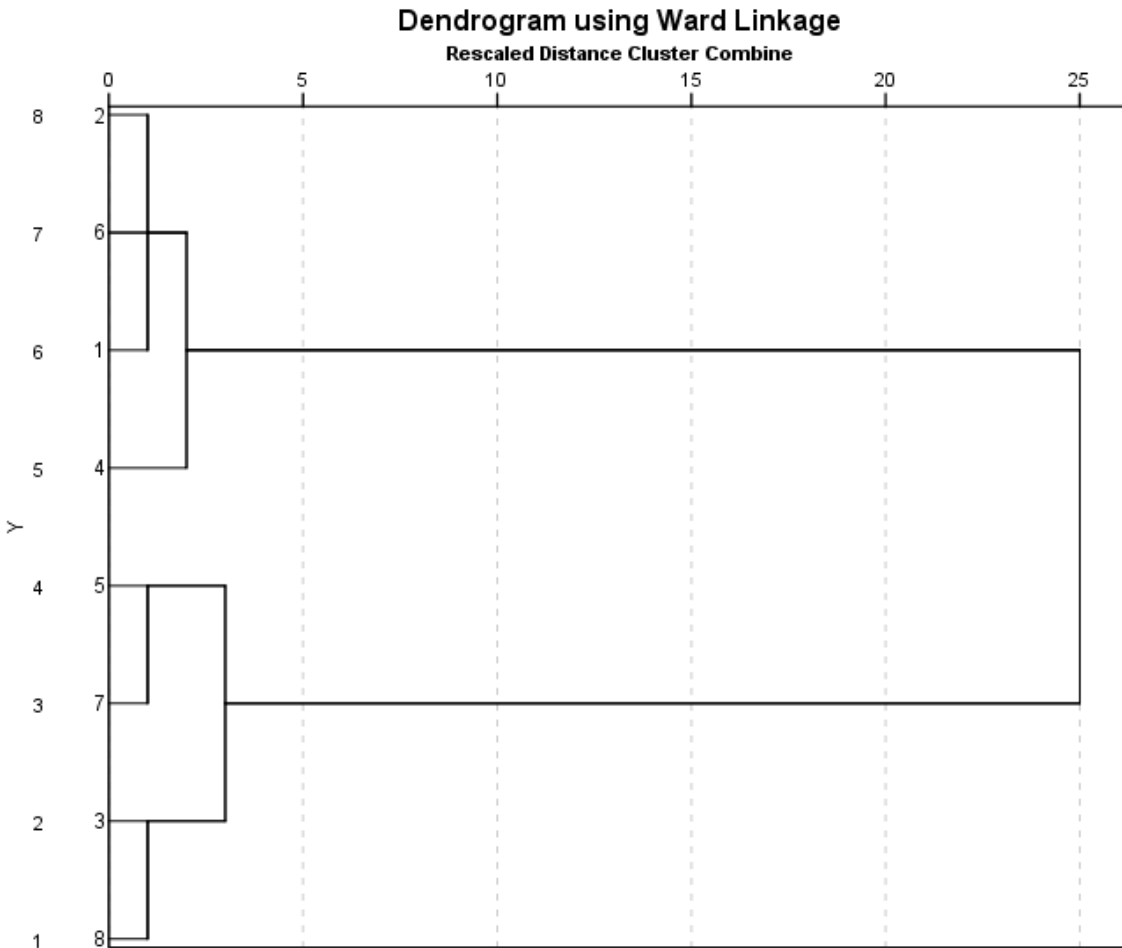

Figure 1: *Dendrogram of elements (Positives 1, 2, 4, and 6; and Opposites 3, 5, 7 and 8)*

In the next dendrogram in *Figure 2*, we capture the cluster of ratings for constructs. We selected the close linkages between constructs 7 and 9; 3 and 6; 5 and 10; as well as 1 and 4, to generate probes for a follow-up discussion.
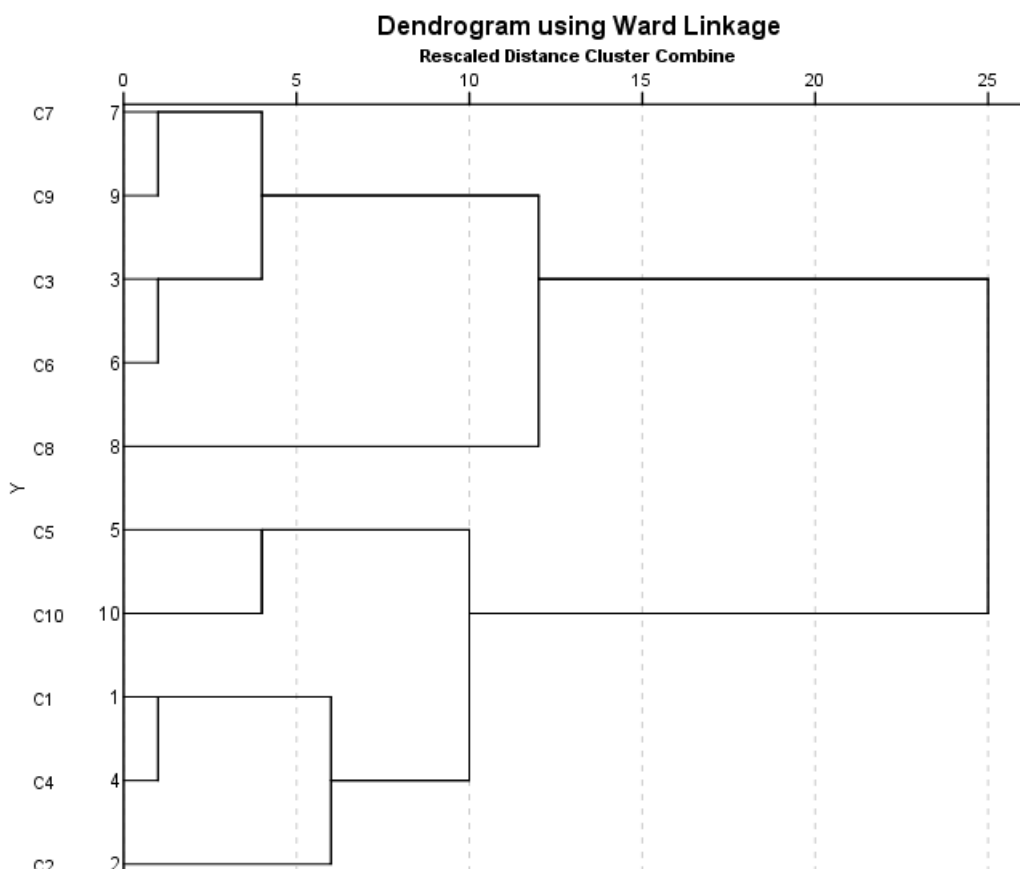

Figure 2: *Emergent poles of constructs*

Probes for the post-grid interview and brief summary of findings

FA defined the probes (in the form of statements followed by probing questions) which served as an agenda for the post-grid interview. FA based the probes on the statistical findings referred to in the tables and figures above. The findings were based on FA's interview notes.

Probe 1: *Figure 1* shows two clusters, the first your preference (elements 1, 2, 4 and 6) which is notably different from the 'opposites' (elements 3, 5, 7 and 8). Did your introduction of the new Māori stream allow you to eliminate some of the conflict you experienced when you had to teach in a mode that was inconsistent with your beliefs and thinking about teaching?

- *Findings:* SA agreed that she felt less tense than before. Her introducing the new stream eliminated some of the conflict she experienced. The new stream was still expected to cover the same learning material as before. The only difference was that she was allowed to create learning experiences that were consistent with her tikanga Māori beliefs and thinking.

Probe 2: *Table 3* shows a perfect correlation between element 2 ('future practices') and element 6 ('Shaping learning experiences learners are willing to embrace; enacting inclusion; participating and contributing to the collective; as

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well as fostering high-trust relationships') (correlation = 1.0, probability<0.01). This level of association is also reflected in the small fusion distance between these elements in the dendrogram (*Figure 1*). What does this high level of association mean to you?

- *Findings:* The scenario in element 6 defines tikanga Māori practices which follow key values associated with a Māori world view. SA stated that she was still on the journey of developing her tikanga Māori approach. Her future practices, SA outlined, would be aimed at drawing learners into optimally owning their learning, promoting inclusion of all learners irrespective of ethnic background; as well as creating conditions where learners participate and contribute substantively to the learning process. Her success, she contended, was directly related to the level of trust not only between her and her students, but also among them.

Probe 3: Element 6 (referred to in probe 2) and the negative scenario in element 7 ('a person who merely talks about active care in relation to the group; pursuing task completion above all else; and tolerating self-centredness and maintaining limited inclusion') show an inverse relationship (*Table 3*, correlation = -0.67, probability<0.04). This is shown in the location of the elements in two clusters with large fusion distances signalling dissimilarity (Rescaled distance = 25) (*Figure 1*). Your future practices are therefore not associated with the practices described in element 7. Do you agree*?*

- *Findings:* SA agreed that the two scenarios were in conflict. She added that before the new stream had been introduced, she was expected to present the same material to Māori and non-Māori learners within a task-orientated approach. She felt she had to act in ways that were inconsistent with her beliefs and thinking about teaching and learning, often feeling inauthentic in her interactions with learners.

Probe 4: Your ratings show a high level of association between the emergent poles of C7 (*Shaping high-trust relationships to foster constructive exchanges among all participants*) and C9 (*Taking pride in embracing responsibility within the group*) (*Table 4*, correlation = 0.94, probabil-
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ity<0.001). Can you explain this relationship in more detail?

- *Findings*: SA felt that building relationships of care was the first step in guiding group dynamics. The whānau (family) concept implied that relationships were meaningful when they supported group processes. The higher the level of trust among participants, the higher the level of engagement and mutual support.

Probe 5: Your ratings show a high level of association between the emergent poles of C3 (*Shaping learning spaces where participants spontaneously evolve meaningful relationships*) and C6 (*Creating social landscapes where everyone spontaneously participates and contributes*) (*Table 4*, correlation = 0.99, probability<0.001). Can you explain this relationship between the way you create learning spaces and promote learner involvement?

- *Findings*: SA pointed out that as an educator she was responsible for creating an interactional social space where learners could take initiative, as well as engage in caring and sharing while building relationships. These rules of engagement were generally negotiated with learners, assigning the responsibility to learners to maintain the rules of communication and respectful engagement.

Probe 6: Your ratings show a high level of association between the emergent poles of C1 (*Embracing the collective in enacting our care*) and C4 (*Shaping a communication-rich environment directed at all facets of learner experience, including learning*) (*Table 4*, correlation = 0.99, probability<0.001). Can you explain this relationship in more detail?

- *Findings*: SA pointed out that good communication was key to building relationships and using group dynamics as a resource in one's teaching. She outlined the rules of group interaction, negotiated and co-owned by participants.

Discourse analysis of actions and processes

To triangulate and elaborate our findings (Viney & Nagy, 2012), FA re-visited the interview data. After transcribing the interview, he used NVivo software (Version 10) (2012) to perform an

analysis of topic-related interactional sequences in the FA/SA discourse. Using constant comparisons, a technique from grounded theory (Charmaz, 2014), he analysed the interview in more depth. To validate the findings so far, he trawled the transcription comparing the different findings, and then set about coding the full interview. The initial analysis yielded 49 categories which, on re-analysis, were classified into 6 categories. He categorised extended sequences of turns, demarcated by topic shifts and/or discourse markers (Bax, 2011), into the following six primary categories. We report the frequency of the specific category in the interview exchanges.

Category 1: Validating and valuing tikanga Māori as a belief system (18 sequences).

SA stated that she had initiated the *Te Tuapapa Hauora* stream because she knew that a tikanga Māori approach would improve outcomes for Māori and non-Māori learners, creating the opportunity for her and her colleague to address barriers in learners' learning, and pursue a relationship-based approach to lifting outcomes for them. Following a tikanga Māori approach also meant that she was able to regain and maintain her authenticity and integrity as an educator. SA deemed the task-orientated approach on the main-stream course to be too rigid and impersonal.

Category 2: Building relationships of care (11 sequences).

SA dealt with specific aspects such as building relationships through engagement and talk; food as an important symbol of care, both physical and spiritual; and respectful engagement. SA also explored the downside of a relationship-based pedagogy, explaining her strategy in case the relationship was taken for granted. However, SA was also clear that a high level of interpersonal trust worked in favour of optimal attendance and engagement.

Category 3: Negotiating learner-centred control over and ownership of conversations, relationships and group dynamics (8 sequences).

SA consistently stated that creating processes that she and her learners co-owned was key. She explicitly negotiated the rules of engagement within a tikanga Māori context with students.

Five prominent rules, governing classroom engagements, were the following:
- Rule 1: Each individual, irrespective of level of skill, is able to contribute to learning conversations in a group *(All-are-able-to-contribute rule)*.
- Rule 2: To ensure optimal engagement, any student question should be directed first at a fellow student (or fellow-students) for clarification; and only then at the educator *(Redirected group-based pathways-of-inquiry rule)*.
- Rule 3: Pose questions to the educator in ways that would clarify the processes and purposes of the group *(Question-to-seek-clarification-for-the-group rule)*.
- Rule 4: Engage others respectfully, maintaining low risk-to-face communication *(Low risk-to-face rule)*.
- Rule 5: Interactional learning develops spontaneously and is not enforced by the educator *(Spontaneity-of-communication rule)*.

Category 4: Developing supportive group dynamics (8 sequences).

SA observed that a supportive group (the whānau concept) was important in her tikanga Māori approach. SA pointed out that using group dynamics to promote learning was only part of the process. The main aim was to equip learners with the skill to access, if not create, groups as sources of support. Learner autonomy, SA stated, was viewed in the context of the learner being able to access and harness the support within groups. This was a goal not only in the current learning context, but also in other contexts beyond the safety of the group.

Category 5: Facing the challenges of changes in practices (5 sequences).

SA observed that lack of support and lack of resources were the main barriers in implementing a tikanga Māori approach. Other factors that impacted on learner success on the programme included socio-economic factors, social challenges related to family and self, perceptions of personal agency and self-efficacy, and mental health concerns. A wide range of factors impacted on learner success.

Category 6: Reflecting on role models (2 sequences).

SA stated that she had two teachers as role models. The specific aspect she admired about them was how they established and maintained relationships with all learners, and how the quality of those relationships impacted positively on their learning. SA conceded that her challenges were far more complex than those faced by these admired teachers.

DISCUSSION

We consider two focal points. The first is the significance of PCT methods in articulating educators' pedagogical meaning-making, including the value to the institute. We identify several orders of reflection which, viewed as part of educators' professional development, support the use of these methods. Next, we explore the content of SA's construct network, attending to her key constructs, and the value of repertory grids to show that constructs, as personally-held and individualised, occur in relatively integrated networks of meaning.

The discussion should be viewed against the premise that reflective practice is a prerequisite for making tacit educator knowhow explicit, and that such explicit knowledge is a first step in interrogating one's instructional thinking and doing (Kinsella, 2007).

The significance of PCT methods in articulating educators' pedagogical meaning-making

We illustrated how PCT methods could be used within a multi-method approach. We opted for a co-operative inquiry, two PCT methods (constructs elicitation and the repertory grid) and a discourse analytic approach. These methods were used to triangulate our findings (Cresswell, 2013; Viney & Nagy, 2012). We invoked the primary knower/secondary knower construct to define our contributions to the inquiry (Berry, 1981).

From a primary knower point of view, FA was responsible for the methodology and SA for validating FA's account of her construct system. From a secondary knower point of view, SA was led by FA on methodology issues, and FA was directed by SA on the content of her construct system.

The study illustrated four orders of reflection (Greyling & Lingard, 2015). The first was constructs elicitation which yielded 10 bipolar constructs, elaborated after the review process. The second occurred when SA completed the grid, assessing the elements in the grid on the basis of her ten constructs. The third involved the post-grid interview and analysis: probes were used to explore the relatedness of SA's constructs. The outcome was that we were able to go beyond cataloguing constructs to show how SA constructed them as an interacting network. Adding a discourse analytic focus, we elaborated SA's tikanga Māori approach. The last order of reflection occurred in our writing up this article. The external reviewers' comments prompted us to elaborate SA's constructs, adding whys and hows; reviewing our account of the process, and rewriting the discussion and conclusion.

We viewed the study as an instance of reflective practice which raised the participants' awareness of the indigenous educator's pedagogy rooted in tikanga Māori values. The reflective process allowed SA to make her tacit knowledge explicit, generating a shared account of her pedagogy. This account of SA's meaning-making may serve as a point of orientation in reflecting on tikanga Māori pedagogy which could be useful in operationalising the institute's Māori Capability Framework (Wintec, 2013) and pursuing strategic priorities in the New Zealand Ministry's Tertiary Education Strategy (2015-2019).

The indigenous educator's construct system

The most noticeable aspect of the findings was their consistency. The cluster analysis of elements showed, as we anticipated, that the positive and the opposite elements were configured as two clusters (see *Figure 1*) which aligned with SA's *tikanga Māori* vs. *non-tikanga Māori approach*. Her tikanga Māori world view was also evident from the high levels of association among the emergent poles of her constructs (see *Table 4*) which ranged from 0.75 to 0.99, significant at the 1% level. SA's responses to the probes were consistent with the correlations in *Table 4*, as well as the small fusion distances of horizontal lines showing high levels of association in *Figures 1* and *2*.

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These findings showed that SA's constructs were integrated into a coherent network. Comparing and reflecting on these findings, we identified two core constructs: mobilising group dynamics and relationship building. SA developed accounts of the dynamics needed to build relationships, show care, take responsibility, as well as participate and contribute.

SA's purpose was to engage learners in co-designing and co-owning a pathway of positive learning experiences, founded on high-trust relationship of reciprocal care within the group. SA viewed educational success as one of many outcomes that could potentially be achieved. Although tikanga Māori values in this context were tightly defined, they were flexibly applied – they were deemed aspirational meanings pursued by participants in the group.

FA argued that the emergent poles of SA's constructs were tightly defined, serving as stable points of orientation in her pedagogical belief system. If constructs were tightly defined, he surmised, any teaching delivery that required SA to move outside her belief system could lead to her experiencing conflict (Feixas, Saūl & Sanchez, 2000). SA confirmed this in various responses (see Probes 1 and 3). This meant that a task orientation would prompt SA to act in ways that she deemed to be inconsistent with the emergent poles of her constructs.

The question, FA recorded, was how SA had coped with such inconsistency when she was required to work within a more task-directed orientation. Put differently, what was her tolerance threshold for conflict? At what point would the conflict become unbearable? Her comments were that she sometimes felt a "fraud", "false" and "inauthentic" – she would pragmatically go through the motions of enacting a mode of delivery she did not believe in. As Kalekin-Fishman (2003, 149) observes: the "capacity for fragmentation in the Kellian sense is, therefore, actually a sign of one's ability to be a 'member', and that is a condition for survival". The individual has to be able to tolerate a measure of fragmentation to survive in the diverse communities in which they are embedded. Put differently: At what point does conflict of this kind become debilitating? How can educators be supported to navigate teaching demands that generate such conflicts? How can indigenous pedagogies be made explicit to unlock their value?

Checking our account against current institutional boundary texts, referred to in our introduction, we noted that SA's perspectives were consistent with the tikanga Māori terms and key competencies outlined in Macfarlane et al. (2008). The term *tātaritanga* (thinking and meaning-making), similar to the PCT term 'construing', described our co-operative effort. The term *manaakitanga* (relating to others, relationships of care, and respectful engagement) was echoed in the emergent poles of constructs 1, 2, and 9, while the term *rangatiratanga* (managing self as a leader and autonomous agent in the group) related to construct 10. The term *whakawhānaungatanga* (building and maintaining relationships) were reflected in constructs 3, 4, 7 and 8. The term *whaiwāhitanga* (participating and contributing) was covered by construct 6, while the term *whānau* (group as extended family) was prominent in constructs 1, 2, 5, 9 and 10.

CONCLUSION

We concluded that PCT methods were useful in articulating an indigenous educator's meaning-making in an educational context. Evidence of her network of pedagogical constructs was collected in a sequence of actions that encapsulated four orders of reflective practice. We showed how important group dynamics and relationship-building were in Māori pedagogy.

Our account is not exhaustive: we articulated ten constructs and how they were interrelated. We also identified topics of interest for further reflection, including the construct *manageable versus debilitating conflict* relevant when educators find themselves having to act in ways inconsistent with their pedagogical meanings. Whether educators experience conflict or not, how can they interrogate the implicit meanings associated with their constructs? In our case, the creativity cycle (Kelly, 1955) and the ABC model (Tschudi & Winter, 2012) are next steps in investigating hidden non-symbolised meanings SA's indigenous pedagogy.

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