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Issues in language learning

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This article considers the current debate in Australia into the learning of literacy and foreign languages. It examines not only the literacy levels attained by Australian students in their national language (English) in comparison to these in other countries, as well as between Australian states, but also theories involved in school learning and the learning of language, with particular reference to the learning of a foreign language. The article raises and discusses 12 issues that arise in language learning. It is noted that in many countries it is necessary for students to learn at least three languages, namely, the mother language, their national language and an appropriate foreign language, that make heavy demands on the time available in the curriculum of the schools if adequate levels of competence in language usage are to be attained.

Language learning, foreign languages, literacy, curriculum time,
second language, mother tongue, national language.

INTRODUCTION

The pages of the national newspaper in Australia are currently filled with 'The Literacy Debate'. They follow a sustained challenge to the curriculum of the schools in the different Australian states. However, this debate and the accompanied challenges are largely devoid of the findings of research and the established theories on which research into language learning is built. Instead the debate is based on ideological perspectives, personal opinions and political affiliations. The idea that literacy and numeracy lay the foundations for the learning that occurs in schools and at later stages of adult life is probably only 30 years old, although it can scarcely by said to be a novel idea. Literacy and numeracy have served to replace the concepts of general intelligence in Australian schools, and the specific intelligences that were formerly thought to underpin school learning, with their strong genetic overtones. As a consequence tests of literacy, and to a lesser extent numeracy, have in the main replaced the tests of intelligence that were formerly widely used in Australian schools. One of the consequences of this change is that information is now available on the performance of Australian youth at the age of 15 years, immediately prior to the end of the period of compulsory schooling on tests of reading, mathematics and science literacy in comparison with students in other nations of the developed world.

The Organisation for Economic Cooperation and Development (OECD) has since the beginning of the twenty-first century conducted the Programme for International Student Assessment (PISA) studies of 15-year-old students in reading, mathematics and science literacy in the years 2000, 2003 and more recently in 2006. In PISA 2000, reading literacy was the major domain and mathematics and science literacy were minor domains. In successive cycles mathematics and science literacy have replaced reading literacy as the major domain. Figure 1 presents the profile of the Australian states and territories in comparison with other countries in reading literacy in the

PISA 2000 testing program. Australian students achieve at a high level when compared with other countries, and are in the same group as other English speaking countries. There were, however, noticeable differences between the Australian states, with South Australia doing well, although the reasons for the differences between the states have not been adequately examined or explained.

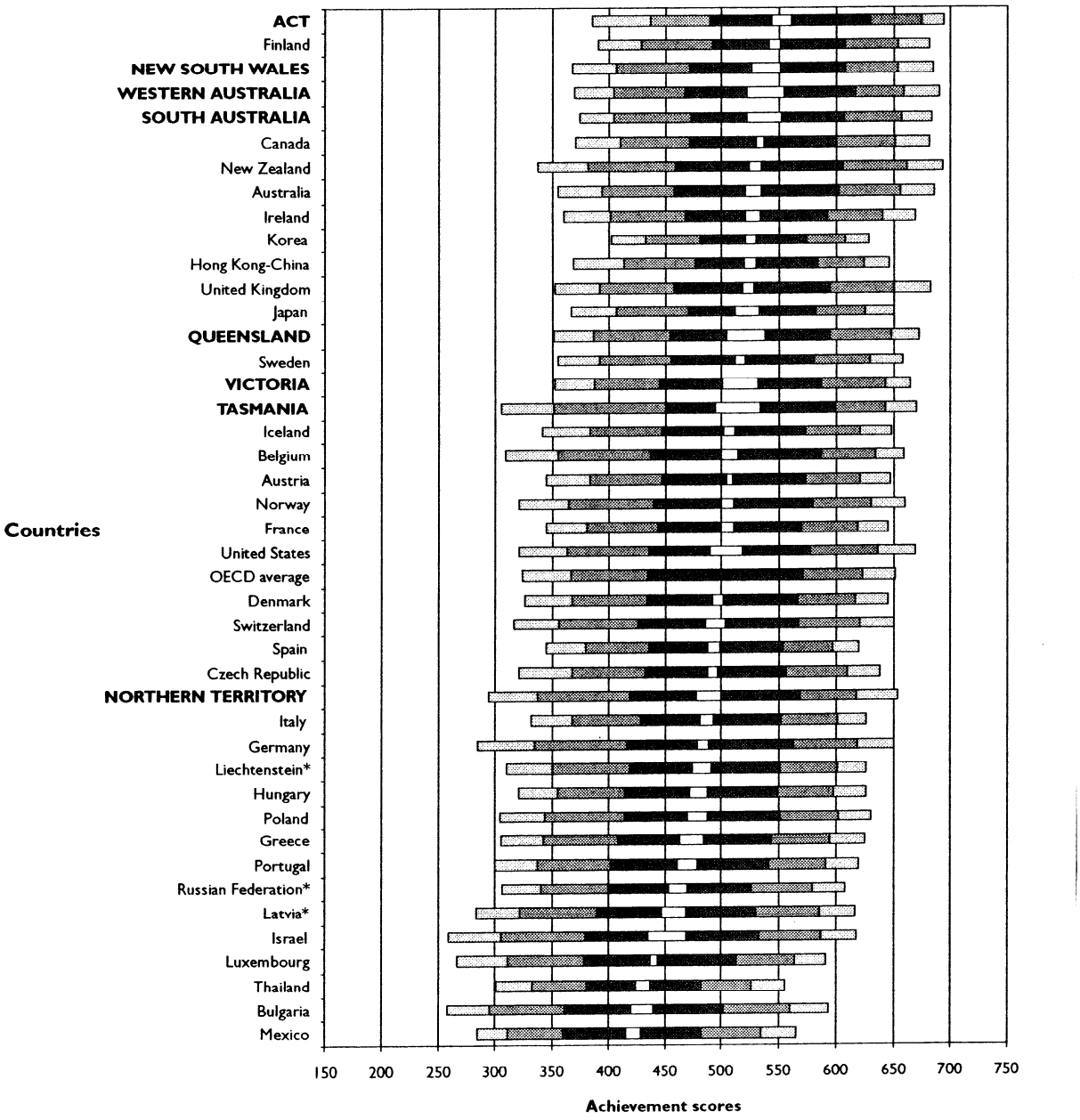

Figure 1. National Performance in reading literacy in PISA 2000 (Marks and Creswell, 2004, p.143)

Moreover, it appears that all systems of education within Australia are producing students who, in general, perform well in the important field of literacy in their national language when compared to other developed countries. Consequently, a sustained attack on the school systems of the Australian states does not seem to be warranted, although some state systems clearly need to give consideration to their lower levels of achievement in language learning. In order to raise the standards of learning in the field of language within a school system, curriculum planning and development must be guided by the findings of research in the field and the theories that have

been advanced that are concerned with school learning and, in particular, the learning of language. Much has been written about language learning from the viewpoint of the skilled practitioner (see Nunan, 1985)

THEORIES OF SCHOOL LEARNING AND THE LEARNING OF LANGUAGE

Much has been written about the learning of language, that a brief paper can scarcely do justice to the large body of scholarly writing that is readily available. Nevertheless, it is surprising that relatively little attention is being given to the work of, probably the most distinguished educational and psychological researchers of the twentieth century, namely J. B. Carroll and the Thorndikes (father, E. L., and son R. L.) from the United States, Piaget from Switzerland, and Vygotsky and Luria, from Russia. From Carroll (1963) has come the Model of School Learning and more recently (Carroll, 1992) a hierarchical model of cognitive reasoning, verbal and quantitative abilities. These abilities occupy a central place in the hierarchy. From the Thorndikes have come the *Principles of Teaching* (E. L. Thorndike, 1906) and the argument that reading, beyond the initial stages essentially involves reasoning, together with the observation that the school systems pay little attention to the teaching of reading beyond the primary school stage (R. L. Thorndike, 1973). It should be noted in passing, that in Australia, it seems that reduced attention is being given to the teaching of reading for good readers at the fifth grade level and beyond (Hungi, 2003). If reading is essentially reasoning beyond the initial stages of learning to read, then the work of Piaget (see Flavell, 1963) can provide the theoretical foundations for the development of the cognitive skills associated with reasoning. In addition, the work of Vygotsky (1978, 1986), that emphasizes the social context and situations in which learning occurs, as well as the importance of employing the zone of proximal development in presenting new content for learning, makes an important contribution.

During the past three decades two apparently different theories of learning have been advanced, namely, the symbol processing theory and the situated action theory. The proponents of each theory have claimed that the opposing theory could be accommodated within their own theory. This seems to indicate that a single overarching theory is required that can encompass the two alternative theories. This appears to be the function of neuroscience with its ideas of which neural nets and connectionism seeks to model how the brain works (see Lakomski, 1999, for a detailed discussion of these ideas).

In its simplest form, on the one hand, symbol processing, whether of words or numbers or other symbols, contends that rational thinking consists of manipulating linguistic and other symbols in the head. Thus, intelligent behaviour is based on reasoning and working with a well-constructed symbol system using the brain. On the other hand, situated action theory makes four central claims:

(1) action is grounded in the concrete situation in which it occurs;

(2) knowledge does not transfer between tasks;

(3) training by abstraction is of little use;

(4) instruction must be done in complex social environments. (see Anderson *et al*, 1996, p.5)

These two perspectives are derived from different research traditions and require integration if the functions of language are to be understood. Piagetian ideas of cognitive development can be linked with neural nets and connectionism, as suggested by Collis and Biggs (1982), within the constraints of cognitive load theory (Sweller, 1999), if the operation of the brain is considered to undergo development during the years of schooling. Such development of the brain occurs in part as a consequence of instruction in the processing of abstract symbols that are grounded both in concrete situations and under the influence of complex social environments. A major challenge to

the brain arises when a second language system is learned, so that two language systems are in operation at the sometime, each being based on the same concrete situations, although developed in different social environments.

In summary, before considering issues in the learning of language it is necessary to draw attention to several critical aspects of the complex social environments in which language learning occurs.

(1) A distinction is commonly made between **foreign** language (LF) learning and **second** language (L2) learning. In foreign language (LF) learning the target language is studied in a school setting in a classroom. In second language (L2) learning the new language is initially learned without the aid of formal instruction, through exposure in a natural setting. In addition, a distinction is commonly made between the mother tongue language (L1), that is the language of the home and the national language (LN) that is the language of the country in which a person lives. In many parts of the world it is necessary for young people to become proficient in both their mother tongue (L1), their national language (LN), a foreign language (LF) and possibly a second language (L2).

(2) Initially the mother tongue (L1) is learned and subsequently a second language (L2) is learned. It seems highly desirable that an adequate level of competence in the learning of the mother tongue (L1) is achieved before any formal learning of the national language (LN) or a second language takes place through classroom instruction.

(3) The learning of languages, involving both the national language (LN) and a foreign language (LF) is comprised of learning the four skills of listening, speaking, reading and writing. The mastery of all four sets of skills appears to be required for successful learning both of the national language (LN) and a foreign language (LF), if these languages are to be used in both national and global settings.

(4) In each domain of listening, speaking, reading and writing, there is a developmental sequence involved in the mastery of each new language, namely, the national language (LN) and the foreign language (LF). The higher stages of learning involve the ability to reason using the language symbols and processes of both the national language (LN) and the foreign language (LF)

(5) At the highest levels of learning, involving reflection and hypothetic and deductive thinking, there are different logical systems and symbol systems associated with both the national language (LN) and the foreign language (LF). While it is readily accepted that mathematical symbol systems have common logical rules for the processing of different mathematical symbols, it also seems highly likely that different language systems have different rules for the processing of the different languages.

(6) In the assessment of performance in the different language systems a scale of performance is required, that is probabilistic in nature and possesses the properties of an interval scale. Such a scale also exhibits a conjoint relationship between the language based tasks and the persons being assessed, so that persons are assessed relative to the difficulties of the assigned tasks in an operation of measurement. A separate scale of measurement is clearly required for each language domain of listening, speaking, reading and writing. However, within each domain for each language, there needs to be a single uni-dimensional scale of performance. These scales of performance are a necessary prerequisite for monitoring and planning the learning of the languages of mother tongue (L1), second language (L2), national language (LN) and foreign language (LF).

TWELVE ISSUES IN LANGUAGE LEARNING

In the sections that follow 12 issues are identified that relate to language learning and in particular, the learning of a foreign language (LF), whether a national (LN) or mother tongue (L1) language is being considered or whether a second language (L2) through exposure in a natural setting is involved, or whether a foreign language (LF) is being learned formally in a classroom and school setting.

1. Is there a common theory of language learning, with respect to (a) listening, (b) speaking, (c) reading and (d) writing?

Krashen (1981) has advanced, what can be considered as a strong general theory of language learning. This theory makes a basic distinction between two processes that are considered to be totally separate, namely 'formal classroom instruction' and 'acquisition' that occurs in a natural setting. Acquisition is more likely to occur with reference to listening and speaking. Formal classroom instruction is more likely to take place with respect to reading and writing. However, acquisition is involved in learning to read. The acquisition processes seems to correspond to situated action, while formal classroom instruction seems to correspond to symbol process learning. This distinction appears to be useful, but symbol processing clearly seems to dominate formal classroom instruction, while situated action clearly seems to be closely related to acquisition. However, these two learning processes have much in common. Using the ideas of neural networks it may be possible to combine these two theories of learning into neural processes with meaningful variations.

2. Can Carroll's model of school learning be applied to both formal classroom instruction and informal language acquisition in a natural setting?

Carroll (1963) developed this model in order to investigate prediction of success in complex learning tasks. Three variables were specified in terms of time: (a) **aptitude**, that involved the amount of time a student would require to learn a task to a specified criterion given motivation, opportunity to learn and optimal quality of instruction; (b) **perseverance**, that involved the amount of time that a student was willing to engage in active learning, or more generally the level of motivation of the student; and (c) **opportunity to learn**, that involved the amount of time provided for learning in a specific program. In addition, there were two further variables that were not specified in terms of time: (d) **ability to understand instruction**, that was provided; and (e) **quality of instruction**, that involved the structuring of the learning task, the effectiveness of presentation and the skills of the instructor. All except the last variable listed in this model would seem to be involved both in the informal acquisition of language through second language (L2) learning as well as in the formal national language (LN) and foreign language (LF) learning situation and the informal learning of the mother tongue (L1). Consequently, it would be possible to undertake research to investigate the efficiency and effectiveness of second language learning under different learning conditions, and to test this model of learning in non-school learning situations using four of Carroll's factors. In the investigation of L1, LN, and LF learning all five of Carroll's factors warrant consideration.

3. What is the time required to achieve competence in foreign language learning?

Carroll (1975, p.182, 184) showed that there was a strong linear relationship between the mean reading score of students within a school system and the average number of years that the students had studied French as a foreign language (LF). This linear relationship was replicated for all four domains of language learning, namely, listening, speaking, reading and writing. Carroll (1975, p. 275-6) argued from this evidence that for the average student in an academic program under the typical conditions of instruction it was estimated that between six and seven years of instruction would be required to achieve commonly accepted levels of competence in all four fields of listening, speaking, reading and writing French as a foreign language. This estimated

time could be reduced by one year for highly motivated students and by one further year for high-ability students. Rarely would students be provided with the opportunity in Australian secondary schools to attain the commonly accepted levels of competence in foreign language (LF) learning.

4. What is the most effective age to begin learning a foreign language (LF)?

Burstall *et al*, (1986) in England showed that students beginning French at age eight years and continuing to age 13 years did less well than students beginning at age 10 years and continuing to age 15 years. Likewise, Carroll (1975) in the study conducted by the International Association for the Evaluation of Educational Achievement (IEA) of French as a foreign language in eight countries found that no benefits came from beginning instruction in French at an early age. In Sweden and the United States students starting the learning of French in later grades performed better. There was clearly little support for introducing the learning of French as a foreign language (LF) during the early and middle primary school years. It would appear from the limited evidence available that a level of competence in learning a native language (LN) (and mother tongue) was required before beginning to learn a foreign language (LF).

While the number of years of exposure to learning a foreign language (LF) is clearly important, where vocabulary and grammar are under consideration adolescent students perform better than either adults or children, when the length of exposure is held constant. However, it is possible that in second language (L2) learning both the number of years of exposure and an early age of starting influence the level of success (Quinn and McNamara, 1988, p. 13). The issue that arises in curriculum planning is how to develop a curriculum for the learning of a foreign language (LF) to ensure that students have the opportunity to attain a required level of competence that is expected to involve at least six years, under optimal conditions of learning.

5. How can an efficient and effective curriculum in a foreign language be planned?

The facility to read and to speak languages other than English is going to be of increasing importance to Australian citizens in the future. The enrolments in foreign language courses at Years 11 and 12 are so low in Australian schools, partly as a consequence of the schools attempting to teach a range of language subjects, that the teaching of such subjects is neither efficient nor effective. Moreover, the provision of only five years of secondary schooling in some Australian schools is inadequate for the teaching of foreign languages only at the secondary school level for students to achieve the generally expected levels of competence. Nevertheless, to impose the teaching of foreign languages in the primary schools as preparation for secondary school study is neither desirable nor possible except in all-age schools. What appears to be required is the establishment of basic foreign language courses over four years, namely Grades 7, 8, 9 and 10 in secondary schools in order to provide for effective teaching in secondary schools. However, there is a further major problem in the teaching of foreign languages in Australian schools that involves steep declines in the participation rates across the years of secondary schooling until very small numbers choose to study these foreign language subjects beyond Year 10, with relatively small numbers of students at the Year 10 level. It seems to be essential to provide language maintenance courses that focus on speaking and reading in a foreign language (LF) for three periods a week throughout Years 11 and 12, or five periods a week for a semester to sustain and develop a greater facility in the reading, listening, and speaking of foreign languages. Consequently, assessment at the Year 12 level needs to be based on reading and translation exercises as well as an oral examination to assess the level of facility that the students have developed in the spoken language. In order to achieve an adequate level of competence in all four skills of listening, speaking, reading and writing, it appears to be desirable for students to study the learning of a foreign language (LF) as a major subject throughout Years 11 and 12 for at least five periods a week. It is possible that the high standing of Australian students in the PISA 2000 study is related to the fact that few students study a language other than English, and the time given to learning foreign languages in other countries reverts to the teaching of English in

Australia. The need to support the development of reading and speaking skills in foreign languages (LF) probably outweighs the gains achieved in literacy in English.

6. What are the key features of foreign language learning?

Of considerable importance for foreign language learning (LF) is the use of the foreign language for a substantial part of the teaching time in the classroom, with a corresponding reduction, but not elimination of the use of the national language. In addition, the use of electronic aids such as computers and DVD players is beneficial for both listening and speaking, but to a lesser extent for the development of reading and writing skills. Furthermore, the time spent on homework has, as may be expected, an influence on the development of reading skills, but much less and only an indirect effect on listening skills. Classroom activities are much more important for listening. Time spent on homework appears to be a clear indicator of effort. Moreover, the students' aspirations to understand a spoken foreign language contributes more to listening achievement than to reading achievement, while aspiration to learn to read the foreign language contributes more to reading performance than to listening performance, (Carroll, 1975, p.272-4; Walker, 1976, p. 198). There is emerging evidence to suggest that computers can be employed both for improving writing skills through the use of spelling and grammar checking routines as well as through less formal communication with other students using interpersonal written or informal chatting in a synchronous computer learning environment (Goldberg et al., 2003).

7. What are the components of reading achievement and are these components the same across countries?

There is a growing body of evidence at different levels of education from testing programs at the Grade 3 level through to adult literacy programs and the PISA literacy testing programs in approximately 60 countries, that there is a strong major factor associated with reading comprehension that is present in all reading tests. However, the theoretical foundations involved in the construction of reading tests, commonly differ according to the theoretical perspectives of those persons commissioned to develop the tests. Consequently, it is commonly possible to detect the presence of specific reading skills or type of reading material components that are nested under a single higher order general reading ability factor (Lietz, 1995). Thus in the IEA Reading Literacy Study (Elley, 1994) three factors involving narrative, expository and documentary materials were detected as nested beneath a single higher order factor of reading ability. Similarly, in the IEA Reading Comprehension Study (Thorndike, 1973) the specific skills of (a) following the ordering of ideas in a paragraph, (b) finding answers that are explicitly stated in the text, (c) recognizing implied meaning, and (d) recognizing a writer's purpose, were reported to be nested under a general reading ability factor (Lietz, 1995). Moreover, these test structures were found to operate in translated tests across seven different languages, although the tests were originally constructed in English (Lietz, 1995). The confirmation of the nested factor structure of reading tests supports the calculation of a total score for reading performance as well as separate subscale reading scores that are assumed to be correlated with each other. Furthermore, it supports the monitoring of reading performance across different age and grade levels, across countries with different languages involved, and over time where different curricula and different methods of teaching reading may be employed within a country under different theoretical perspectives.

8. Can scales of performance associated with the learning of foreign languages (LF) be developed in order to assess student learning across grades of schooling?

The work undertaken with reading comprehension tests discussed in the previous section across different languages supports the development of scales to measure reading achievement within countries where languages other than English are spoken. Moreover, work undertaken within Australia, an English-speaking country, indicates that a single scale for the measurement of

literacy performance can be formed out of a language subtest and a reading subtest (Hungi, 1997), although the calculation of separate subscale scores is also meaningful. Much of the work that has been carried out within language testing has been done with languages that employ the Roman alphabet. Consequently, work with lexical morphemes called 'characters' or 'ideographs' in the Chinese and Japanese languages may differ in significant ways from work with the Roman alphabet in Western highly developed countries.

Two studies were recently undertaken in large schools to remove possible between-school curricular differences across year levels or grades. Separate studies were done with the learning of Chinese as a foreign language in one large school operating on three campuses from Grade 4 through to Grade 12 (Yuan, 2002) and in Japanese as a foreign language in a large school from Grade 8 to Grade 11 and at the university level in Years 1 and 2 (Taguchi, 2005). In both studies growth across grades in learning the foreign language was measured in a meaningful way, to detect mean change in performance across school terms. The measures associated with learning the foreign language were validated with subsequent analyses. However, while both studies were restricted to reading and the use of written language, these studies indicated the potential of using scales for the assessment of learning a foreign language (LF) that did not use the Roman alphabet in classes where English was spoken as the national language (LN).

9. Can scales be developed to assess the learning of foreign languages in schools in the four domains of listening, speaking, reading and writing?

Two major studies have been carried out by the IEA to assess performance in learning a foreign language (LF). Carroll (1975) investigated the factors associated with the learning of French as a foreign language in eight countries, four of which were English-speaking countries and four were not English-speaking countries. Tests were developed to assess performance in listening, speaking, reading and writing. Two types of writing tests were employed, one that could be reliably scored being of an objective or quasi-objective nature, the other involved direct composition. The study was guided by Carroll's (1963) model of school learning and the study assessed the performance of both 14-year-old students and students at the terminal secondary school level.

A study of English as a foreign language (Lewis and Massad, 1975) was also carried out in ten countries at the 14-year-old and terminal secondary school levels that mirrored the study by Carroll described above. Both studies employed similar tests of listening, speaking, reading and writing. The study of English as a foreign language, however, made less use of analytical and statistical procedures and focused on: (a) an examination of the place of English in the education systems involved; (b) an examination of the relationships between variables describing the country, the school, the teacher and the student with performance on the achievement tests; and (c) an analysis or errors made by students in responding to the tests in order to obtain a greater understanding of how students learned English as a foreign language (LF).

Both these studies showed the feasibility of the development of tests in the four domains of listening, speaking, reading and writing in the learning of foreign languages. While these tests were developed before Rasch scaling became readily accessible, subsequently work has been done by McNamara (1996) together with the two studies reported in the previous section by Yuan (2002) and Taguchi (2005) to indicate that measurement and the equating of scales could be used to assess performance in the learning of foreign languages over time and across grades of schooling in reading and language usage. Consequently it seems likely that Rasch measurement procedures can be more widely employed to measure performance in listening, speaking and creative writing and directed composition as well as reading, where the use of Rasch scaling is well established (McNamara, 2000).

10. Can the procedures of cognitive acceleration be employed to advance student performance across age and grade levels in the learning of foreign languages?

Failure to take into consideration the stages of cognitive development advanced by Piaget serves to confuse and confound the teaching and learning of both national and foreign languages (Shayer and Adey, 2002). This occurs particularly in the provision of materials and tasks associated with the learning of reading and listening. However, while it is appropriate to undertake the cognitive acceleration of reasoning skills at appropriate stages in school learning since both reading and listening involve the employment of reasoning, it is also necessary to recognize the importance of the idea of a zone of proximal development advanced by Vygotsky (1978, 1986). Nevertheless, it is necessary to recognize that the responses of students are probabilistic in nature, but advancing up a scale of learning at different levels and at different rates for each different individual.

TIME AND OPPORTUNITY TO LEARN

11. Can policies be developed for the learning of languages in developing countries?

In many developing countries of the world it is necessary for young people to learn at least three languages, namely their mother tongue (L1), that is spoken in the home, the national language (LN) that is spoken throughout the country in which the students live, and a foreign language (LF), that is rapidly becoming English in non-English speaking countries in order to obtain the benefits of globalization and engagement in trade. The findings of research indicate that it is unwise to commence the teaching of the national language (LN) in situations where it is not the mother tongue (L1), until the child has mastered the skills of listening, speaking and reading in the mother tongue (L1), arguably at the fourth grade of schooling (Marhum, 2005). Likewise, the findings of research seem to indicate that it is unwise and possibly unnecessary to commence the teaching of a foreign language (LF) until students have mastered not only the skills of listening, speaking and reading, but also those of writing at the end of Grade 6 or the end of primary schooling. However, this leaves a bare six years for the development of competence in all four domains of listening, speaking, reading and writing in a foreign language. The learning of languages in schools makes heavy demands on the time available in the school curriculum at all levels, but especially if students are to attain competence in their mother tongue (L1), their national language (LN) and foreign language (LF), commonly English.

12. Can more effective policies be developed for the more effective learning of foreign languages in developed English-speaking countries?

Under the existing matriculation examination schedules in most developed English-speaking countries, very few students continue with the learning of a foreign language after an initial two or three years of learning at the lower secondary school level. It seems that the skills of symbol processing need to be well developed in a national language (LN) before efforts are made to commence the learning of a foreign language (LF) in a formal classroom situation. Where the teaching of a foreign language is commenced at primary school level it seems best restricted to listening and speaking that language, while working in narrative or story situations, with some introduction of students to the culture associated with the language involved. Simple written word recognition and the writing of familiar words seem meaningful, at the primary school level, without the introduction of language usage and grammar.

At the middle and upper secondary school levels, listening and reading and increasingly viewing together with listening, seems to be appropriately based upon stories that portray the operation of key values. Subsequently the universal values and virtues can be introduced, that are expressed not only in the context of the national language (LN), but also in the context of a foreign language (LF). The gradual introduction of the abstract ideas associated with values and virtues can help to advance cognitive development, at the middle and upper secondary school levels, in the same

manner as narrative and historically based accounts of events seem to be appropriate during the transition from the concrete to higher levels of cognitive operation during the secondary school years. The premature teaching of so called 'critical literacy', that seems to involve highly abstract levels of thinking appears to be better taught and learned at the university or adult education levels of education and not prematurely introduced during the years of secondary schooling.

CONCLUSIONS

Students from China, Indonesia, and Japan as well as from other countries of East and South East Asia are coming to Australian universities in increasing numbers to enrol in undergraduate and postgraduate courses in order to return to their homelands to teach English as a foreign Language (LF). At the same time the teaching of foreign languages in Australian universities is struggling to continue in operation. This is partly a consequence of the existence of so many foreign languages that have claims to be taught in Australian universities without a single language that has a dominant place. The two languages that have the strongest claims are arguably French and Chinese. French has a traditional but perhaps declining place in foreign language learning throughout the world, while Chinese has an emerging role in modern Asia.

With several universities now operating in all major cities of the Australian mainland, the rationalization of the teaching of languages other than English appears to be necessary together with an obligation to sustain a teaching force that can operate effectively in the secondary school systems throughout Australia. Furthermore, the development of scales of performance in listening, speaking, reading and writing alongside an understanding of the associated culture, is now capable of setting goals, curriculum objectives, and standards of performance to be attained at different levels of schooling. Unless concerted efforts are made to advance in a systematic way the learning of foreign language in Australian schools and universities, the people of Australia must rely on immigration and the acceptance of English as the global language to maintain its position in a world that is going to be increasingly dominated by people whose national languages are no longer English.

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