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A Quantitative Investigation of ESL Teacher Knowledge in Australian Adult Education

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Abstract

English as a second language (ESL) teaching is partly a thinking process in which teacher knowledge plays a pivotal role in making instructional choices (Breen, Hird, Milton, Oliver, & Thwaite, 2001). The present study contributes to understandings of teacher knowledge by exploring the types of knowledge, which practicing teachers value in their teaching. Using course outlines from ESL teacher training programs, a Likert-scale questionnaire was developed and delivered to 108 experienced ESL teachers in six states of Australia. Exploratory factor analysis of the data identified seven types of knowledge differently valued by ESL teachers—namely knowledge of practice, learners, resources and technology, curriculum, contextual factors, language learning theories, and language components. The overarching term for the first four used in the study is knowledge of teaching and the overarching term used for the last three is knowledge of language. Teachers regarded knowledge of teaching as significantly more important than knowledge of language.

Keywords: TESOL; teacher knowledge; ESL teacher education; adult education

Introduction

Teacher knowledge guides instructional decisions and practices (Gatbonton, 1999). It plays an important role in teachers actively making instructional choices among different alternatives based on contextual requirements and constraints at a given time (Breen et al., 2001). Hence, inquiry into teacher knowledge offers deep understanding of the nature of teaching (Breen et al., 2001), which can ultimately contribute to the creation of effective teacher development programs (Mullock, 2006). Teacher cognition and classroom practice have been connected through a wide variety of constructs, including beliefs, assumptions, knowledge, attitudes, thoughts, ideas, morale, affect,

concepts, philosophical principles, an underlying system of constructs, and a notion analogous to schema (Borg, 2003b). In the present study, teacher knowledge is used to investigate the cognitive aspect of English as a second language (ESL) teaching.

Despite the common qualitative approach to understanding ESL teacher knowledge (see Borg, 1998; Breen et al., 2001; Farrell & Bennis, 2013; Fleming, Bangou, & Fellus, 2011; Golombek, 1998, Johnson, 1992; Johnston & Goettsch, 2000; Meijer, Verloop, & Beijaard, 1999; Richards, 1996; Wette, 2010; Woods & Cakir, 2011), the present study implements a quantitative and exploratory research methodology to map the knowledge base of experienced ESL teachers. More precisely, the study is a departure from the established qualitative approach to understanding the shared "collective" repertoire of experienced ESL teachers' knowledge-base (Breen et al., 2001).

Since formal teacher education courses are one source of equipping teachers with pedagogical and content knowledge, this study compares the content of teacher education courses with the knowledge base of experienced teachers. That is, the present paper investigates the connections and dissonances between the course content offered to teachers in teacher education programs and the kinds of knowledge valued by experienced teachers in actual teaching. This, however, does not imply that the knowledge base of ESL teachers is merely constructed through course content. ESL teacher knowledge is influenced by a multitude of factors, one of which is formal teacher education courses.

Review of the literature

Shulman (1999, p. 64) classifies teacher knowledge into "content knowledge", "general pedagogical knowledge", "curriculum knowledge", "pedagogical content knowledge", "knowledge of learners", "knowledge of educational contexts", and "knowledge of educational ends". However, adapting such categorizations from mainstream education into English language teaching (ELT) is not without problems. Firstly, when pedagogical content knowledge is applied to the field of language learning and teaching, it "becomes a messy and possibly unworkable concept" since the content of the lesson and the medium of instruction are the same while this differs in subject-matter instruction (Freeman, 2002, p. 6). Secondly, borrowing knowledge from other disciplines is "of little use, at best, and disabling, at worst", for real experiences of teachers and learners in ELT are not taken into account (Clarke, 1994, p. 9). Finally, ELT is different from subject matter teaching because it requires enculturating "someone into a language system (grammar, words, perspective taking, identity marking)", reconstructing his identity and perspectives, and in this process creating a new person (Gee, 1988, p. 129). Since English language learners' language competency is not the same as their native language, they usually find it difficult to express themselves at the same level of complexity as they do in their native language, which contributes to identity disruption and formation of a new identity.

In ELT, different scholars have viewed teacher knowledge from different angles, resulting in the entity being understood in different ways. Teacher knowledge has been conceived as "pedagogic principles" (Breen et al., 2001), "maxims" (Richards, 1996), "craft knowledge" (Richards, 1994), "pedagogical knowledge" (Gatbonton, 1999),

"images" (Johnson, 1994), "personal practical knowledge" (Golombek, 1998), "personal pedagogical systems" (Borg, 1998), "sense of plausibility" or "pedagogic intuition" (Prabhu, 1990), "professional knowledge in action" (Wette, 2010), "beliefs about pedagogy" (Fleming et al., 2011), "(evolving) understandings" (Woods & Cakir, 2011), and "teacher beliefs" (Farrell & Bennis, 2013).

Despite these variations, ELT scholars agree on a series of commonalities, some of which are the following. Teacher knowledge informs practice. It is contextual, dialectical, and informed by the context. Teachers have a repertoire of knowledge on which they can draw while teaching. It is informed by something deep-seated in teachers, which some call beliefs, some call values, and some others call personal stories. This knowledge is learned and developed through observing and/or talking with other teachers, personal teaching experiences, and training (see Breen et al., 2001; Farrell & Bennis, 2013; Fleming et al., 2011; Gatbonton, 1999; Golombek, 1998; Johnson, 1994; Prabhu, 1990; Richards, 1996, Richards, 1994; Wette, 2010; Woods & Cakir, 2011). Although the above-mentioned studies have pointed to the influence of initial training on teacher knowledge, none have looked at teacher knowledge in light of teacher education courses. What is more, the studies are restricted in terms of both context and focus on qualitative studies.

Purpose of the study

An aim of teacher knowledge studies is to contribute to teacher education programs (see Danielewicz, 2001). ESL teachers are trained on the basis of course contents presumed to be the necessary knowledge base that teachers will be required to implement in the classroom. In seeking to understand teacher knowledge, researchers have used their own or others' theories with no reference to teacher education programs. Hence, an alternative approach is to use the contents of teacher education courses as a starting point to study ESL teacher knowledge. That is, to understand the structure of ESL teacher knowledge base, instead of starting from theories, we can start from a different ground, which is the course content in which teachers have been trained.

To date, much of the work on ESL teacher knowledge has been guided by critical literature reviews and/or qualitative investigations. While these studies have extensively contributed to providing an emic account of teacher thinking (Freeman, 2002), they lack scope. There is a need to study ESL teacher knowledge in a wider scope—a larger number of teachers in different teaching contexts—to arrive at an understanding of teacher knowledge grounded in a documented study. By asking a large number of teachers about the knowledge types they implement in their teaching, we can draw a tentative model of the categories of teacher knowledge. From there, we can probe deeper via qualitative investigation to understand the interrelationships among the different ESL teacher knowledge types. At this point, through a quantitative large-scale study, the following general question should be answered: *How does the structure of experienced ESL teacher knowledge connect to the structure of course content?*

Methodology

Participants

For the purposes of the study, the content of teacher education courses are compared with the knowledge base of experienced teachers. The rationale was that since experienced teachers are rich in terms of what they know and do in the classroom (Gatbonton, 2008), the more we are able to understand their repertoire of knowledge, the more we can contribute to developing teacher education programs. Experienced teachers in this study "are those with many years of teaching behind them, with 'many' interpreted … as at least four to five years" (Gatbonton, 2008, p. 162).

Purposive sampling consisted of 108 experienced ESL teachers practicing in adult education settings, specifically, Technical and Further Education (TAFE) [1] colleges, English Language Intensive Courses for Overseas Students (ELICOS) [2], and Adult Migrant English Program (AMEP) [3]. Adult education sectors were chosen because they were of interest to the researcher. The teachers were from all the states in Australia, with the majority coming from Victoria, New South Wales and South Australia respectively. Females comprised 80.6% of the respondents.

Based on the Australian Bureau of Statistics (ABS) 2006, Census of Population and Housing, 4,747 females (80.1%) and 1,174 males (19.8%) teach ESL at both the school and adult sectors. Whilst the census figures represent the situation in 2006, this study was conducted in 2009. Also, the census made no distinction between ESL teachers teaching in schools and those teaching in the adult sector. However, it can be deduced that the population of ESL teachers of adults in 2006 is less than the whole population of ESL teachers. The figures indicate that the sample in the study is not less than 2% of the population (population of ESL teachers in 2006 is 5,921 and the sample size is 108) with a fair balance of males (roughly 2% of the population) and females (roughly 2% of the population) (Table 1).

Table 1. Comparison of the Study Sample and Population of ESL Teachers

ESL Teachers in the Study			**ESL Teachers in Australia (2006 ABS Report)**	
	Frequency	*Percentage*	*Frequency*	*Percentage*
Male	21	19.4	1,174	19.8
Female	87	80.6	4,747	80.1
Total	108	100.0	5,921	100.0

Responses to the questionnaire in order of percentage are TAFE (59.3%), ELICOS (26%), and AMES (14.8%) (Table 2). Teachers' qualifications ranged from PhD to Certificate with the highest number holding Graduate Diploma (27.8%) and Masters (25.9%) in Teaching English to Speakers of Other Languages (TESOL) or Applied Linguistics, indicating that the participants are highly qualified ESL teachers (Table 3). The average teaching experience of the respondents is approximately 15 years and the average age is 51 (Table 4).

Table 2. Teaching Contexts of the Participating Teachers

	Frequency	Percent
TAFE	64	59.3
ELICOS	28	25.9
AMES	16	14.8
Total	108	100

Table 3. Teachers by Teaching Qualifications

	Frequency	Percent
PhD	4	3.7
Masters	28	25.9
Bachelor of Education	5	4.6
Graduate Diploma	30	27.8
Graduate Certificate	16	14.8
Diploma	7	6.5
Certificate	18	16.7
Total	108	100.0

Table 4. Teachers by Age and Years of Experience

	Valid	Mean	Median	Mode	Minimum	Maximum
Age	108	51.37	53.50	60	30	63
Experience	108	14.64	14.00	10	3	39

As teachers in the study were highly experienced and qualified, it was expected that they are likely to present informed responses. However, it is not clear whether this sample is a true representation of experienced ESL teachers in terms of qualifications. There seems to be no source available to provide statistical information on the qualifications of the population of ESL teachers of adults.

Instrumentation

Teacher education programs, which are the major formal sources of equipping ESL teachers with knowledge, include a mix of knowledge base and practical components. Therefore, knowledge of language [4], knowledge of teaching [5], and teaching practicum [6] are the three general knowledge bases upon which teacher education programs function (see Freeman & Johnson, 1998; Johnson, 2009, Richards, 1996). ESL teachers in Australia working at AMEP, ELICOS, and TAFE are required to hold a Certificate or a Degree in TESOL as a minimum requirement. Therefore, the questionnaire is based on knowledge-base courses (knowledge of language and knowledge of teaching) offered at teacher education programs throughout Australia at the tertiary level as well as Certificate in English Language Teaching to Adults (CELTA) [7] and Diploma in English Language Teaching to Adults (DELTA) [8].

Although the teachers could have earned their teaching qualifications from any tertiary education institution outside Australia, it was decided to look at those programs offered at Australian universities. For this reason, all the 39 Australian university websites available from http://australian-universities.com/list/ were visited. Each university was checked for the availability of TESOL programs in both Applied Linguistics and Education programs at Graduate Certificate, Graduate Diploma, and Masters Levels. The 89 programs from 31 universities that offered TESOL courses were downloaded for analysis. The synopsis of each course was thematically analysed by attending to keywords describing the aims and intended outcomes. These were then reduced to keyword(s) presenting a general description of the given course. For this reason, a table identifying university name, program, course name, and objective (in the form of keywords) was developed. The contents of each column were reviewed and those sharing the same objectives were merged and given the same keyword. For example, *English grammar for teaching (La Trobe University)*, *English grammar (University of Canberra)*, and *Functional grammar (University of Western Sydney)* were all labelled as *grammar*. The same procedure was repeated until the list could not be further reduced. The reduced list was then turned into a Likert-scale questionnaire. [9]

To examine the efficiency of the questionnaire, it was administered to 16 researchers and lecturers who had all previously carried out survey studies themselves (see Buckingham & Saunders, 2004; Czaja & Blair, 2005). Based on their feedback, minor final changes were made to the content of the Likert-scale questionnaire. No presuppositions were made on the classifications and compositions of teacher knowledge types prior to analysing the data except that the questions were divided into two general categories of *Knowledge of Language* (KL) and *Knowledge of Teaching* (KT). Points on the validity of the division are presented under *Exploratory Factor Analysis* and *Reliability and Construct Validity* sections.

Through an Internet-based software tool, Survey Monkey, the questionnaire first asked teachers about their demographic features: gender, age, qualification, years of teaching experience, and current teaching context. The main sections of the questionnaire were on the two scales of KL (comprising 17 items) and KT (23 items) requesting teachers to specify the usefulness of each item in their teaching practice on a scale of 1 to 7 (1 = extremely useful, 7 = Not useful at all). Teachers were also given the option of ticking "0 = Not familiar with the term" if the item was not known. At the end of each knowledge type questions, participants were given an opportunity to write down any knowledge type, not included in the questionnaire, that they deemed important. The questionnaire was relatively short and not expected to take more than ten minutes to complete.

Data collection

The heads of various institutions were invited to participate in the study. Those who agreed to participate forwarded the author's e-mail to the relevant staff at their institution. In so doing, it was possible to track those institutions, which had agreed to participate in the study. However, anonymity was maintained as there was no way to detect the individuals who participated. An approximate response rate for the survey

was calculated to be 18%. This was obtained by multiplying an approximate number of the teachers contacted (20 teachers) per institution (30 institutions). Respondents who had recorded having fewer than four years teaching experience were excluded from the study. Only teachers who had access to the Internet and/or were interested in on-line surveys were able to participate in the study. Nevertheless, as soon as teachers in an institution were invited to participate in the study, within 24 hours, a surge of responses was observed on the questionnaire website.

Findings

Importance of KT and KL for the teachers

The mean score for KT is 6.24 and KL is 5.39, indicating that the teachers regarded KT as more important than KL. A paired samples t-test was conducted to compare the means of KT and KL. The results reveal a significant difference between the means at the p< 0.0005 (two-tailed) level (Table 5). The 0.62 Eta squared statistic indicates a large effect size (see Pallant, 2007).

Table 5. Paired Samples T-test for KL and KT

Pair 1	KT – KL	Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
		.85128	.66799	.06428	.72386	.97870	13.244	107	.000

Tables 6 and 7 provide descriptive statistics for KT and KL (number of responses to each item, the lowest and highest score given to each item, mean and standard deviation for each item). In KT, means for teaching *reading*, *writing*, *speaking*, *listening*, *pronunciation*, *grammar*, and *vocabulary* were the highest suggesting that the teachers focused more on the four skills plus grammar, vocabulary, and pronunciation.*Teaching English in international contexts*, *e-learning*, and *computer-assisted language learning* (CALL) were deemed the least important.

Table 6. Descriptive Statistics for KT

	N	Minimum	Maximum	Mean	Std. Deviation
Teaching listening	108	3	7	6.73	.621
Teaching writing	108	5	7	6.72	.544
Teaching speaking	108	3	7	6.72	.624
Teaching reading	108	3	7	6.65	.674
Teaching pronunciation	108	3	7	6.58	.787
Teaching vocabulary	108	4	7	6.53	.742
Teaching grammar	108	3	7	6.52	.803
Communicative Language	108	3	7	6.52	.870

	N	Minimum	Maximum	Mean	Std. Deviation
Teaching					
Lesson planning	108	4	7	6.50	.755
Material Development	108	3	7	6.49	.803
Designing tasks	108	3	7	6.48	.755
Methodology	108	3	7	6.38	.964
Adult Language Learning	108	2	7	6.30	.969
Learner sensitivities & learning styles	108	3	7	6.18	1.003
Language testing	108	3	7	6.07	1.056
Classroom organization	108	2	7	6.06	1.101
Syllabus Design	108	2	7	6.03	1.098
Curriculum evaluation	108	2	7	5.94	1.146
Nonverbal communication in L2 learning	108	2	7	5.92	1.145
Curriculum Design	108	2	7	5.92	1.161
Computer Assisted Language Learning	108	1	7	5.78	1.233
E-learning	108	1	7	5.45	1.363
Teaching English in international contexts	108	1	7	5.10	1.606

Table 7. Descriptive Statistics for KL

	N	Minimum	Maximum	Mean	Std. Deviation
Word Meaning & use	108	3	7	6.52	.837
Grammar	108	4	7	6.49	.837
Literacy	108	1	7	6.07	1.386
Language & culture	108	2	7	6.00	1.160
Phonology	108	1	7	6.00	1.136
Intercultural communication	108	2	7	5.89	1.321
Second language acquisition theories	108	1	7	5.73	1.398
Pragmatics	87	**0**	7	5.57	1.309
EAP/ESP	108	1	7	5.53	1.488
Morphology	94	**0**	7	5.40	1.401
Sociolinguistics	100	**0**	7	5.37	1.587
Discourse analysis	108	1	7	5.23	1.392
First language acquisition theories	108	1	7	4.79	1.762
English as a global language	108	1	7	4.65	1.637
Bilingualism/multilingualism	108	1	7	4.63	1.644

	N	Minimum	Maximum	Mean	Std. Deviation
World Englishes	102	**0**	7	4.29	1.738
English literature	108	1	7	3.60	1.740

In KL, the teachers considered knowledge of grammar and word meaning as the most essential and knowledge of English literature, world Englishes, bilingualism/multilingualism, English as a global language, and first language acquisition theories as the least practical knowledge base for ESL teaching. It was initially assumed that the teachers would show interest in some of the hot debates in TESOL—that is, teaching English in international contexts, world Englishes, bilingualism and multilingualism, English as a global language, e-learning, and CALL—and consider them at least relatively important in their teaching, but the data told a rather different story. The results were in line with the course offerings at teacher education programs. That is, in teacher education programs, topics connected to understandings of English language teaching contexts (e-learning, CALL, world Englishes, bilingualism/ multilingualism, English as a global language, first language acquisition theories, and English literature) were the least emphasized, while teaching the four skills plus grammar, vocabulary, and pronunciation as well as knowledge of grammar and word meaning were highly emphasized.

The teachers assessed all the KT items as familiar and one fourth of the KL items as unfamiliar. *Pragmatics*, *morphology*, *sociolinguistics*, and *world Englishes* were recorded as unfamiliar 21, 14, 8, and 6 times respectively (see Table 8 the boldfaced zeroes). Although teachers regarded some items of the KL as unfamiliar, it is unclear whether they implemented them in their teaching and were not familiar with the term or they were not using the knowledge because they were not familiar with the concept. However, perceiving bilingualism/multilingualism and first language acquisition theories as the least practical in language teaching, and not being familiar with sociolinguistics, morphology and pragmatics hints that the ESL teacher participants are less inclined towards the linguistic, psycholinguistic, and sociolinguistic dimensions of language teaching.

Exploratory factor analysis

As explained, the questionnaire was divided into KT and KL. Within each, it was anticipated that particular forms of knowledge would cluster. In order to identify which types of knowledge tend to cluster, Exploratory Factor Analysis (EFA) was used. Henson and Roberts (2006, p. 394) describe factor analysis as

> *a larger set of* j *variables with a smaller set of* k *latent constructs. It is hoped, generally, that the* k *constructs will explain a good portion of the variance in the original* j × j *matrix of associations (e.g., correlation matrix) so that the constructs, or factors, can be used to represent the observed variables. These constructs can be used as variables in subsequent analyses.*

In EFA, the researcher is interested in generating theory by exploring the underlying constructs based on actual observations, that is, *a posteriori*, (Henson & Roberts, 2006). In order to determine the underlying factors for teachers' knowledge of language and knowledge of teaching, an EFA was conducted on the Likert-scale scores from the questionnaire (Field, 2009).

Some decisions were made both prior to and during the statistical procedure (see Fabrigar, MacCallum, Wegener, & Stranhan, 1999). The first was judgement of the appropriateness of factor analysis (Fabrigar et al., 1999). The reason for running factor analysis was that, to date, there has been little consensus among scholars on the composition of ESL teacher knowledge. Hence, the presupposition was that the measured variables under KT and KL could be clustered into groups as a result of the linear function of at least one common variable and one unique factor. In this way, latent variables that make up the composition of teacher knowledge under KT and KL could be determined (Fabrigar et al., 1999). Using factor analysis in TESOL studies is not an uncommon approach especially when there is a quest for a sound theory on a given phenomenon (see Clément, Dörnyei, & Noels, 1994; Hsiao, 2002; Loewen et al., 2009; Major & Kim, 1996; Mori, 1999; Nakatani, 2006; Onwuegbuzie, Bailey, & Daley, 2000; Stroller, 1994; Tseng, Dörnyei, & Schmitt, 2006; Vandergrift, Goh, Mareschal, & Tafaghodtari, 2006). Since in the present study, there is little sound theoretical foundation on which to base predictions about the number of factors to be extracted, it was thought that EFA would be the best procedure as it places no restrictions on the number of factors to be extracted (Tabachnick & Fidell, 2007).

Second, a third factor analysis was conducted on all the variables combined. The result was similar clusterings with lower variances. This meant that the KL and KT divisions had not influenced the loadings.

Third, decision had to be made on the variables to be measured and the sample size (Fabrigar et al., 1999). Devising the questionnaire was performed with great care to ensure the relevance of the variables to the domain of interest. The sound selection of items was reflected in the reliability coefficients of the KT and KL sections of the questionnaire yielding high levels of Cronbach α coefficients (see *Reliability and construct validity* section). Moreover, the number of extracted factors from the EFA was 4 for KT (containing 23 items) and 3 for KL (containing 17 items) indicating that the number of variables is approximately 5 times the number of extracted factors which is, according to Fabrigar et al. (1999), an acceptable ratio.

Fourth, in terms of the sample size, when a minimum of three to four measured variables represent a factor, and the communalities are at least .70, accurate measures can be gained with a sample of 100 (MacCallum, Widaman, Zhang, & Hong, 1999). The Kaiser-Meyer-Olkin measure of sampling adequacy for KT is .79 (Table 8) and .82 for KL (Table 9), which show that the size of the sample is appropriate for the analysis (Field, 2009). Bartlett's test was used to check for multicollinearity among variables especially, as suggested by Tabachnick and Fidell (2007), when the ratio of the cases per variable is fewer than five. The Bartlett's Test of Sphericity is highly significant for both KT and KL (p. = .000) indicating that there is no multicollinearity among the variables and that the factor analysis is "appropriate" (Field, 2009). The diagonals of the Anti-image

Correlation Matrix for both KT and KL were above 0.7 meaning that all items in both KT and KL were retained (Field, 2009).

Table 8. KMO and Bartlett's Test for KT

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.797
Bartlett's Test of Sphericity	Approx. Chi-Square	1905.329
	Df	253
	Sig.	.000

Table 9. KMO and Bartlett's Test for KL

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.826
Bartlett's Test of Sphericity	Approx. Chi-Square	705.335
	Df	136
	Sig.	.000

Finally, the teachers' responses on the KT and KL scales were subjected to an EFA using Maximum Likelihood as the factor extraction method. The factorability of KT and KL were examined separately using factor loadings of 0.4 or greater on the orthogonal rotation with no limitation on the number of factors to be extracted (Field, 2009).

Structure of experienced ESL teacher knowledge

Using Kaiser's criterion, the Total Variance Explained tables for KT and KL indicate that the first four factors in Table 10 and the first three factors in Table 11 have eigenvalues over 1. In KT, the first four components explain 59.2% of the total variance, and in KL the first three components explain 51.3% of the total variance. Hence, the analysis yielded four factors for KT and three for KL. Each factor has been given a descriptive name.

Table 10. Total Variance Explained for KT

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.860	38.522	38.522	7.896	34.330	34.330	4.931	21.439	21.439
2	2.978	12.950	51.471	2.851	12.397	46.727	3.059	13.300	34.738
3	1.724	7.494	58.966	1.592	6.921	53.648	2.865	12.458	47.196
4	1.561	6.786	65.751	1.290	5.610	59.257	2.774	12.061	59.257
5	.934	4.060	69.811						
6	.919	3.996	73.807						
7	.841	3.658	77.465						
8	.727	3.159	80.625						
9	.692	3.008	83.633						
10	.590	2.563	86.196						
11	.575	2.502	88.698						
12	.438	1.906	90.603						
13	.400	1.739	92.342						
14	.333	1.447	93.789						
15	.314	1.365	95.154						
16	.273	1.188	96.342						
17	.200	.871	97.213						
18	.174	.756	97.969						
19	.143	.620	98.589						
20	.118	.511	99.100						
21	.101	.437	99.538						
22	.063	.272	99.810						
23	.044	.190	100.000						
Extraction Method: Maximum Likelihood.									

Table 11. Total Variance Explained for KL

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.578	38.692	38.692	5.939	34.932	34.932	3.868	22.753	22.753
2	2.184	12.846	51.538	1.763	10.369	45.302	2.906	17.093	39.846
3	1.160	6.825	58.362	1.024	6.021	51.323	1.951	11.477	51.323
4	1.093	6.432	64.794						
5	.960	5.645	70.440						
6	.772	4.539	74.979						
7	.734	4.318	79.297						
8	.651	3.827	83.124						
9	.539	3.172	86.296						
10	.469	2.758	89.054						
11	.431	2.533	91.587						
12	.360	2.119	93.707						
13	.283	1.668	95.374						
14	.247	1.452	96.826						
15	.212	1.247	98.073						
16	.184	1.084	99.157						
17	.143	.843	100.000						
Extraction Method: Maximum Likelihood.									

Table 12. Rotated Factor Matrixa for KT

	Factor			
	1	2	3	4
Teaching reading	.908			
Teaching listening	.906			
Teaching writing	.753			
Teaching speaking	.750			
Teaching vocabulary	.688			
Teaching grammar	.662			
Teaching pronunciation	.651			
Methodology	.401			
CLT				
Curriculum Design		.919		
Syllabus design		.866		
Curriculum evaluation		.673	.489	
Lesson planning		.421		
Learner sensitivities & learning styles			.764	
Classroom organization			.689	
Nonverbal communication in L2 learning			.558	
Language testing			.516	
Teaching English in international contexts			.490	
CALL				.887
E-learning				.864
Designing tasks				.510
Materials development		.430		.509
Adult Language Learning				.408
Extraction Method: Maximum Likelihood. Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 6 iterations.				

Table 13. Rotated Factor Matrixa for KL

	Factor		
	1	2	3
English as a global language	.866		
World Englishes	.773		
Bilingualism/multilingualism	.659		.497
Intercultural communication	.658		
English literature	.535		
EAP/ESP	.524		
Sociolinguistics	.479	.403	
Language culture	.433		
Discourse analysis	.427		
Literacy			
Phonology		.872	
Morphology		.763	
Grammar		.612	
Word Meaning & use		.536	
Pragmatics		.456	
SLA theories			.901
First language acquisition theories			.644
Extraction Method: Maximum Likelihood. Rotation Method: Varimax with Kaiser Normalization.			
a. Rotation converged in 5 iterations.			

Tables 12 and 13 reveal the factor loadings for the four factors using orthogonal rotations in KT and KL separately (Field, 2009). The first factor in KT, which is comprised of teaching reading, listening, writing, speaking, vocabulary, grammar, and pronunciation as well as methodology, was labelled *Knowledge of practice*. Factor loading is "the Pearson correlation between a factor and a variable" (Field, 2009, p. 426). For example, in this case, *Knowledge of practice* is the factor/cluster and teaching reading is a variable that has a high correlation with the factor/cluster (0.908). The second factor indicated that curriculum design, syllabus design, curriculum evaluation, and lesson planning had high loadings. As a result, they were named *Curriculum Knowledge*. Learner sensitivities & learning styles, classroom organization, nonverbal communication in L2 learning, language testing, and teaching English in international contexts collectively made the third factor, *Knowledge of Learners*. Computer-assisted language learning, e-learning, material development, designing tasks, and adult language learning, which came last, were identified as *Knowledge of Resources and Technology*.

In KL, English as a global language, world Englishes, bilingualism & multilingualism, intercultural communication, English literature, English for academic purposes &

English for specific purposes, discourse analysis, and sociolinguistics created the first factor, *Knowledge of Contextual Factors*. Phonology, morphology, grammar, pragmatics, word meaning & use made the second factor, *Knowledge of Language Components*. The last factor, *Knowledge of Language Learning Theories*, was comprised of first and second language acquisition theories. Hence, a response to the research question would be: ESL teacher knowledge, in light of ESL teacher education programs, consists of*knowledge of practice, curriculum knowledge, knowledge of learners, knowledge of resources and technology, knowledge of contextual factors, knowledge of language component*s, and *knowledge of language learning theories*.

Reliability and construct validity

Reliability "is the extent to which the scores that are generated from an instrument demonstrate consistency" (Onwuegbuzie et al., 2000, p. 93). Cronbach α was performed on each of the seven subscales to check the construct validity of the questionnaire (see Field, 2009).*Knowledge of Practice, Curriculum, Resources, Contextual Factors, Language Components*, and *Language Learning Theories* subscales had high reliabilities, all Cronbach's α = 0.8 to 0.83. *Knowledge of learners* subscale had a lower reliability, Cronbach's α = 0.74. The results indicate that the subscales have a high level of internal consistency and measure what they claim to be measuring (see Onwuegbuzie et al., 2000).

Discussion and conclusion

General overview

Table 14 summarizes factor loadings within the clusters from tables 12 and 13 (under "Loadings" in each cell). The table presents the importance (Mean) teachers attributed to each variable. The means are in parentheses next to each variable. Table 14 also shows the average of importance for each knowledge type, which is placed at the bottom of each cell. The teachers significantly emphasized the importance of the know-hows of teaching (KT) over the whats and whys of the English language (KL). An explanation for this could be that the teachers develop KT as a result of learning about teaching as well as reflection on their teaching. KL for them, however, mainly refers to the ability to describe rules of language. These are the rules of the language that, presumably, most of them have been using all or during a significant part of their lives in a variety of contexts. In KT, the teachers regarded *knowledge of teaching practice* as the most important (6.6) and *knowledge of learners* as the least important (5.86). In KL, *knowledge of language components* and *knowledge of contextual factors* were respectively regarded the most (5.99) and least important (4.89) (see Table 14 below).

Under *knowledge of learners*, teachers nominated language testing as highly important (6.07). However, language testing did not have high correlations with the cluster, *knowledge of learners*. This is possibly because, tests had a strong washback effect (Alderson & Wall, 1993), causing the teachers to give priority to tests rather than their understandings of their students; that is, *knowledge of learners*. This is evident in the relatively low loadings of language testing with other elements in the cluster (0.51), meaning that it could have belonged to a different cluster but due to circumstances, testing was overshadowing teachers' knowledge of students.

Teachers regarded curriculum design and curriculum evaluation (5.92 and 5.94) as the least important in the *curriculum knowledge* cluster. A possible interpretation is that the teachers were not involved in creating their own curriculum but were implementers of curricula created by bodies not associated with their teaching. Lesson planning had low loadings with the others in the same cluster (0.42) while it received the highest importance from the teachers. This again suggests that the teachers did not perceive their lesson planning to be strongly connected to curriculum related matters.

Table 14. Summary of Teacher Knowledge Findings

Knowledge of Teaching		**Knowledge of Language**	
Knowledge of Teaching Practice: • **Teaching Listening (6.73)** • **Teaching Writing (6.72)** • **Teaching Speaking (6.72)** • **Teaching Reading (6.65)** • Teaching Pronunciation (6.58) • Teaching Vocabulary (6.53) • Teaching Grammar (6.52) • Teaching Methodology (6.38) *Average: 6.6*	Loadings: • 0.906 • 0.753 • 0.750 • 0.908 • 0.651 • 0.688 • 0.662 • 0.651	Knowledge of Language Components: • **Word Meaning & Use (6.52)** • **Grammar (6.49)** • **Phonology (6.00)** • Pragmatics (5.57) • Morphology (5.40) *Average: 5.99*	Loadings: • 0.536 • 0.612 • 0.872 • 0.456 • 0.763
Knowledge of Resources: • **Materials Development (6.49)** • **Designing Tasks (6.48)** • Adult Language Learning (6.30) • Computer	Loadings: • 0.509 • 0.510 • 0.408 • 0.887 • 0.864	Knowledge of Language Learning Theories: • **Second Language Acquisition Theories (5.73)** • First Language Acquisition Theories (4.79) *Average: 5.26*	Loadings: • 0.901 • 0.644

Knowledge of Teaching		**Knowledge of Language**	
assisted Language Learning (5.78) • E-learning (5.45) *Average: 6.1*			
Curriculum Knowledge: • **Lesson Planning (6.50)** • **Syllabus Design (6.03)** • Curriculum Evaluation (5.94) • Curriculum Design (5.92) *Average: 6.09*	Loadings: • 0.421 • 0.866 • 0.673 • 0.919	Knowledge of Contextual Factors: • **Intercultural Communication (5.89)** • **English for Academic/Specific Purposes (5.53)** • Sociolinguistics (5.37) • Discourse Analysis (5.23) · English as a Global Language (4.65) · Bilingualism/Multilingualism (4.63) • World Englishes (4.29) • English Literature (3.60) *Average: 4.89*	Loadings: • 0.658 • 0.524 • 0.479 • 0.427 • 0.866 • 0.059 • 0.773 • 0.535
Knowledge of learners: • **Learner Sensitivities and Learning Styles (6.18)** • **Language Testing (6.07)** • **Classroom organization (6.06)** • Nonverbal communication in L2 Learning (5.92) • Teaching English in International Contexts (5.10) *Average: 5.86*	Loadings: • 0.764 • 0.516 • 0.689 • 0.558 • 0.490		

In the *knowledge of practice* cluster, teaching methodology had the lowest loading and was the least favoured while teaching the four macro-skills had the highest loadings and importance. This implies that the teachers were more interested in teaching techniques for the instruction of language skills rather than teaching methodology theories. This also hints that the teachers' KT was composed of teaching the four macro-skills with less attention to a guiding underlying approach: teaching methodology. Thus, as the data suggests, the objective seemed to be teaching language skills through teaching materials sequenced in a lesson plan. These were, in turn, filtered through the lens of language testing objectives.

In *knowledge of language components* cluster, phonology and morphology had the highest loadings of all (0.872 and 0.763 respectively). The teachers, however, favoured word meaning & use, grammar, and phonology more than the other two elements in the cluster. These correspond with the *knowledge of teaching practice* variables. That is, word meaning and use, grammar, and phonology operate as content knowledge supporting the teaching of listening, speaking, reading, and writing.

Since the teachers were all involved in ESL, it was reasonable to see high loadings and favouring for Second Language Acquisition Theories rather than First Language Acquisition Theories. In the least favoured cluster, *knowledge of contextual factors*, intercultural communication (5.89) and English for Academic/Specific Purposes (EAP/ESP) (5.53) received the highest attention.

In sum, the teachers' KL was mainly composed of their understandings of word meaning and use, grammar, and phonology, supported by their understandings of SLA theories on one hand and the teachers' *knowledge of contextual factors* on the other. KL, however, did not seem to be strongly attended to by all teachers.

Implications and limitations of the study

The findings of this study are of two strands. The first strand suggests that since particular topics are not given much weight in the course offerings, the teachers regarded them as less practical in their teaching. These topics include: teaching English in international contexts, e-learning, CALL, world Englishes, bilingualism/ multilingualism, English as a global language, first language acquisition theories, and English literature. If the first six topics become essential components of ESL teachers' knowledge base, it is likely that teachers will exercise critically reflexive teaching. The second strand is related to the teaching context. That the teachers showed little interest in teaching methodology, curriculum design, and evaluation, and looked at their students through the lens of tests suggests that they were confined by the restrictions imposed on them through the teaching context: the institutions. It is important for ESL teaching to be a constant and conscious interaction among teachers' knowledge of teaching, curriculum knowledge, knowledge of resources, teaching practice and language in light of realistic understandings of students, cultural, historical, political, and educational constraints. In this way, teacher knowledge can be based on understandings of a broader knowledge base (Freire, 2000) rather than the knowledge of quick fixes to immediately arising issues in the form of teaching techniques (Loughran, 2006).

The findings are helpful in constructing a theory of ESL teacher knowledge since, to date, the concept has not been investigated in a large-scale study of different teaching contexts. Nonetheless, to construct a valid understanding of ESL teacher knowledge and consequently ESL teaching, we need to understand how these categories of teacher knowledge are interrelated in an actual teaching situation. Moreover, although studies on ESL teacher knowledge have shown that teachers draw upon a variety of knowledge types while teaching, the boundaries between the categories of knowledge are blurred rather than clear-cut. Research suggests that the different types of teacher knowledge seem to be more integrated in nature than discrete, not allowing us to draw clear-cut borderlines between them by separating them into distinct categories (Andrews, 1997, 1999, 2003; Borg, 2003a; Elder, 2001; Johnston & Goettsch, 2000; Mullock, 2006; Sharkey, 2004; Tsui, 2003; Wright & Bolitho, 1993). Johnston and Goettsch (2000) state that "in reality, these categories [of knowledge] are melded together in complex and indeed inextricable ways to produce multifaceted, holistic accounts of, and actions in, language teaching" (p. 461). Hence, the study is incomplete if ended at this point. While using the categories of knowledge from the quantitative analysis as a backdrop, it would be illuminating to continue the exploration in a supplementary qualitative study to understand the interrelationships between the different categories of teacher knowledge.

End Notes

[1] TAFE provides certificates of English language proficiency at a variety of levels to people from non-English speaking backgrounds, who are willing to learn English for everyday, educational, or work-related purposes. Language learners are also educated on the Australian culture and values shared in the community and workplace settings.

[2] ELICOS programs provide English for Academic Purposes (EAP) instruction to students from non-English speaking backgrounds who require English language training prior to commencing tertiary studies in Australia.

[3] AMEP provides English language teaching services to newly arrived non-English speaking background individuals to settle into the Australian community and find jobs. Also, AMEP prepares Australian job-seekers from low literacy and numeracy backgrounds for the workforce.

[4] Content knowledge that supports teachers' understandings of the structure of language and how it works

[5] Knowledge of pedagogy that supports teachers' understandings of how language can be taught and learned

[6] Putting into practice the theoretical content and pedagogical knowledge gained through courses under the supervision and mentorship of an experienced teacher

[7] CELTA is a 120-hour introductory course for those with no suitable English language teacher training and little or no teaching experience. The course entails reading, research, peer and experienced teacher observation, practical teaching, and written assignments.

[8] DELTA is a 140-hour diploma course for those teachers with a teaching qualification and a substantial teaching experience. The course entails supervised teaching, directed observation of lessons, reading, research, assignment writing, and a written examination.

[9] Since the questionnaire required the teachers to think about and rate the importance of 40 course items in relation to their teaching, it was thought that it would be easier if the questions were divided into two sections of Knowledge of Language and Knowledge of Teaching. As a result, any subject directly connected to language (i.e., how it works or its styles and varieties) went under the Knowledge of Language category. Any subject directly connected to language teaching (i.e., teaching methods, curriculum, syllabus, language learners, etc.) was classified as Knowledge of Teaching. There were doubts regarding whether to classify Bilingualism/Multilingualism, Theories of Second/First Language Acquisition, and English for Academic/Specific Purposes as Knowledge of Language or Knowledge of Teaching. Upon checking the course synopses, it was decided that these concentrated on the varieties of the English language in different contexts rather than methods of teaching to learners.

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