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The QTKanji project

An analysis of the relationship between computer assisted language learning (CALL) and the development of autonomous language learners

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Deborah Mary Corder  
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## **Abstract**

An analysis of the relationship between computer Assisted Language Learning (CALL) and the development of autonomous language learners

Computer assisted language learning (CALL) software is being introduced into tertiary language programmes for a number of reasons. Research has indicated that CALL is effective for language learning, that it caters for individual learning needs and that it promotes independent learning. By providing structured learning, students can study in their own time without a teacher.

Whilst it is now commonly accepted that CALL material must be carefully integrated into the curriculum for it to be effective, there is a move in CALL research away from just evaluation of software to a greater focus on the learner. It is maintained that understanding different learning styles and learner preferences is essential in the creation of CALL packages, and that packages are sufficiently flexible to cater for learners of different ability to manage their own learning. However, while an attraction of CALL is that it fosters independent learning, it is not clear what learners do when they are in the process of becoming independent learners, what CALL environments will foster the development of independent learning skills, and the type of learner who will benefit.

This thesis examines the in-house development and trialling of kanji software at the Auckland University of Technology, taking into account the direction of current research into CALL. It provides an initial evaluation of the software design and use, within the framework of research into second language acquisition, learner differences and independent learning. Findings from this initial study will be used to modify the software where necessary and to provide the basis for further research into CALL and language learning.

## **Preface and acknowledgements**

The purpose of this research is to evaluate the effectiveness of the QTKanji software package for the teaching and learning of Japanese characters, and the extent to which it facilitates the development of autonomous learning. The software is being used on the Japanese programmes at the Auckland University of Technology (AUT), and this research has only been possible because of the student co-operation and willingness to take part in the evaluation process. This process has been based on a longitudinal case study, using both quantitative and qualitative research methods. It has involved computer tracking of student use of the software, questionnaires, interviews, focus groups and student diaries over two semesters. This thesis reports on the analysis of data from the first semester of use of the software.

My thanks to the students in the first and second years of the Bachelor of Arts (Japanese) and Diploma in Japanese at AUT, to Dr Grant Waller, senior lecturer (AUT), co-author and technical expert in the development of the QTKanji software, and to Dr Ron Holt, Head of School of Languages, AUT, for his support and guidance. I also gratefully acknowledge my supervisor, Professor K Ono, East Asian Studies, Massey University, for his encouragement, support, constructive feedback and invaluable guidance during the writing of the thesis, and Mike Corder for looking after me, the dog and the home during this time.

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Approval to carry out the research was granted by the AUT Ethics Committee and confirmed by a representative of the Massey University Ethics Committee.

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## **1 Introduction**

### **1.1 The QTKanji project**

Computer assisted language learning (CALL) software is being introduced into language programmes at all levels of education, from primary to tertiary. The advantages of CALL are many: it provides another dimension to language teaching and learning, can be used to enhance what is taught in the classroom, and students can study without a teacher being present (McCarthy 1995). A strong attraction is that research has indicated that CALL is effective for language learning, that it caters for individual learning needs and that it promotes autonomous learning. However, research has also shown that if the CALL software is going to be effective, it must be carefully integrated into the curriculum. Just like the introduction of a new textbook, the introduction of CALL software should be based on sound pedagogical reasons, have a theoretical framework, and be evaluated accordingly. This evaluation must not just be of the software itself, but must also include the learner and the learning environment (McCarthy 1996, Levy 1999a, 1999c, Hoven 1999).

This thesis examines the work to date of the QTKanji project<sup>1</sup>. The QTKanji project is the in-house development, trialling and evaluation of the QTKanji program (Corder, Komori, Waller 1999), a HyperCard based computer software package for the teaching and learning of Japanese characters (kanji) in the Japanese section at the Auckland University of Technology (AUT).

The departure point for the development of the QTKanji program was to provide an alternative way for students to learn kanji, in an environment where they can study as independent learners through an autonomous learning process. It has a theoretical framework based on second language research into learner differences and independent learning.

Formal evaluation of the software began in semester two 2000, and findings from the initial evaluation will be used to modify the software where necessary. If the findings are

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<sup>1</sup> QT stands for 'QuickTime', which is the name of software to create the video clips in QTKanji.

favourable, the information will be used to provide the basis for further research and development of CALL software. In keeping with the current direction of CALL research, the evaluation does not just focus on the software design and use. It also takes into account the learners and their approach to learning Japanese as a whole, including kanji.

The evaluation will seek to identify whether the QTKanji program is effectively providing an environment (see 1.6 Definitions) for students to work autonomously, and which elements of the program work well for particular types of learner. By looking at student approaches to their language study as a whole, it will also seek to identify whether students are showing characteristics of autonomous learning, and whether this relates to their use of the QTKanji program. This thesis covers the development, implementation and evaluation of the QTKanji program, and an analysis of the initial findings.

## **1.2 Rationale for the QTKanji project**

The QTKanji project began in July 1999 and has been the work of a colleague<sup>1</sup> and myself. A number of factors contributed to the conception of the project :

- The difficulty of learning kanji experienced by students of Japanese, especially students from non-kanji backgrounds.
- The desire to meet different learning styles of students.
- The learning agenda of the Auckland University of Technology (formerly the Auckland Institute of Technology) which offers student-centred programmes, values the concept of life-long, self-directed, independent and autonomous learning, and provides a flexible approach to cater for different learning styles (AIT 1998: 16). This agenda is very much a part of AUT's strategic plan developed in 2001.
- Evidence from research that CALL software is effective for language learning and promotes autonomy (McCarthy 1995, 1996, Lévy 1997).
- Lack of relevant commercial software.

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<sup>1</sup> It was possible to develop the QTKanji program in-house because of the Macintosh platform expertise of a fellow lecturer, Dr Grant Waller. He learnt scripting to produce the software, dealt with the technical aspects, and co-authored the materials with me. My role was to review the literature and to carry out the evaluation.

- The sourcing of a HyperCard database of kanji ‘cards’, called QTKanji from Saeko Komori from Chubu University.

### **1.2.1 Difficulty of kanji learning**

Character-based languages such as Japanese require an average of 2600 contact hours compared to 960 for Western languages. The current contact hours over three years of a Japanese language programme at most Australian universities is 400-500. (Van Aacken 1996). This is probably the same for most universities in New Zealand. At AUT, the contact time is two to three times more than this but it is still short of the desired number of hours. Other aspects of language learning, such as development of proficiency in reading and writing, oral and listening skills, and mastery of grammar, compete for time. The demands of kanji learning have been identified as one of the major contributing factors to the tendency for a high attrition rate in Japanese in the first year of study (Van Aachen 1996: 2). Added to which is the problem of students entering university programmes with different levels of prior knowledge and experience of a foreign language, who are expected to reach the same levels of proficiency at the end of three years (McCarthy 1996).

Knowledge of kanji is the basis for reading and writing skills in Japanese (Komori and Zimmerman 2001: 43) and learning it is extremely time-consuming especially in a foreign language environment (Van Aacken 1999). Feedback from my own students and class observation, suggests that kanji learning is one of the major hurdles to achieving proficiency in the Japanese language. With over 2000 characters in everyday use and with each character having up to six or seven different readings (21 different readings in one extreme case), the time commitment required to gain a reasonable degree of mastery to read, say, a newspaper can be considerable. It was therefore a priority to explore methods to increase the effectiveness of teaching and learning kanji.

### **1.2.2 Different learning styles of students**

From research in second language acquisition (SLA) there is a recognition for the need to take into account learner differences (Ellis 1994: 524). Learners respond differently to different types of input, and successful learning takes place when learners use the ways

they prefer (Stevick 1989: 149). The Japanese section at AUT uses a range of teaching and learning approaches and methodologies. However, in the case of kanji, it was clear that there was a need to provide students with alternatives to augment the cue cards and other methods being used. Not only did we have students of different ages and different levels of prior learning, there was an increasing number of students from a kanji background in both the bachelor of arts and the diploma programmes. Addressing the needs of students from kanji and non-kanji backgrounds became an issue in terms of both teaching and learning. In line with this, a clear understanding of different learning styles and learner preferences is necessary when developing CALL software. (Hoven1999)

### **1.2.3 Autonomous learning and self access**

According to Sinclair (2000:5), 'It may be said that the development of learner autonomy, at least to some degree and with differing interpretations, appears to be almost universally accepted as an important, general educational goal.' The School of Languages at AUT has always espoused the University's philosophy of preparing students to be life long learners, with independent learning skills to continue learning languages after completing their course of study. The expectation is for students to develop the capacity to behave autonomously and take responsibility for their own learning.

There are various definitions and interpretations of learner autonomy. These will be discussed in the literature review, but the point of departure for the QTKanji project was based on Holec's 1981 model. In this model, students become independent learners through autonomous learning, which is a process whereby they exercise control and assume responsibility for their learning by making decisions or choices, touching on all of its aspects from goal setting to self-assessment. The terms independent learning and autonomous learning will therefore be used interchangeably. The QTKanji project was seen as an opportunity to research the learning approaches of our students as well as how the software featured in their language learning process as a whole.

### **1.2.4 Effectiveness of CALL software**

The decision to introduce CALL software into the Japanese programmes was based on research indications that it is effective for language learning (McCarthy 1995, 1996), including kanji (Van Aacken 1996), and also has potential to cater for individual learning needs and promotes independent learning (Van Aacken 1996, Levy 1997: 199). More recent literature acknowledges the potential of CALL but highlights issues and concerns in the field of CALL that need to be taken into account to ensure effectiveness such as relevance of content to the curriculum, and the need for a theoretical framework. These issues and concerns have influenced both the development and evaluation of the QTKanji software.

### **1.2.5 Commercial CALL software**

Once the decision was made to introduce CALL software into the Japanese programme, the task was to find suitable software. This proved frustrating as there was nothing that could be integrated into our programme. Research strongly indicates that for CALL to be effective, it must be integrated into the curriculum (Van Aacken 1996:2, McCarthy 1995: 30, 1996: 24, Levy 1997: 24, 200). Although there was some very good interactive software, the main problem was that it would have been necessary to rewrite our curriculum to follow the sequence of kanji introduction and for the vocabulary to be relevant.

## **1.3 Aims of the QTKanji project**

The QTKanji project has a point of departure that is both a bottom-up and a top down approach (Levy 1997: 2). Bottom-up approaches centre on a particular class room or language learning problem, and top-down approaches centre on a theory of language or language learning. The project has a number of aims:

- 1) To facilitate kanji learning while providing learners with the opportunity for autonomous learning.
- 2) To involve students in the design and development of the software in order to try to find out more about their needs and ways of learning.

- 3) To evaluate the use and effectiveness of the software, and providing the results are supportive, use the findings to form the basis of further software research and development. As CALL does not operate in isolation, the evaluation must look at the learner and the total learning environment, as well as the software.

In the evaluation of the software, the intention was not to prove that CALL software is better than traditional or non-technological methods of teaching and learning. The intention was to evaluate whether QTKanji can be effective in improving student learning of kanji, its relationship with the students' learning process, whether it provides the environment for autonomous learning, and whether this in turn promotes the development of autonomous learning. Whilst it could be argued that a control group would be necessary to provide a benchmark for the outcome of the research, this was not considered an option because of the ethical issue of one group having an advantage over another group. As Cameron (1999: 5) says 'it is not easy to evaluate any system of language learning, let alone CALL where there are additional significant factors to be considered because of the variables involved. This is not a reason, however, why we should not do so.' That is why the approach adopted for this evaluation has been along the lines advocated by Goodfellow (1999): to try to understand the way the learner is using the technology to learn. This includes such factors as levels of motivation and use of learning strategies, not just test scores.

#### **1.4 Research questions**

- 1) Is the QTKanji program user-friendly?
- 2) Do students actually use the program, and how are they using it? Are there any trends based on individual differences (background, gender, prior learning)?
- 3) Is there a correlation between student usage of the software and improved performance in tests and examinations?
- 4) Does the program provide an environment in which the learner can work autonomously? Allied to this, to what extent are students showing signs of independent learning and how much does QTKanji feature in the total learning environment?

- 5) Does the evidence collected for 1 – 4 above, indicate that the QTKanji program is meeting the aims of the project and warrant further research and development of the program?

The software was trialled in semester one 2000, and formal evaluation began from semester two 2000. To date four groups, a total of 82 students, have taken part in the evaluation. The focus of this thesis will be on the two first year groups, totalling 33 students. These students started using QTKanji at the beginning of their Japanese course (see Section 4 Methodology).

### 1.5 Structure of the thesis

Developing CALL software is a complex process and requires on the one hand, the development of the software program using computer technology, and on the other, addressing traditional questions in language teaching and learning (Levy 1997: 227). This complexity is reflected in the literature in the field of CALL research and development, discussed in the literature review in the next chapter. The literature review includes a range of research findings and issues of current debate both in CALL research and second language acquisition research, that shaped the development and evaluation of the QTKanji project, including the choice of theoretical framework. Chapter three explains the design of the QTKanji program, discusses technological and pedagogical issues that shaped the design, and includes a description of the program. It also describes the implementation process including strategy awareness workshops that were held as a result of observation of student use of the software, and information from the tracking data. Chapter four explains the rationale for the evaluation methodology, and describes the evaluation methods. The findings are reported in chapter five, discussed and analysed in chapter six, and chapter seven contains the conclusions and further research.

### 1.6 Definition of terms

**Environment:** In the context of the learning environment provided by the computer, the term environment is based on what Cameron (1999: 5) describes as an effective learning environment. This is one in which programs are designed in a way that maximises the

computer's capabilities and allows them to be integrated into other non-computer activities, that they cater for user-learner differences, and that they incorporate proven cognitive theories.

**Terms used to discuss software.** Discussing software has been complicated by the many ways that practitioners have conceptualised it (Levy 1997: 142). Software is made up of types of activities for particular skills development, the actual tasks that the learner is required to carry out, and the interaction required between the learner and the computer in order to carry out the task. For the purpose of this thesis, the following terms will be used:

**Category of software:** the term 'category' and 'activity' will be interchangeable. They include software with a particular language focus or skills development (such as reading, writing, listening, vocabulary; grammar, kanji); and software with a particular approach (such as exploratory learning); software for a precise activity (such as gap filling).

**Tasks and exercises:** while there is some overlap with 'activity', these will refer specifically to what the student is required to do to complete the activities, for example, replacing words, completing sentences, and reordering sentences or words.

**Movement:** the action taken by the student to communicate with the computer software, such as typing in answers, and using the mouse for pointing and clicking, and clicking and dragging.

**'Program' and 'software'.** These terms are used interchangeably to mean the same thing in relation to CALL. 'Programme' will be used to refer to the course of study as a whole, and not specifically to CALL.

**'Computer Tool' and 'Computer Tutor'.** CALL software is used either as a tool or as a tutor. When used as a tool, it provides the means for the learner to carry out learning tasks, for example using email, Internet, on-line dictionaries. The tasks can include problem

solving or language analysis. When used as a tutor, the software acts like a teacher, providing structured activities, feedback and direction.

**Second language acquisition:** A distinction between foreign and second language learning/acquisition is often made. Foreign language learning refers to the learning of a language outside the country of the target language (eg learning Japanese in New Zealand). Second language learning refers to the learning of a language within the country of the target language (eg learning English in New Zealand). It is maintained that there could be differences in *what* is learnt and *how* it is learnt, and involves sociolinguistic theories and the differences between learning a language in a 'natural' as distinct to an 'educational' setting (Ellis, 1994: 228).

According to some researchers such as Krashen (1981) acquisition is the gradual, natural, subconscious development of language, and learning is the more conscious and formal development through study. However this is problematic as it is often difficult to determine what has been acquired and what has been learnt, and at what stage in the learning process it can be considered to be 'acquired' (Ellis 1994: 14).

For the purpose of this paper, 'foreign' and 'second' language 'learning' and 'foreign' and 'second' language 'acquisition' will be used interchangeably except when it is necessary to be specific.

## 2 Literature Review

As stated in the introduction, the departure point for the development of the QTKanji program was to provide an alternative way for students to learn kanji, in an environment where they can study as independent learners through an autonomous learning process. It has a theoretical framework based on second language research into learner differences and independent learning. The decision to develop the QTKanji software and how it was designed was influenced by research projects on the efficacy of CALL in language learning. The design and planning of the evaluation of the effectiveness of the software was influenced by the current interests and needs of CALL research identified in the literature as being a need for:

- CALL research that has a theoretical framework, in particular one that focuses on learner differences, the role of language learning strategies, student autonomy and motivation (eg Pederson 1988, Hoven 1999, and Hémard 1999).
- An understanding of the role of teachers in the design, implementation and running of a CALL programme (eg Levy 1997, Richmond 1999).
- Longitudinal case studies to contribute towards a greater understanding of CALL and language learning (eg McMeniman and Evans 1998, Levy 1997, Cameron 1999).
- Research to see whether it is possible to identify how much CALL contributes to the way in which learners move toward learner autonomy, and what they actually do when they engage in autonomous learning (Blin 1999).

Literature relating to these areas will be reviewed in this section, starting with a brief review of literature on the effectiveness of CALL.

### 2.1 Effectiveness of CALL – CALL projects

Initially the literature review for the QTKanji project focussed on research projects on the efficacy of CALL. Research projects by for example, McCarthy 1995, Kennedy et al 1995, Van Aachen 1996, McMeniman and Evans 1998, provided support for the potential in CALL for language learning, including kanji, and for providing a good environment for independent learning. They also provided important information to take into account when

considering the introduction of CALL into a programme of study, and guidelines for designing software. These guidelines and considerations are discussed in the section on Design and Implementation, and considerations are also listed in Appendix Four.

## **2.2 Current issues in CALL research**

Many earlier CALL studies have been criticised for focussing on just one or two software programs, or on one particular language skill such as listening comprehension, or on how certain design features have promoted learning (Tchaïcha 1999). Egbert et al (1999) are critical of much of what has been written about CALL in language education for being descriptive rather than analytical. Garrett (1998) bemoans the fact that there is very little information on what students do with CALL materials and how this affects their learning. CALL research has tended to be synonymous with research into the efficacy of using technology in language teaching. Garrett suggests that instead, research should be 'setting out to demonstrate convincingly that students learn differently. Egbert et al (1999: 9) suggest that a better approach would be to focus on whether 'the system of teacher, student, and technology is working for learners' rather than trying to compare CALL and non-CALL learning environments. They emphasise the importance of having a good understanding of pedagogy and the relationship between teaching, learning, and technology.

Evaluating the software alone therefore, is not sufficient as this does not lead to an understanding of the complex learning process that takes place. Levy (1999a: 99) cites Pederson (1988: 126) 'The nature of the learners, the task they believe they are supposed to perform, and the way the CALL materials are designed all play individual and interdependent roles in determining learning outcomes. Researchers should continue to investigate all three variables in a variety of contexts in future CALL basic studies.' In fact, there is a common theme in the literature that CALL research needs to focus on the relationship between 'the media, the user, the learning environment and the curriculum' (Cameron 1999:2).

### 2.2.1 Theory of CALL

Cameron (1999: 2) believes that whilst the use of computers will increase inside and outside the classroom, and that it facilitates language learning, there is still a need for a great deal more research and development into CALL programmes. According to Levy (1997: xii), CALL research lacks coherence with too many one-off projects that ‘are not described in relation to other similar CALL projects, nor set in the broader context’. Levy (1999c) states that CALL practitioners and researchers do not seem to be building on what has already been achieved and that CALL research has reached a stage where it needs to have a more focussed agenda, and a theoretical basis. A theoretical basis would enable the field to ‘move toward a consensus on what knowledge was broadly accepted as true, and what remains to be confirmed or discovered’ (ibid 24). According to Krathwohl (1993: 89) ‘theories help us find the significant variables. They suggest research directions and help locate points where research is needed to bolster arguments. They provide a network into which new findings can be integrated . . .’ (cited in Levy 1999a: 99). As Levy (1997: 4) points out, these theories include theories drawn from psychology, especially cognitive psychology, and from theories of teaching and learning in the field of second language acquisition (SLA) research. However Levy (1997: 6) warns that only theories that are fully applicable in the context of CALL and to the ‘unique qualities of learning with the aid of a computer’ should be used. He maintains that in many cases, it is necessary to draw on several theories or approaches to meet the software goals.

Because of the departure point of QTKanji (see 1.1), the theoretical framework for the QTKanji research has been based on SLA research into learner differences and independent learning. This was also in keeping with the current interests and needs of CALL research identified in the literature as being learner differences, the role of language learning strategies, student autonomy and motivation (see above).

### 2.2.2 CALL and SLA theory

The current situation in SLA research needs to be discussed briefly here. According to Ellis (1994: 686), research into second language acquisition is still a relatively young field of research, and there is lack of consensus as to the value of applying SLA theories to classroom teaching theories. Ellis (ibid 3) states that it is now at the stage of being ‘a

rather amorphous field of study with elastic boundaries [which] makes the task of surveying the field a difficult one. . . [and] scholars have usually preferred to identify specific areas [which has resulted in] books on such topics as learner errors, vocabulary acquisition . . . L2 pragmatics . . . the role of . . . attitudes and motivation, learner strategies, and classroom L2 acquisition . . .'. According to Levy (1997: 55), this has resulted in numerous 'theories', 'models', 'perspectives', 'theoretical claims' and so forth.

However the important fact is that research findings and SLA theories do provide language teachers with useful insights into language learning and encourage questioning. Ellis states that language teachers should be familiar with SLA research because

unless we know for certain that the teacher's scheme of things really does match the learner's way of going about things, we cannot be sure that the teaching content will contribute directly to language learning. (Ellis 1985: 1)

Levy maintains that linking CALL design to theories of language and language learning provides a very necessary framework for both the design and evaluation. Determining whether learning has taken place requires more than just recording student satisfaction; it requires criteria against which to make an evaluation. Students might be responding positively for any number of reasons for example, exciting visual effects (1999a: 94). This is not an effective measure of whether learning is taking place. By linking theory to specific elements in a design, it is possible to test each element independently and eliminate those that do not prove effective (Levy 1999b: 32).

Ellis (1994: 18) provides a useful summary of different areas of SLA research. All the areas interrelate and many investigations cover more than one. However they provide a useful framework for researching second language acquisition. Area 4 in the following summary is the theoretical basis chosen for the QTKanji project. It has proved an effective framework by highlighting key factors in the learning process such as the role of motivation and learning strategies, and this has guided the approach to the research.

Focus on learning		Focus on the learner	
Description	Explanation		
Area 1	Area 2	Area 3	Area 4
Characteristics of learner language	Learner-external factors	Learner-internal mechanisms	The language learner
errors	social context	L1 transfer	general factors eg motivation
acquisition orders and developmental sequences	input and interaction	learning processes	learner strategies
variability		communication	strategies
pragmatic features		knowledge of linguistic universals	

A framework for investigating L2 acquisition

Ellis 1994: 18

### 2.2.3 CALL Research Methodology

In line with the move towards a more theoretical basis in CALL research, and a change in focus from evaluative studies of software to looking at the learner and the whole learning environment, there is a call for research methodology to change in order to capture the information being provided by the research data on how the student is using the technology to learn.

... testing pedagogical theory and application is one of the most difficult undertakings in social sciences, because so many variables are at work at

the same time. A quantitative focus cannot deal adequately with this 'anarchic' environment. (Egbert et al 1999: 11)

Motteram (1999) says there is support in mainstream applied linguistic journals for the focus to shift from purely empirical studies to include qualitative methodologies, which are more appropriate for classroom investigations. Case study and ethnographic research approaches, with their inherent longitudinal characteristics, can play an important role in increasing our understanding of the relationship between use of CALL and language learning. Levy (1999c: 29) maintains that the best way for CALL research to proceed is to have research studies that are:

- focussed on understanding the local context as it relates to CALL
- longitudinal, to counter novelty effects and to track individual processes of adaptation over time
- naturalistic, to track use in real and authentic settings (not necessarily classroom-based)
- descriptive, to capture patterns of use involving individual and group perspectives
- process-oriented and qualitative.

It is this shift in research methodology that influenced the choice of methodology for the QTKanji evaluation.

#### **2.2.4 Impact of CALL on language teaching and the role of the teacher**

Despite the substantial number of CALL materials that have been produced and the support and optimism for CALL in journals and conferences, Levy believes that 'CALL remains a peripheral interest in the language teaching community as a whole . . . and there is scant evidence to suggest that CALL has really been absorbed into mainstream thinking, education, and practice' (Levy 1997: 3). This has been partly attributed to the quality of CALL software available, and that teachers and students are disillusioned with the effectiveness of CALL as a result. There is still very little available for advanced learners, it lacks relevancy to established programmes of language study, and there is a lack language teaching methodology (Richmond 1999: 297). Indeed research has shown that a great deal of commercial software development has not been based on a theoretical framework or on results from CALL research (Levy 1999b: 31, 1999c: 27). As a result, as

we have found ourselves, not only is there a problem with integrating commercially produced software into a teaching programme, in some cases there is also a problem of quality and lack of understanding of the teaching and learning process.

Other factors that have an influence on how much CALL is used in a language programme are teacher attitudes and beliefs, and their computer skills. A student's learning is influenced not just by one teacher but by the cumulative effects of many teachers in their course of study (Egbert et al 1999: 10). CALL is therefore not likely to be an integral part of the language learning process if teachers do not have an understanding of the potential of CALL, or if the teachers lack computer skills (Pilus 1995). Staff development and technical support are necessary to overcome this problem (Pilus 1995, McMeniman and Evans 1998). In the case of the QTKanji project, the need to increase teaching staff understanding of the potential of the software has become apparent. This applies to all members of teaching teams, and not just staff directly involved in the use and development of the software.

Finally the role of teachers in the design and development of software is also recognised as being important. Levy (1997: 3) believes that teachers should be involved in CALL materials production, particularly in the area of teaching methodology and content. Research has shown that learners respond more positively to dedicated software material produced by their teachers; and 'in the long term students are only likely to make use of materials if encouraged to do so by their teacher.' (ibid 231) Teachers know their 'audiences' (Levy 1999a: 100) which is one of the essential requirements of good software design, and can involve their students in trialling and evaluating the software (Hémard 1999). This, and the lack of suitable commercial software, were two of the main reasons why it was decided to develop in-house software, resulting in the QTKanji software.

### **2.2.5 The computer as a tutor or a tool**

The debate about whether the computer should be used as a tutor or a tool is important for the QTKanji project, as the software has essentially been developed for drilling kanji. The academic approach to CALL seems to emphasise the computer as a tool and values the fact that it allows for the development of creative learning strategies in stimulating

environments that make the most of the latest technology (Richmond 1999; Levy 1997). However, it must be remembered that it is the highly motivated advanced learners who would benefit from the tool/integrated functions of computer software, and even for these students, it is essential to have learner training to ensure that they know how to use the tool appropriately and effectively. There is doubt as to whether learners in the early stages of language learning will be able to use the concept of integrated CALL effectively (Richmond 1999: 309, Decoo and Colpaert 1999). Decoo and Colpaert (1999) maintain that more bottom-up research is needed to determine the value of CALL for this type of learner. They believe ‘it could lead to a positive reevaluation of the role of the computer for (sophisticated) drill and practice, for precise follow-up and remedial teaching, and for replacing classroom activities which are still needed but are time consuming and less creative than others’ (Richmond 1999: 56-57). This supports McCarthy’s (1995) view of using computers for drilling grammar, and for software packages like QTKanji for drilling kanji. It is possible that the answer lies in a hybrid version using both tool and tutor functions (Richmond 1999: 39).

It would therefore seem important to keep the aims and objectives of the software, and the need to meet students needs very much in mind. This was a key factor in deciding on a simple design for the QTKanji software. Decoo and Colpaert ask a very important question: ‘Are we going to develop what users want to use or what users should use according to research findings?’ (1999: 56) In line with Levy (1997), Decoo and Colpaert believe that CALL research and developers should build on what has gone before and not to be led purely by the latest technological innovation. ‘. . .CALL literature is devoted to what ought to be, and not enough to what is working successfully for large groups’ (1999: 35).

### **2.3 Focus on the learner**

With researchers advocating that there should be a move beyond evaluative models, there is a greater focus on the learner in CALL research literature (Pederson 1988, Hoven 1999, Hémard 1999, Tchaïcha 1999, Goodfellow, Manning and Lamy 1999).

We need to learn much more about what the learner brings to the computer and the CALL activity, and once active on the computer we need to understand what particular factors impinge on learning success and what learning strategies are favoured and why. (Debski and Levy 1999: 8)

Hoven (1999) maintains that understanding different learning styles and learner preferences is essential in the creation of CALL packages, to ensure there is a flexibility of approach that caters for different learner ability to manage their own learning. Debski and Levy (1999: 9) say that:

research studies should occur over time so that the findings really do capture significant events in the processes associated with language learning and in coming to terms with the technology. Longitudinal studies are especially needed because of the novelty effect to which learning with technology is prone.

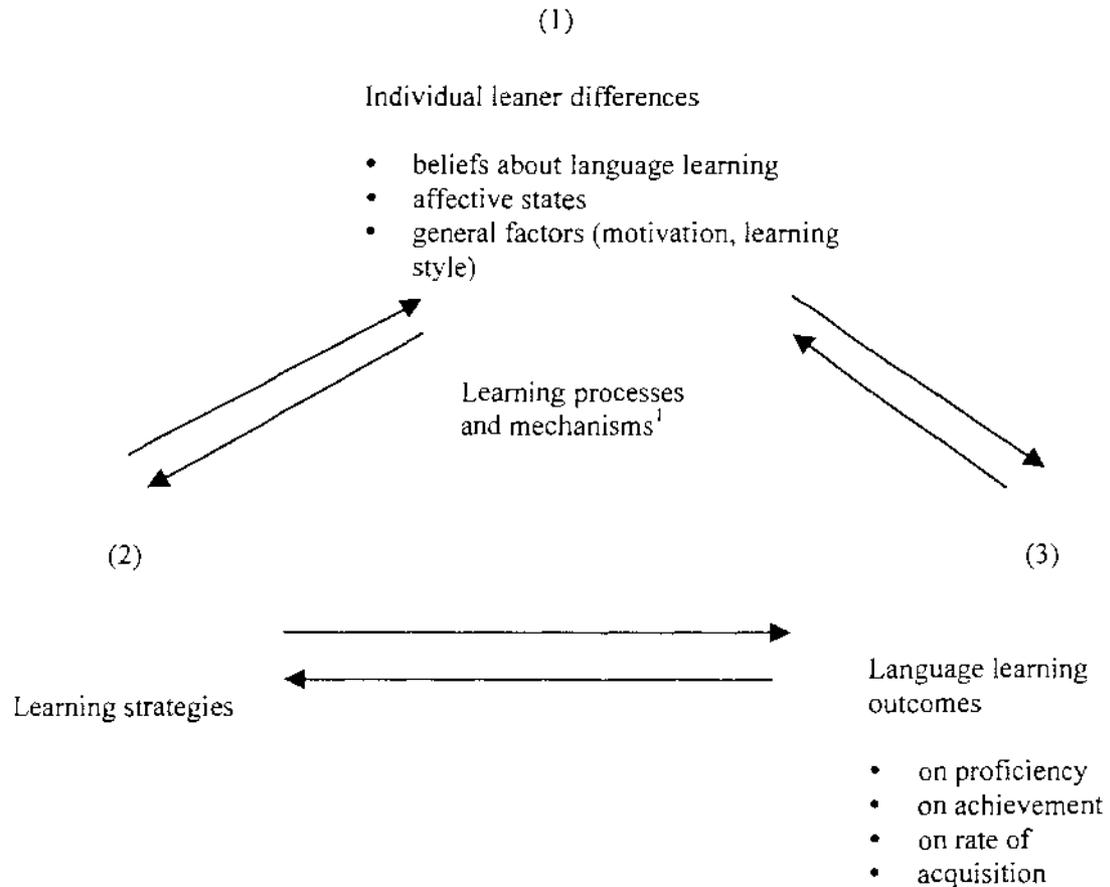
### **2.3.1 Learner differences**

Ellis points out the increasing amount of SLA research being conducted into learner differences in language learning, and that a large number of variables have been identified as influencing learning outcomes. These variables have been classified in different ways, and although in some cases there are no clear distinctions between terms such as 'belief', 'attitude' and 'factor', considerable importance is attached to this area of research (1994: 371). Ellis maintains that this research is important from the point of view of language instruction because of the recognition it gives for the need to take into account learner differences. In addition, it also highlights that 'different learners can achieve the same level of success if the instruction matches their own preferred approach to learning' (ibid 524).

According to Ellis 'The ways in which learners differ are potentially infinite as they reflect the whole range of variables relating to the cognitive, affective, and social aspects of a human being' (ibid 35). 'This can be seen from the range of factors that have been identified as influencing individual learner differences. They include: age, gender, prior learning, personality/affective factors (self-esteem, anxiety, risk-taking, tolerance of ambiguity), language aptitude, attitudes and motivation, general intelligence (IQ), social preferences (learning with peers or with a teacher), learner strategies, cognitive styles (field independence/dependence, analytic), sense of modality preference (visual, auditory,

kinaesthetic or tactile) and so forth (ibid 472). Culture and maturity could also be added as variables.

Ellis' framework for investigating individual learner differences (ID) usefully highlights the different variables that interact in the learning process.



A framework for investigating individual learner differences<sup>1</sup> Ellis 1994: 479

From a teacher's point of view, it is important to know which variables can be influenced and changed. Set (1) deals with three main types of variables. The first is the learner's

<sup>1</sup> Ellis acknowledges learner processes and mechanism in the framework, but there is little information on the relationship between IDs and the process of language acquisition.

ideas about language learning, such as the nature of language learning and the best strategies to use. The next are affective factors, which include confidence, anxiety and self-perception. It is believed that it is possible to change learner attitudes and affective states as a result of experience. Finally, there are a number of general factors. These include age, which is fixed, and aptitude, which is immutable and not easily influenced by environment. Then there are motivation, learning style, sense of modality preference, and social preference, all of which are variable and can change according to the learning experience (Ellis 1994: 479, Hoven 1999: 155). Set (2) consists of learner strategies, which learners use to 'enhance' their learning (Ellis 1994: 35). These can be changed. Learner strategies are discussed in section 2.4. Set (3) relates to language learning outcomes.

ID research has tended to focus on the interrelationship or effects of variables within the sets. However Ellis believes it is likely that all of the variables interrelate and have a 'symbiotic' relationship (ibid 473). For example, motivation and anxiety can have a positive or negative effect on achievement, and perceived success or failure will have an effect on motivation. Choice of learning strategy will be influenced by ID variables and successful use of a particular strategy can have an influence on motivation (ibid 474). So far research has revealed little about the impact of the different factors, or how they interact.

However, of significance to emerge from descriptive research on individual learners has been that teachers need to enable students to exploit their strengths. There are dangers in our enthusiasm, in choosing just one method at the expense of others because it may well be at the expense of the different learning needs of students (Stevick 1989: 138). This could lead to disappointing results for the teacher, and students who think that there is something wrong with them and that they are failures. This is echoed by Soo, who says that 'students are often judged on how well they learn using the teacher's style' (1999: 289). As a result, they might perceive the material as boring or difficult, become discouraged and lose motivation. Hence the rationale for developing the QTKanji software as an alternative way of learning kanji.

### 2.3.2 CALL and learning styles

Hoven (1999: 163) says that in order for a software package to cater for individual learner differences it must include tools and tasks that highlight visual, aural and kinesic modes of perception and learning. Tasks, for example, would include 'simple yes/no decision-making implemented by a mouse-click. Other tasks, however, allow more kinesic learners to use their preferred mode by picking up objects with the mouse and moving them to the appropriate locations.' This is supported by Soo (1999) who also says that greater use could be made of simulations, and problem solving activities.

There is no 'supermodel' that can be used to cater for all learning styles. However 'Language teachers who can match their students' learning experience to their learning styles or help them understand new ways of learning can ensure that the students have an opportunity to learn optimally even though they may learn differently' (Soo 1999: 290). Research has shown that good learners often use different learning styles for different tasks. CALL has the versatility to match a variety of learning styles provided the software is well designed and used by a well-trained teacher (Soo 1999: 301). One could also add, provided students are also trained to use the software.

### 2.4 Learning strategies

From the literature it appears there is a very close relationship between language learning strategies, motivation and autonomous language learning. These will be dealt with in the next few sections. However, it is very clear that language learning strategies and motivation are interdependent, and are significant factors in learner autonomy.

Claims for the advantages of CALL often include the fact that it allows learners to work at their own pace and in their own time, often in a self access mode (Hoven 1999, McMeniman and Evans 1998, Blin 1999). More control over their own learning increases learner autonomy and in turn increases motivation (Littlejohn 2001, Dörnyei and Csizér 1998). However, a corollary to this is that if learners are going to be given more control over their own learning, they need to understand their own learning processes, and be able to use and develop effective learning strategies. In reality, most learners need guidance and

guided practice to acquire the skills and strategies in order to manage their own learning (Hoven 1999: 158).

Strategies have been defined as the actions taken by the learner to learn, or as defined by Oxford (1990: 8) 'specific actions taken by the learner to make learning easier, faster, more enjoyable, more self directed, more effective, and more transferable to new situations.' Unfortunately there is no agreement on what constitutes a 'learning strategy' and there have been various classifications and frameworks of language learning strategies. Oxford's classification is considered the most comprehensive (Ellis 1994: 539). Her classification distinguishes between direct and indirect strategies. Direct strategies involve 'mental processing of language' and consist of memory, cognitive and compensation strategies (Oxford 1990: 37). Indirect strategies are those that 'provide indirect support for language learning through focussing, planning, evaluating, seeking opportunities, controlling anxiety, increasing co-operation and empathy and other means' (ibid 151). These strategies consist of metacognitive, affective and social strategies (ibid 16).

There has been growing interest in the study of learning strategies amongst educators and SLA researchers because it holds 'considerable promise, both for language pedagogy and for explaining individual differences in L2 learning' (Ellis 1994: 558). It is believed that some learners are more successful in language learning than others are because they can effectively identify and use relevant strategies. In addition, it is believed that less successful students can enhance their own learning and become more successful by learning how to select strategies and use them effectively for their own needs (Griffiths and Parr 2001: 249).

Chamot and Rubin (1993) cited in Oxford and Leaver (1996: 744) maintain that learning strategies are not a 'magical formula' to improve learner performance. However, there is evidence that if students are trained in strategy use, it can have a positive effect on their ability to become engaged in their own learning processes, and therefore take on greater responsibility for learning (Chamot and Rubin 1993: 246). Students' increased use of strategies has the effect of increasing confidence, which in turn has a positive effect on motivation and improved beliefs in language learning (Chamot et al 1996: 175). Wenden

(1987: 8) states that ‘One of the leading educational goals of the research on learner strategies is an autonomous language learner.’

Many students use strategies, but often their use is random and haphazard and as a result, their performance can be erratic (Oxford and Leaver 1996: 229). Strategy training involves helping students to identify and improve on the strategies they are currently using, identify and use strategies they are not using but might be useful for particular tasks, to transfer these strategies to other tasks, not necessarily language tasks, and to evaluate the success of these strategies. During training, other variables that might affect choice or evaluation of strategy are also discussed. These variables include general organising ability, personality, beliefs and motivation. This process also helps learners to identify their learning styles.

On the whole, the literature on strategy training is very much teacher directed. Whilst it can be argued that this may reduce learner autonomy, it is also argued that it is necessary, especially for the less successful language learners who are unable to develop appropriate strategies on their own (ibid 241). However, whilst teachers might provide a great deal of input at the beginning, it can gradually diminish as students gain more experience and confidence. The term ‘scaffolding’ is used to describe how to help students develop their awareness of their language learning process and to identify the strategies that are effective for their individual needs. Scaffolding is a process whereby learners go from teacher dependency to student independence, and is similar to Vygotsky’s (1978) work in relation to social learning (cited in Oxford and Leaver 1996: 241; Hoven 1999: 153, Blin 1999: 135).

#### **2.4.1 CALL and learning strategies**

Hoven (1999) talks about how scaffolding can be applied in CALL by providing highly structured material for the initial stages, but also less structured material that enables those who are able, to take more control of their learning. She maintains that it is essential for software to contain information on tasks and on the purpose of the tasks so that learners can select them to meet their own learning needs or goals. In turn, however, students must be aware of their needs and goals and be able to identify areas that they need to work on. Hence the need for strategy training and awareness raising (ibid 152).

Research into language strategies and kanji has provided some useful information on kanji learning, and how this information can be used both in the traditional classroom and in CALL design. Chamot et al (1996:185) found that at the beginning level, memory strategies (high school and college) for vocabulary were quite important, and that imagery was the most helpful strategy for learning to recognise and produce kanji.

Komori and Zimmerman (2001) refer to the findings of a number of studies into kanji learning of different L1 learners. In the case of different word recognition strategies, Chinese subjects relied more on visual information, English subjects more phonological information. Studies showed that 'autonomous vocabulary learning benefits from the use of metacognitive strategies such as inferencing and noticing' (ibid 48). Factors such as these are important and must be considered when designing a CALL program.

Results from Van Aachen's (1999) study show that there is a significant correlation between metacognitive strategies and instrumental motivation (the practical gains from learning a language, such as getting a good job). The implication for autonomous learners is that a program which allows the learners to use their metacognitive strategies may be important in kanji learning. In line with individual learner differences, all the students used a range of learning strategies (ibid 132). In a study by Douglas (1992, cited in Van Aachen 1999: 119) of American University students learning kanji, findings revealed that metacognitive and cognitive strategies were used most, while affective strategies were used least. Direct strategies such as memory and cognitive strategies were used more by the third year students, while indirect strategies such as metacognitive strategies were used more by first year students.

Ellis (1994: 558) maintains that the study of learning strategies 'is still in its infancy' and we still do not know which combinations of strategies work more effectively in which kinds of tasks and learning situations. Nor do we know very much about how learners use learning strategies over time and how they have affected their learning. Nevertheless, he believes that they do provide a useful framework for teachers to understand learner differences, and useful tools for teachers to help students to develop their language learning

skills. Learning strategies are also a very important dimension of the individual learner as they appear to have an interdependent relationship with motivation (ibid 473).

## 2.5 Motivation

The importance of motivation is always a key issue for language teachers, and is regarded as a key factor in SLA research for successful L2 acquisition (Ellis 1994: 508). It is claimed that CALL is effective for increasing motivation because it can be used to cater for individual learner needs (Soo 1999, Levy 1997). Despite this, CALL projects have reported that students do not keep using the software. McMeniman and Evans found that despite providing students with software that was designed for their programme of study, 'only highly motivated students took the opportunity to utilise the programs in self-access on a regular basis' (1998: 7). Hatasa and Hatasa (1997) found that although the 32 students taking part in their study generally responded positively to the software, it was evident that they only did the exercises because it was a required activity as part of their course, rather than from self motivation. This is a recurrent issue in a number of CALL research projects. As a result, in the case of QTKanji, falling off of use by students was expected, and initially attributed to decline in motivation. However, on the basis of more recent work on motivation, steps were taken to see if student motivation could be increased so that this trend in declining use of software could be changed (see 3.7.2 Strategy awareness raising workshops, and 6.4).

The fact that there is a great deal of literature on motivation but no agreement on what motivation actually consists of (Ellis 1994: 36), highlights its complexity. Some of the terms used to describe motivation include: it can be causative, and hence affect learning; resultative, so that it can be influenced by learning; intrinsic and hence influenced by personal interests and inner needs; or extrinsic and influenced by external factors such as material rewards (ibid 36). Teachers often say a student is motivated if from observation they 'study, or at least engage in teacher-desired behavior in the classroom and possibly outside it' (Crookes and Schmidt 1991: 480). However, teachers are not usually concerned with why a student is motivated.

The early or traditional work on motivation focussed on integrative (interest in the people and culture and the desire to communicate) and instrumental (the practical value and advantages of learning the language) motivation (for example, Gardner 1985). Researchers have traditionally tended to be more concerned with the role of motivation, and with 'defining, testing and documenting its role in theoretical models of the language learning process' (Ushioda 1996: 1). Ushioda is critical of research into motivation that has defined it solely in terms of components that are quantifiable and measurable. 'Qualitative motivational differences between learners are thus operationalised in quantitative terms, the underlying assumption being that learners with instrumental goals are less strongly motivated than those with integrative goals.' This fact only provides a 'snapshot index of strength of feeling and purpose' (ibid 1996:8). Teachers on the other hand are more concerned with how to motivate students, and have therefore not been able to apply traditional motivation theory to their classroom practice (Ushioda 1996: 1).

Fortunately, more recent work, such as that of Crookes and Schmidt (1991) Dörnyei (1994), Ushioda (1996) and Dörnyei and Csizér (1998), adopt a more pragmatic, education-centred approach, which is more consistent with practising teachers, and more relevant to the classroom. They say more emphasis should be placed on other aspects of motivation, such as intrinsic motivation, and how it affects the process of learning as opposed to the outcome. The psychological approach provided insufficient detailed description of the classroom dimension of L2 motivation, 'one that could have been used to explain specific student behaviours and to help generate practical guidelines for motivating learners' (Dörnyei and Csizér 1998: 205). Examples of some of the more recent work on motivation will be discussed here because of the influence this approach had on changes to how the QTKanji software was integrated into the Japanese programme. Many of the views expressed in this approach were also reflected in the evaluation findings.

### **2.5.1 Motivation model**

Dörnyei and Ottó maintain that many motivation models do not provide adequate summaries of all the motivational influences that take place in the classroom. The models ignore the importance of the sources of motivation, and do not sufficiently recognise that motivation is not static, but is dynamically evolving and changing in time (Dörnyei and

Ottó 1998: 43). Dörnyei and Ottó maintain that a more eclectic model is needed, to take into account the fact that L2 learning is ‘sustained deep learning’ and requires different motivational characteristics than short-term activities and simpler tasks. Language study requires continued practice (persistence) to gain progress and additional motivational factors are constantly required to sustain attention and effort over time, especially at times of difficulty and failure. In many educational settings, decisions and goals are not those of the learners, therefore the ‘choice’ aspect of motivation is not there. Dörnyei and Ottó define motivation as:

...the dynamically changing cumulative arousal in a person that initiates, directs, coordinates, amplifies, terminates, and evaluates the cognition and motor processes whereby initial wishes and desires are selected, prioritised, operationalised, and (successfully or unsuccessfully) acted out. (Dörnyei and Ottó 1998:64)

### **2.5.2 The role of the teacher in maintaining motivation**

In an article on 11-12 year olds learning English, Littlejohn (2001) illustrates the complexity of motivation, and provides some practical ideas for teachers. He maintains that many of the sources of motivation are outside a teacher’s control, such as home background, physical tiredness, personal health, previous educational experience, and personality. However a major contributing factor is the student’s experience in the classroom (Littlejohn 2001: 6).

Littlejohn observes that teachers often resort to games, songs, puzzles and other activities in a bid to relate to what they see as their students’ sense of intrinsic satisfaction. This is what Dörnyei and Ottó (1998) refer to as a ‘bag of tricks’, and is usually not longed lived. As a result, teachers also resort to extrinsic rewards and punishments, but these only succeed in rewarding the better most motivated students. In contrast, for the less successful students, perceptions of failure have a downward spiralling effect on their motivation, and this could explain why the gap between weaker and stronger students gets wider (Littlejohn 2001: 7). As a result, although success is a powerful motivator, it tends to be under-exploited in the classroom.

Littlejohn places great emphasis on the affective dimension of motivation. He maintains that self-esteem and sense of competence are factors affecting motivation, as are teachers and their attitudes and expectations towards their students. In research conducted by Chambers (1998) in a number of high schools in Leeds in England and Kiel in Germany, of all the factors that contributed towards the students positive or negative evaluation of a subject, the teacher comes out on top in all the cohorts. Both Chambers and Littlejohn maintain that it is important for teachers to find out students' views on their learning experience, provide exercises that they can complete and from which they can feel a sense of success and progress, and give feedback that is appropriate, constructive and informative.

### **2.5.3 Motivational framework and suggestions for motivating language learners**

Littlejohn's observations are supported by empirical research into the classroom-specific component of motivation by Dörnyei (Dörnyei 1994 cited in Dörnyei and Csizér 1998: 205-206). The research, conducted in a number of institutions at different levels, including secondary and tertiary, endorsed the significance of the classroom factor. From his research, Dörnyei has developed a general framework of L2 motivation 'that attempts to synthesize various lines of research by offering an extensive list of motivational components categorized into three main dimensions, the *Language Level*, the *Learner Level*, and the *Learning Situation Level* (Dörnyei and Csizér 1998: 205). This framework provides a useful working model for practising teachers to understand the complexity of motivation (see Appendix One).

From this research, Dörnyei and Csizér provide a set of guidelines based on macrostrategies, which try to address the same needs as identified by Littlejohn (2001). These guidelines are based on feedback from practising teachers working in various teaching institutions and are called 'Ten Commandments for motivating language' (see Appendix One). It has to be noted that these are not tried and tested yet, but are perceived strategies. Dörnyei and Csizér (1998: 215) stress that they are merely broad recommendations to be used to enhance various aspects of the motivation complex. Motivation is a highly complex concept and there are any number of motivational strategies that could be used.

It is significant that it is possible to create the conditions for a number of the recommendations from Littlejohn and Dörnyei and Csizér using the CALL environment. In fact one could argue that unless some of these strategies are adopted when introducing CALL software, it could become just another ‘bag of tricks’ and will not be effectively integrated into the teaching and learning programme.

#### **2.5.4 Motivation and autonomous learning**

Ushioda also supports the approach that motivation is ‘implicated in a dynamic cyclical relationship with learning experience and success’ and how this approach is meaningful in the educational context where the common patterns seem to be ‘motivational flux rather than stability with high and low points’ (Ushioda 1996: 10). In her study of tertiary students, she looks at how teachers can mediate the relationship between learning experience and motivation, how they can break the circle and ensure that positive motivation is generated out of negative learning outcomes, and how to sustain motivation over the language learning period. In fact, Ushioda emphasises the pivotal role of motivation in the development of autonomous learning. Her approach is that perhaps we should not be as concerned with how to motivate students, as how to teach students to motivate themselves so that they ‘generate and sustain the appropriate level of motivational behaviour that characterises autonomous learning (ibid 2).

Ushioda identifies two motivational concepts that seem particularly relevant to autonomous learning: self-motivation and intrinsic motivation. Whilst autonomy means taking charge of all aspects of one’s learning, self-motivation involves taking charge of the affective dimension of one’s learning and ‘fulfilling an active functional role in promoting and sustaining autonomous learning’ (ibid 39). It is realised by how learners think and interpret relevant experience in order to optimize involvement in learning. This involves maintaining positive belief structures and self-perceptions, maximizing positive experiences, and coping with the impact of negative experiences to generate positive outcomes.

Intrinsic motivation is our desire to explore and find things out, and each person brings different levels of intrinsic motivation to the classroom (Ushioda 1996). Ushioda echoes the views of Littlejohn and Dörnyei, that if the classroom learning does not relate to an individual's intrinsic motivational agenda, then learning will be perceived as externally imposed and not personally relevant or meaningful. The important thing is to harness or engage a learner's intrinsic motivation. To engage a student's intrinsic motivation 'requires that, above all, learning should immediately induce feelings of success and positive self-perceptions' (ibid 47).

Ushioda believes that 'Motivation that is intrinsic is by definition self-sustaining since it is defined in terms of the subjective rewards (enjoyment, satisfaction, feelings of success or competence, pride etc) that arise naturally from engagement in the learning task or activity in question. . . . The intrinsically motivated language learner is a happy autonomous language learner' (ibid 49). Important features of intrinsic motivation are:

- it is self-sustaining because it generates its own rewards;
- it leads to voluntary persistence at learning;
- it focuses on skills development and mastery;
- it is an extension of personal control and autonomy in the learning process. (ibid 19)

Ushioda maintains that engaging a student's intrinsic motivational processes appears to be crucial, and that the development of effective motivational thinking and motivational skills presupposes the engagement of a student's intrinsic motivation. She believes that the impetus must come from within the learner 'since it is the learner who must apply the appropriate thinking, take the necessary initiatives, and accept responsibility for managing the affective dimension of learning' (ibid 52). However she also says teachers 'cannot put the cart before the horse' and expect learners to be able to do this, if they have done little to ensure that students become subjectively involved in the first place (ibid 52).

However even intrinsic motivation is subject to wavering over the period of language learning when students face periods of struggle, pressure, and frustration in the institutionalised experience of language learning. Some students are able to revive their intrinsic motivation by doing things with the language that they enjoy. This could be

something as simple as watching a movie in the target language, or reading comics, or speaking to host families over the phone, but it is away from exams and tests and essays that are monitored by the teacher.

The significance of students taking their own motivational initiatives, is that they are by definition, actively taking responsibility for their own learning. The act of self-motivation raises learners' awareness of their personal control and effectiveness in the learning process, since they perceive themselves to have a significant impact on this process.' (ibid 52). If they do this, they can control and make optimum advantage of their involvement in learning. If they don't, they might ebb and flow or stagnate in response to the kinds of learning experiences encountered.

The following are some of the keys factors identified by Ushioda for the development of effective motivational thinking:

- Attributing poor performance to lack of effort and not lack of ability. This means that if they work harder they will do better, so they can remain confident and hence motivated. (What learners believe about themselves is crucially important for self-motivation.)
- Attributing success to personal ability or effort, or good time management. It should not be attributed to luck, the teacher or an easy task. (Students must believe in their own potential and capacity for doing something.)
- Mentally projecting responsibility for their negative affective experiences onto external causes (teacher, system, timetable, pressure). This will help them to dissociate the demotivating conditions of institutionalized learning from their own underlying personal motivation for wanting to learn, and help them maintain the self-sustaining belief that they are still motivated (ibid 61). However it could be said that caution might need to be exercised here: some students might use this as a rationalisation for failure, or even for not taking responsibility for their own learning (see section 5.5.1 Focus Groups).
- Ensuring teacher feedback encourages students to think about how they achieved a certain result. Remarks like 'well done' are soon forgotten. Creative discourse of feedback can influence the way students think and what they believe about themselves and 'set in motion the cognitive conditions for self-motivation' (ibid 57). Teachers

must encourage active reflection to identify strengths and weaknesses. This would also include setting short-term goals so that students can experience progress.

- Applying evaluative and performance criteria that avoid self fulfilling prophecies. If they are based on comparative levels of ability, students at the bottom of the pile will stay there as they are likely to see little point in trying if they are not as able as their peers. If the criteria are based on personal mastery of target skills and knowledge, this will foster a different concept of ability, 'defined as something to be gained through effort rather than demonstrated' (ibid 58). This will give students the feeling of progress and a sense of developing competencies.

Ushioda believes that what is desirable in terms of motivational behaviour is inextricably bound up with what we already understand as autonomous learning behaviour. Learner autonomy requires students to be able to manage their motivation, but also presupposes that the learner will bring a degree of motivation into the learning situation 'since without motivation there is no autonomy' (Ushioda 1996: 40).

## **2.6 Learner autonomy**

Learner autonomy is an educational goal (Holec 1981) and in recent years, interest in autonomous learning has been renewed with the advent of new technologies and CALL (Gremmo 1998: 144). North American researchers have incorporated it into their research into the good language learner (Aoki 1999). It has become the driving force behind the design and implementation of CALL materials (Blin 1999: 134, 138). However, learner autonomy is still a controversial concept as there are different perspectives on what it is or should be (Gremmo 1998: 144). As a result, the investigations within the field have not been coherent because they have not addressed the same set of questions and have covered many areas of activity 'from learner strategy training to learner counselling to teacher training' (Crabbe 1999: 4).

### **2.6.1 Definition of learner autonomy**

There are many definitions of learner autonomy, and it is often equated with learner independence, whereby learners are independent to the extent that they can work on their own without help or direction from a teacher (Blin 1999: 134). Candy (1987: 160)

identified 30 terms used in this area including independent learning, learner-controlled instruction, non-traditional learning, self-directed learning, self-organized learning, and self-study. (Candy 1987 cited in Boud 1988: 22). However, the common goal is that students take more responsibility for their own learning and move towards self-reliance (Boud 1988: 23). Some of the characteristics of autonomous learning are: identifying learning needs, setting goals, planning learning activities, working collaboratively with others, choosing where and when they will learn, using teachers as guides and counsellors rather than instructors, opting to undertake additional non teacher-directed work, such as learning through independent (structured) learning materials, engaging in self-assessment, reflecting on their learning processes. These characteristics are used throughout the literature on autonomy, and are among Oxford's classification of language learning strategies. They are used as a basis to identify autonomous learning in the QTKanji evaluation.

Scharle and Szabó (2000:4) differentiate between autonomy and responsibility. They define autonomy as 'the freedom and ability to manage one's own affairs, which entails the right to make decisions as well'; and responsibility 'as being in charge of something but with the implication that one has to deal with the consequences of one's own actions. . . . both require active involvement, and they are apparently very much interrelated.'

Sinclair (2000: 6) discusses 13 aspects of learner autonomy that 'appear to have been recognised and broadly accepted by the language teaching profession.' These are very useful in providing an understanding of the various dimensions of autonomous learning, and some are in Appendix Two. Sinclair also provides a useful framework to illustrate the concept of greater awareness (Appendix Two).

### **2.6.2 What learners do in the process of becoming autonomous learners**

There is a lot in the literature on how to guide and support learners to become autonomous (for example Scharle and Szabó 2000, Healey 1999), and on the importance of increasing motivation and self-confidence, strategy training and self-monitoring and evaluation. However, as Blin (1999: 137) points out, there are very few studies that provide a 'thorough description of what learners do when they are in the process of becoming

autonomous language learners, and few still give a detailed description of the development of learner autonomy in an environment supported by CALL.’ According to Chapelle (1997: 27) ‘There is a need for more descriptive research documenting the nature of the interaction [learner-learner or computer-learner] that learners engage in within various CALL contexts.’ Blin (1999: 137) says research is needed into the type of CALL-supported environments that will ‘foster the development of autonomous learning for which type of learner.’

### **2.6.3 The role of the teacher**

The role of the teacher is considered an important factor in the development of autonomous learning. Teachers need to adjust to a new role of facilitator rather than provider of knowledge (Cotterall 1998: 65, Healey 1999: 39). In addition, a learner’s experience of autonomy will differ within different institutions. There are increasing numbers of learning programmes that make it possible for learners to take responsibility for significant aspects for their learning studies. However, as pointed out by Cotterall (1998: 64) the reality is that there are still many that have constraints imposed by time, class size, pressure to follow curriculum and the demands of external assessments.

### **2.7 CALL and autonomous learning**

It seems that CALL has strengths and weaknesses in terms of promoting autonomous learning, and these must be taken into account when introducing CALL into a programme of study. In the case of tutoring software, its strength lies in the fact that it allows the learner to control the pace of learning, and choose content and style (Levy 1997: 205). However, if it is too prescriptive, ‘it is doubtful that the computer tutor will enhance the development of learner autonomy’ (Blin 1999: 138). On the other hand, without learner training and guidance, students who have not achieved a high degree of autonomy, may find it very difficult to select the appropriate activities. This is particularly the case when using the computer as a tool (Blin 1999: 138-139).

Finally, a very basic and vital consideration, Toyoda (2001: 8) suggests that ‘There may be a technology threshold level that students need to pass in order to achieve learner autonomy.’ This cannot be measured quantitatively. Findings from her study ‘suggest,

generally speaking, that technology can have a positive impact on learner autonomy when learners have extensive experience with technology. However, they also suggest that it can have a positive impact on autonomy only when learners perceive technology as a useful tool (Toyoda 2001: 8).

## **2.8 CALL research and development and QTKanji**

CALL research is still a very young field of study and is trying to establish itself as a field of research in its own right (Levy 1997:17). There is enthusiasm for the potential of CALL and at the same time, debate about how to apply the potential of a rapidly developing technology to enhance learning. It could be easy to give too much priority to the 'look' of a program, with vivid illustrations and video, and not enough to what the learner is required to do with the material to ensure better learning takes place (Levy 1999a: 85). The QTKanji software could be criticised for being simple. However, a key aim of the software design was to ensure ease of use and avoidance of gimmicks, whilst providing students with an alternative way of drilling kanji in which they could get immediate feedback.

As Cameron (1999: 3) points out, what has to be remembered is that a CALL program like QTKanji 'is but one element in the teaching/learning experience. It needs careful planning to fit it into the curriculum, and to do so, demands as much pre-knowledge of its role within that framework as any other element'.

It is also clear that there is a need for more longitudinal case study research like the QTKanji Project, into the relationship between the language learner and CALL, the role of motivation and the whole issue of learner autonomy.

### **3 Design and implementation**

Initial research into CALL began in 1997 (Corder 1997) but work on the design and materials began in July 1999 after receiving the initial QTKanji database from Komori-Sensei of Chubu University, and an AUT Innovative Teaching Grant. The grant enabled my colleague, Grant Waller, to have relief from teaching to work on the scripting of the software. The following description of the design of QTKanji is based on guidelines from two frameworks for software design: Hubbard's courseware development module, and Richards and Rodgers' framework for comparing language teaching methods (see Appendix Three).

#### **3.1 Aims of the software**

The departure point for the development of the QTKanji program was to provide an alternative way for students to learn kanji, in an environment where they can study as independent learners through an autonomous learning process. It has a theoretical framework based on second language research into learner differences and independent learning. It was not intended for the software to be used in isolation from the rest of the Japanese programme, but as one of the tools in the complete learning environment, along the lines suggested by Hoven (1999: 163).

#### **3.2 Target audience**

Our target audience was first and second year students on the BA and Diploma in Japanese programmes, which consisted of kanji and non-kanji background learners with varying prior knowledge and different difficulties in learning kanji. Chinese speakers have problems remembering readings, and can confuse Chinese characters with Japanese ones. Korean speakers have problems with pronunciation and readings and not all have had experience learning kanji at school. Non-kanji background students have a range of problems including remembering all the different readings, and writing the kanji. The content of the material for the first year was based on Basic Kanji volumes I and II (Kano et al 1989), which cover 500 kanji. The grammar for the material was based on Situational Functional Japanese Notes and Drills 1, 2 and 3 (1992). The second year material was

based on an in-house kanji text (Waller 1996) which covers another 500 kanji to complete the 1006 kyoiku kanji. The grammar was based on in-house material.

The software was to be used for both classroom use and self access. It was to complement classroom activities, and provide learners with the opportunity to work at their own pace, focussing on kanji of their own choice, and choosing the type of activity they preferred.

### **3.3 Platform**

The issue of Macintosh versus PC platform was considered at the time of planning the QTKanji project, and we did look at cross platform software such as HyperStudio, but we would not have been able to do as much with these as we could with HyperCard. We also considered web-based software, but found that downloading audio and video files took too long. This option will only be feasible when it is possible for everyone to have broad-band Internet access. However the determining factors were the accessing of the HyperCard database from Komori-Sensei at Chuhu University, and the fact that we had a Macintosh computer laboratory. The decision was therefore made to work with HyperCard and local access.

### **3.4 Content**

A number of software packages were evaluated to see the types of activities used, aspects of design, and what we thought worked and what did not work. A selection of these packages is listed in the bibliography.

We were very much aware of the criticism in some literature that CALL software has not progressed much beyond being used for drilling and that there should be more focus on communicative activities. However it was decided to focus on the immediate needs of our students, which was to enhance their kanji learning, and our belief that drilling and repetitive exercises would prove an effective way to meet their needs. This was in line with McCarthy's (1995) thinking that drilling is an essential part of language learning especially when the learner is outside the country of the target language. This approach is also supported by Tchaïcha (1999: 289) who refers to research showing that 'multiple and

repetitive types of language input in a target language are important in developing SL competency.'

We also had to decide on whether students were to use the software as a tutor or a tool. In some respects, QTKanji has both qualities: it is a tutor in that the material is sequential based on textbooks used by the students. However, it can also be used as a tool, in that students do not have to work through sequentially, and can use the dictionary section to look up the particular kanji and just focus on them individually. The students can therefore use the software according to their own needs. Evaluation would determine whether it is effective in either role.

Because of the aim to cater for individual learners, it was decided to incorporate activities which developed reading and listening skills, and tasks that required students to write (type kanji readings), and click with the mouse. The original database from Chubu University came with a video clip of each kanji showing the stroke order, which provided a visual dimension, and a facility to draw the kanji using the mouse.

The initial software that would be trialled used material for the first half of the second year of the programme. This was for expediency as Grant was teaching the group at the time, and he had time allowance to write the material. Once the format of the package was trialled, material for the remaining first and second year groups would be added.

### **3.5 Design**

Design features followed a set of guidelines drawn up from reviewing literature and software packages (see Kennedy et al, 1995, McCarthy 1995, 1996, McMeniman and Evans 1998, Van Aacken 1996). These guidelines are listed in Appendix Four. The aim was to make the software user-friendly, which would ensure that the focus of the learner was on the task in hand, and no valuable time and effort lost learning how to use it. The design therefore has been kept as simple and consistent as possible, with no gimmicks or distractions. The layout of menus and positioning of buttons such as quit and help, are the same throughout. Immediate feedback is in the form of a buzzer or flashing light, and in

the writing practice stack, the correct answer appears briefly after a buzzer sound. Feedback is also provided by a point scoring system, and by summaries of errors against correct answers at the end of the writing and testing activities. Navigation through the stacks is fast, apart from a short wait while the computer sorts through the database at the beginning of an activity. For easier viewing on the screen and to facilitate concentration, the sentences in the practice and testing sections were kept to 14 characters, which allowed a larger font size to be used.

### **3.6 Scripting**

Grant had basic Pascal scripting knowledge, and he began to build on the original QTKanji database using a text on scripting (Winkler et al 1994). The aim was to ensure that the unique feature of the software remained in each of the sections. This feature makes the software flexible in that it is possible for the end user to be able to add to or delete from the database of kanji and problem sentences, to suit their programme of study.

The QTKanji program is described in full in Appendix Five.

### **3.7 Implementation**

The implementation consisted of trialling the software in semester one of 2000, and formal introduction and evaluation from semester two 2000.

#### **3.7.1 Trialling**

Being able to trial the software with the target audience has a number of advantages, the main ones being that the students become involved in the development of the software, and it is possible to improve on the design interface, and identify any problems in the software itself. According to Hémard (1999: 226), this also helps to ‘redefine . . . the role of the computer in language learning, and the nature of the interaction within the wider language learning environment’ for both teachers and students.

In semester two 2000, the software was formally introduced into the kanji module for students beginning their second year of study. Taking McCarthy’s (1995) approach, we

wanted to ensure that it did not add to the students' workload. One hour a week was timetabled for students to go to the computer room with a teacher to supervise. Because the content was based on the textbook used in class, it was possible to integrate it into the curriculum and learning process as it provided additional practice for what there was not time to cover in class. However it was not part of the assessment programme per se, and not compulsory. Students were able to use the software as self-access whenever the computer room was free, or whenever there was a computer free during another class, with the permission of the teacher concerned.

The decision not to make it compulsory was based on two reasons. Firstly, the software was introduced to meet different learning needs. We therefore assumed that it would not be suitable for all students and that there would be variations in usage amongst the students. Secondly, it was to provide an autonomous learning environment for students to study independently, and if it were made compulsory, it would take away the decision making and responsibility aspect of autonomous learning. The evaluation would provide information on trends in usage by different students, and how they would be exercising their decision making.

It was also decided not to have trial groups and control groups because of the ethical issue about whether one group of students would be gaining an advantage over the other.

Apart from a brief introduction on the program and the research, students did not have any more formal sessions on how to use the software. The program is very simple and we believed self-explanatory, so we assumed there was no need to spend much time on explaining how to use it. Theoretically, teachers who were supervising the QTKanji hour would be able to answer any questions. What we failed to realise was that students need much more support and guidance on how to use the software.

By February 2001, material had been written for students in their first year of study, and for those in the second half of their second year, and put into the database. QTKanji was timetabled for these groups from semester one 2001. Formal evaluation of QTKanji began

from semester two 2000 and continued through 2001, with each group being evaluated for two semesters each.

### 3.7.2 Strategy awareness raising workshops

From observation, discussions with students and analysis of the tracking data, it was clear that a number of students were not using the software effectively, and that usage was trailing off. The importance of learning strategies and strategy awareness was becoming very apparent. It was decided to hold workshops on strategy awareness to make students more aware of their own learning process and more receptive to other ways of learning including using QTKanji. Students were invited to the sessions during a timetabled student forum hour so that there would be no additional demands on their time.

These sessions were a combination of information based on the field of neuro-linguistic programming (O'Conner and Seymour 1990) and ideas taken from work done on strategy awareness raising (Oxford 1990, Chamot et al 1996, Oxford and Leaver 1996, and Flaitz and Feyton 1996a, 1996b).

It was decided to just hold a one hour general awareness raising<sup>1</sup>. As Flaitz and Feyton (1996a: 213) say, this is easier for teachers to administer and does not overwhelm students with a large range of options.

Unfortunately, as Ellis (1994: 546) says, it is usually the learners who need to develop strategies who are the most difficult to persuade, and the response from students was very mixed with less than half attending the workshops. The outcomes of the workshops will be discussed in Chapter 5, Findings and Analysis.

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<sup>1</sup> Flaitz and Feyton (1996a, 1996b: 213) devised metacognitive awareness raising sessions for university students. They used 'brainstorming and jigsaw activities, [and] dynamically involved students in developing a general awareness of language learning strategies rather than exposing them to the selection, presentation, and practice of a set of specific strategies over a period of weeks or months.'

## 4 Methodology

### 4.1 Research questions

The aim of this research is to evaluate the effectiveness of the QTKanji program for learning kanji, how students are using it, and whether it is facilitating autonomous learning. The research questions are:

- 1) Is the QTKanji program user-friendly?
- 2) Do students actually use the program, and how are they using it? Are there any trends based on individual differences (background, gender, prior learning)?
- 3) Is there a correlation between student usage of the software and improved performance in tests and examinations?
- 4) Does the program provide an environment in which the learner can work autonomously? Allied to this, to what extent are students showing signs of independent learning and how much does QTKanji feature in the total learning environment?
- 5) Does the evidence collected for 1 – 4 above indicate that the QTKanji program is meeting the aims of the project, and warrant further research and development of the program.

### 4.2 Quantitative and qualitative methods

As can be seen from the literature review (2.2.3), there is a move in CALL research away from just evaluating the software. It is now considered necessary to also look at the learner and the whole learning environment. There has been a concomitant shift in methodology to include more qualitative methodologies, including case studies and longitudinal ethnographic approaches (Motteram 1999: 204). ‘. . . CALL does not fit neatly into either [qualitative research or quantitative research] . . . compartments and should be viewed through a lens that either combines these two paradigms or considers the classroom as the interacting system that it is’ (Egbert et al 1999: 11). It is believed that ‘Questions of media are not of prime importance – questions about what is being taught and what is being learned must be the focus’ (Egbert et al 1999: 12). When evaluating the effectiveness of a software program it is also necessary to overcome the novelty effect of the new technology

by tracking patterns of use over a period of time so that the impact on learning can be identified (Levy 1999c: 28).

It was therefore decided to evaluate the QTKanji program by carrying out an ethnographic longitudinal case study approach. Because of the criticism of case study research methodology, namely the issue of generalising the results, an attempt has been made to increase validity by triangulation of findings from both quantitative and qualitative sources of data (Tolich and Davidson 1999: 34). To achieve this, computer tracking, questionnaires, interviews and student diaries have been used. External validity is not a major concern for this research, because the focus is on the effectiveness of the software for a specific group of students at AUT. Nevertheless, it is hoped, that findings from the research in terms of trends and learning patterns, will add to the body of knowledge in CALL research. As Levy points out:

While case studies must necessarily vary in their degree of detail and completeness, common features become evident as the descriptions reinforce one another and reveal patterns of use and engagements, both with aspects of the media and with other learners. With a sufficient number of studies properly conducted, we will be more able to build an understanding and consensus of patterns of use and on how best to use new technology for language teaching and learning. (Levy 1999c: 31)

#### **4.2.1 Computer tracking**

Tracking 'enables us to obtain information on the learning process rather than just relying on test scores' (Garrett 1998: 9). The kanji software itself has been modified and used to automatically track student usage. Each student has a pass code to access the software. The computer records each time they access the software and each time they open a stack. It also records each time they use the help button, video clips and sound files for the readings of the compounds, as well as practice and test scores. The data is cumulative and shows trends in frequency of use and also how the student is using the software. At the end of each week, the data for each student is printed. An example of two successive weeks for one student is shown in Appendix Six.

#### **4.2.2 Evaluation of QTKanji using criteria developed by Komori et al (2001)**

The design and content of QTKanji will be evaluated using criteria identified by Komori et al (2001) for evaluating software for autonomous kanji learning (see 5.6 for these criteria).

#### **4.2.3 Ethnographic study**

The computer tracking and comparison of marks does not give any information on how learners think about what they are doing. To gather data on the subjective dimension, such as learning strategies and perceptions of the software, an ethnographic approach, with questionnaires, interviews, student journals, classroom observation, and informal discussions with students during and outside of class, has been used. From this it is hoped to gain an insight into how the students have approached their learning and incorporated QTKanji into their learning programme, and to track transformation of learning that takes place.

#### **4.2.4 Questionnaires**

There are two questionnaires over the two semesters of evaluation. Because this thesis is based on the first semester of study, the intention is to focus on the results of the first questionnaire completed in the first semester. However, some data from the second questionnaire will also be discussed. All the students being tracked were asked to complete the first questionnaire a few weeks after they began using QTKanji. This contains questions to gain information on what students were bringing into the learning situation, for example questions on background (age, gender, first language), language study (prior knowledge of Japanese, study preferences), and computer experience. (see Appendix Seven for copy of the questionnaire).

The questions are a mix of closed and open questions. Although the open questions can present problems when quantifying and analysing, because of the possible range of answers, they have been used when it was important to get answers that reflected the students' opinions (Nunan 1992: 143). All answers have been quantified and analysed using SPSS software. However, in hindsight, the questionnaire is far too long, and could have resulted in poor quality of answers in the final sections when respondents became

tired or lost interest. It also resulted in far too many variables for analysis. To resolve this, when the data was quantified for entering onto the software, a number of questions were excluded in order to have a clearer focus for initial analysis for this thesis. The excluded questions will be used for further analysis in the future. See Appendix Seven for questionnaire and edited questionnaire for coding.

#### **4.2.5 Diaries**

A number of students have also been asked to keep diaries recording their reflections on for example, their experiences studying Japanese, how they manage this together with the demands of their non-language study, and their thoughts and feelings on their successes and failures. General guidelines were given to the students initially, and then more structure introduced as they were given feedback on their diary entries every few weeks through written comments and discussion.

Using diaries as a method of collecting information has been criticised for not being a valid or reliable method. It is argued by some that they are a good preliminary for research in that, for example, they could be used for hypothesis raising, but it is questioned ‘how conclusions based on data from a single subject can possibly be extrapolated to other language learners’ (Nunan 1992: 123). The extent to which diaries really reflect what was going on at the time of writing has also been questioned.

Nevertheless, diaries have been used in this research because of their value as a research tool. As Nunan points out, they are an important introspective method, and ‘provide insights into the processes of learning which would be difficult, if not impossible, to obtain in any other way’ (ibid 123). Diaries are widely used in SLA research, and their advantages include: enabling students to articulate any problems they are having with their learning; promoting autonomous learning in that they encourage students to take responsibility for their own learning; providing the means for productive discussions between student and teacher, and allowing students to generate ideas about their own learning (ibid 120).

#### 4.2.6 Focus groups and interviews

The focus groups were used with the first year students to get them used to discussing their learning experiences, and to enable them to listen to other students express their opinions, learning difficulties and strategies, which in turn could give them ideas to reflect upon their own learning. The advantage of this is that a group situation might be less threatening than an individual interview. However, the disadvantage is that the more confident and vocal students might dominate the discussion, or that some students might express opinions that they think are more acceptable to the group to express, rather than their own opinions. (Tolich and Davidson 1999: 121).

Given that a set number of questions are asked, it can be said that both the focus groups and individual interviews are structured. However, some questions were open-ended and allowed the interviewee to expand, and there was sufficient flexibility for the interviewer to pursue areas of particular significance. The focus groups and interviews were recorded but notes were taken as well. It was not intended to transcribe the tapes, but to use them when necessary to clarify notes. It is recognised that recording and taking notes have their strengths and weaknesses. For example, the note taking process can distract the interviewer, and the tape recorder can be off-putting for the interviewee (Nunan 1992: 153). However, in this research, the focus groups and interviews became more of a natural extension of the regular informal conversations that the students had had with the teacher on the software, their diaries and learning strategies during class time. This created a similar situation to that found by Murray (1999: 188):

‘casual conversations and my simply being there had a greater methodological significance and impact on the study than I ever could have realized in the beginning. . . .[they] not only conveyed a lot of information but created a climate in which participants were accustomed to talking about their experiences’.

Murray believed this improved the quality of the formal interviews because students were less anxious as a result.

The questions for the interview are listed in Appendix Eight. The framework for the questions was based on those often used in research into learner strategies:

- 1 What do L2 learners *do* to learn a second language?
- 2 How do they *manage* or *self-direct* these efforts?
- 3 What do they *know* about *which* aspects of their L2 learning process?
- 4 How can their learning skills be refined and developed? (Wenden 1987: 6)

### 4.3 Sample size

As mentioned in the introduction, formal evaluation began from semester two 2000. To date four groups, a total of 82 students, have taken part in the evaluation. Two groups started using the software at the beginning of their Japanese programme, one in the second half of their first year, and one at the beginning of their second year of study. The focus of this thesis will be on the two first year groups<sup>1</sup>, totalling 33 students, with some reference to the second year group of 31 students. Data from the first semester of study for these groups will be analysed. In addition, data for a number of individual cases will be analysed in detail. Two of these have repeated their first semester of study, so it will be possible to compare their patterns of use on QTKanji and their test scores for two semesters.

Out of the 33 students, 23 completed and returned the questionnaire, and 17 students agreed to keep diaries and to be interviewed. To reflect the composition of the groups, the plan was to have 10 from each group and a ratio of six non-Asian to four Asian (two Chinese and two Koreans) in each of the groups, and a balance of males and females. However, the composition of the group has changed slightly since the beginning of the year through attrition. In addition, there are fewer males in the groups, and not all students were willing to keep diaries or be interviewed.

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<sup>1</sup> These students are in the first year of a three year BA in Japanese, or a two year Diploma in Japanese. One group started their studies in February 2001, and the other in July 2001. They were all enrolled in two language modules: Japanese I, eight hours of class a week consisting of grammar, essay writing, oral and aural classes; and Kanji I, four hours of class a week, consisting of two hours of kanji introduction and practice, one hour of reading comprehension, one hour of translation practice. There was also one hour of 'self-study' QTKanji with a teacher present. The minimum entry requirement is 120 hours of Japanese study. The BA students also do Japanese computing in the first six weeks of the Kanji module, and a non-language core module. The Diploma students do a Japanese culture module or a Japanese computing module.

Of the 33 students who took part in the evaluation, four repeated the module in semester two, so there is data for 37 cases: 23 female, and 14 male. It was decided to include the repeat students, as it would be interesting to see if there is any change in use of QTKanji when they repeated the module.

Non Asian	Chinese	Korean	Total
10 (F)	5 (F)	8 (F)	23
3 (M)	7 (M)	4 (M)	14

Composition of the 23 students who returned questionnaires:

Non Asian	Chinese	Korean	Total
5 (F)	3 (F)	7 (F)	15
3 (M)	3 (M)	2 (M)	8

Composition of the 17 students who agreed to be interviewed and to keep diaries

Non Asian	Chinese	Korean	Total
8 (F)	1(F)	2 (F)	11
3 (M)	2 (M)	1 (M)	6

I taught all these students kanji and grammar, and supervised their timetabled hour for QTKanji.

#### **4.4 Ethics approval**

The AUT Ethics committee granted ethical approval for the QTKanji project research for a period of two years. This was then confirmed with the Massey University Ethics Committee representative. (See Appendix Nine for Research Explanation and Participant's Consent Form.)

## 5 Findings and analysis

As mentioned in the methodology section, this initial evaluation is based on 37 cases, made up of 33 students, four of whom failed Kanji I in semester one, and repeated it in semester two. Their repeat data has been included in the evaluation as separate cases, and is identified by extra 00 after their code numbers. Of the 33 students, 23 returned questionnaires; of these 23, two are repeating the module.

The results of the tracking will be presented first, followed by the questionnaire, diaries, focus groups and an interview. It is useful to note the following test and examination weeks when considering the trends in QTKanji use. On the graphs, arrows indicate the test weeks.

This evaluation is based on analysis of kanji test and examination scores, but it is important to indicate the times of all assessments as they could impact on use of QTKanji.

Kanji I module:	kanji tests <sup>1</sup> : week 6, 10 and 14 translation and reading comprehension tests: week 7 final examination (kanji, translation and reading comprehension): week 16
Japanese I module:	tests (grammar, essay, listening, speaking): week 7 final examination (grammar, essay, listening, speaking): week 16
Core modules:	various assignments during weeks 1 – 12 final examination week 13

### 5.1 Procedure for data coding and analysis

The data from both the tracking and the questionnaire has been entered onto SPSS for analysis. In the case of the analysis of the tracking, the number of times the student has used the software and which stacks or elements have been used has been collated and

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<sup>1</sup> Kanji tests include giving the reading of kanji, or writing the kanji from hiragana, all in context. There are also various short activities testing knowledge of radicals and compounds.

recorded onto SPSS (see Appendix Six for example of data categories). The data is cumulative, and the analysis is based on:

- 1) 'Index', which is the total number of times a student launches the QTKanji software;
- 2) 'Lessons'. Interaction: point and click, drawing, typing in stroke number.
- 3) 'Writing'. Interaction: typing.
- 4) 'Listening'. Interaction: point and click.
- 5) 'Test'. Interaction: point and click.
- 6) 'Movie'. Interaction: selection of start, repeat, reverse button with mouse.
- 7) 'Soundfile' which is the reading of a kanji in the lesson stack. Interaction: point and click.

For the analysis, data for 37 cases is used to give a large sample size, but the data for the questionnaire group of 23 cases is also analysed. The mean is used for analysis of trends for the total number of students, but the median is used when trends are analysed on the basis of three language groups: non-kanji background (non-kanji), Chinese, and Korean students. Using the median will eliminate any distortions resulting from large variations in use amongst the students, and will be more representative of the average student. The mean is used for data analysis for individual students: there do not appear to be large variations in individual use over the 16 week semester, and the mean is therefore considered more appropriate as it is more sensitive when there are no large variations.

For the questionnaire, the answers have been coded and entered up on SPSS. The 'yes' 'no' answers, or selection of answers from the questionnaire, were straightforward and coded '0', '1', '2' and so forth. Answers giving actual figures, for example, years of study, are entered as actual figures. In the case of answers to open questions, these were coded according to a number of summarized statements. The same identification code for each student is used for the tracking and the questionnaires so cross checking can be done. Pseudonyms are used when individual students are referred to by name.

The diaries section is descriptive, involving some generalisations and some specific cases referring back to individual data from the tracking and questionnaire. Because of pressure of time, focus groups were conducted in the first semester of study, and individual interviews in the second semester. The main points of the focus groups are discussed, together with details of an interview with one student, Olivia, one of the students repeating the kanji module, and who is in her second semester of study at AUT.

## 5.2 Tracking data

This provides information for the second and third research questions:

- Do students actually use the program, and how are they using it? Are there any trends based on individual differences (background, gender, prior learning)?
- Is there a correlation between student usage of the software and improved performance in tests and examinations?

The most interactive stack in terms of practice is probably the writing stack in which the student reads a sentence and types in the reading of a kanji or kanji compound that has been underlined. A score is kept of the correct and incorrect answers and students can check against a summary sheet and then work on eliminating the errors.

The lesson stack contains various functions such as the video clip, drawing function and sound files for pronunciation of vocabulary items. It is perhaps the least demanding in terms of practice. As it replicates much of the textbook, it is best used for quick review of kanji readings, stroke order and pronunciation.

Both the listening and test stacks involve reading, but are point and click only. Both have a scoring function, but only the test stack has a summary sheet for students to self-check and work on eliminating errors.

In terms of patterns of use, one might expect greatest use of the writing stack for learning and practice, with less use of the test and listening stacks, and the lesson stack the least

used. However, different students have different learning needs, or at least, different perceptions of their learning needs and how these can be met by the computer software.

It is worth noting that perhaps the most reliable indicator of consistent use of QTKanji is the index: this is a record of the number of times the software has been launched. The trends in opening the individual stacks might not be a reliable indicator of consistent or effective use. It could indicate methodical progression through the stacks, using the lesson stack to revise the kanji and vocabulary, the writing and listening stacks to practise using two different learning methods, and the test stack for rapid feedback and self-check. Or it could be an indication of moving from one stack to another without any structured approach to study.

Bearing this in mind, the following are the results of trends in launching QTKanji and the use of stacks. A large number of graphs have been generated to get these results, but only a selection are included. These are identified as 'Figures'. A complete set of graphs is on the disk under File 1 Findings/graphs/groups.doc, and are identified as 'Graphs' in the text. Similar data in the form of bar charts is available on disk in File 6 Findings/barcharts/ind.doc. These show data for individual students by language groups, and are identified as 'Barcharts' in the text. The graphs and bar charts are itemised in Files 1 - 6 in the Bibliography.

### **5.2.1 Trends in launching QTKanji**

The following are the trends in the number of times students have opened the QTKanji software. The coloured lines represent cumulative use over the 16 weeks of their first semester of study at AUT. The dotted lines indicate the potential trend had the initial rate of use been maintained.

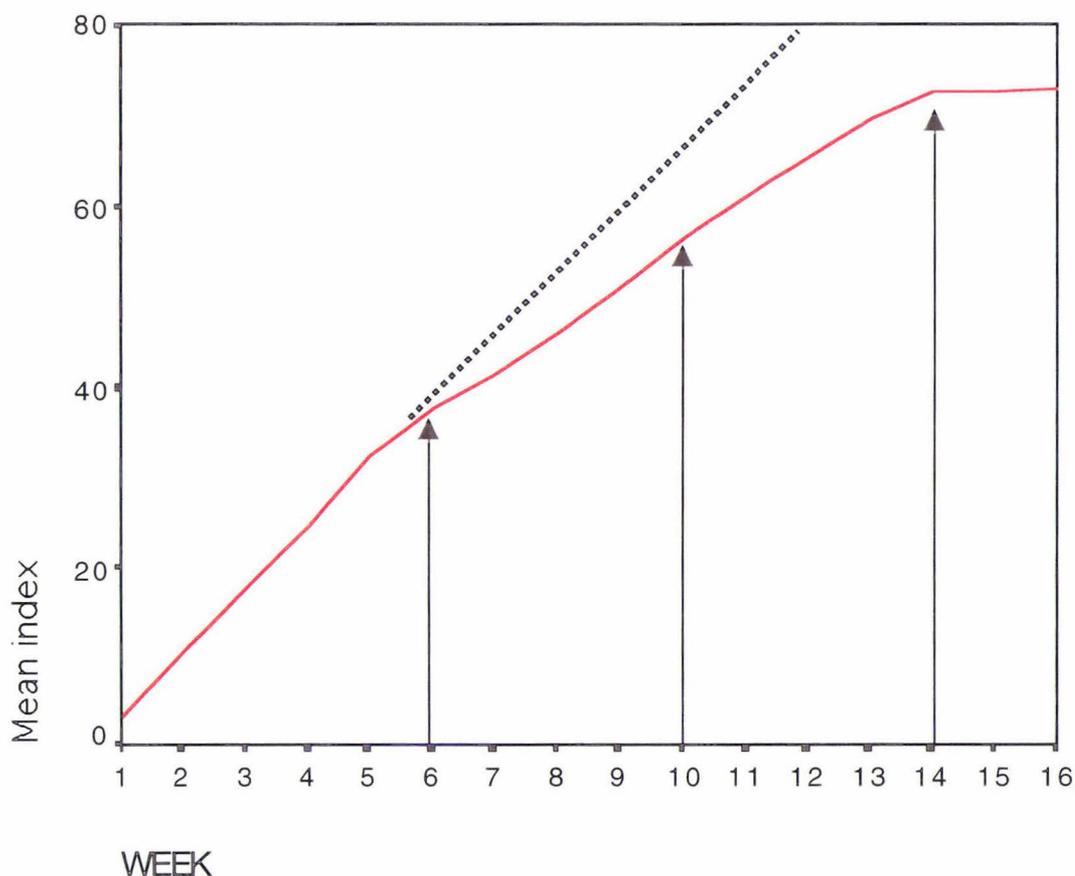


Figure 1 Trends in launching QTKanji: all students

As expected, after an initial relatively steep cumulative increase in use in the first few weeks up to test 1, there is a gradual decrease. Use increases slightly before test 2 again, but falls away towards the last third of the semester. It is only used by one or two students in the final two weeks which are tutorial and examination weeks. The slight decline between weeks 6-8 could be accounted for by the mid-semester testing in week 7 which includes translation and reading comprehension, but not specifically kanji tests.

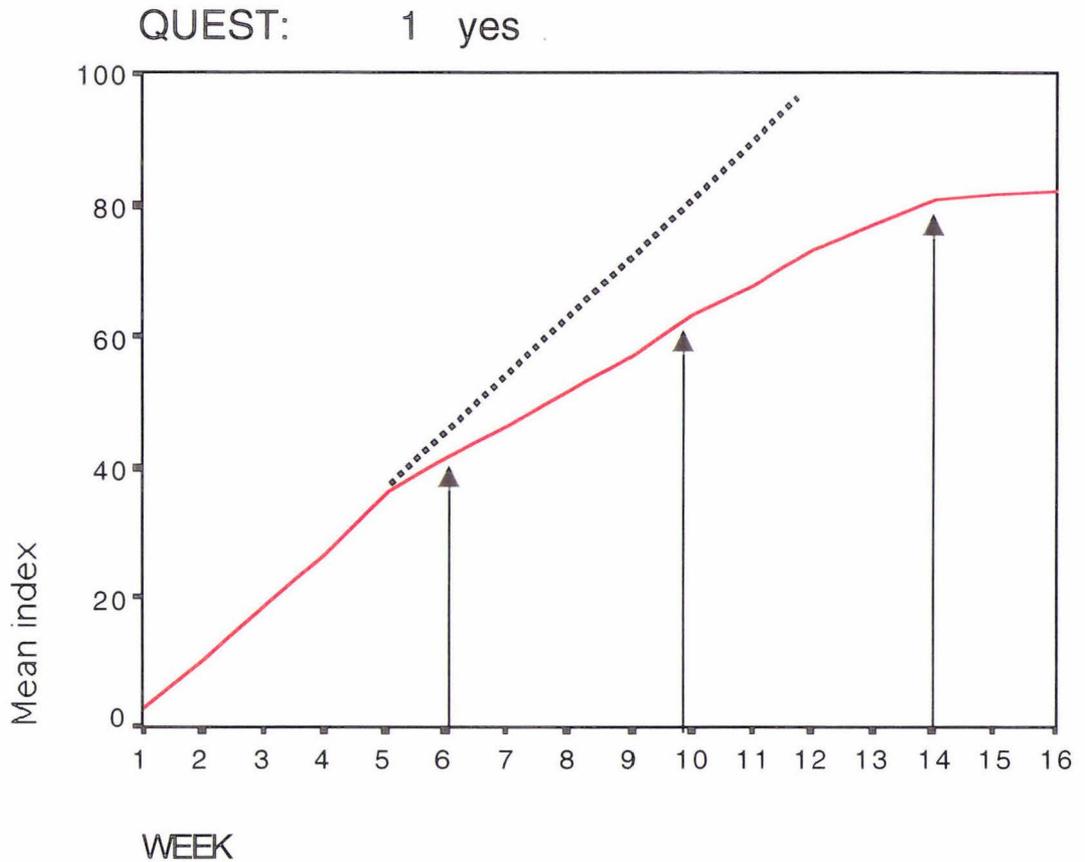


Figure 2 Trends in launching QTKanji: questionnaire students

There is a much more marked decline in use by questionnaire students, especially towards the week of test 3 (Figure 2). This might be because of the large proportion of BA students, who have increased demands from the Core module around week 13.

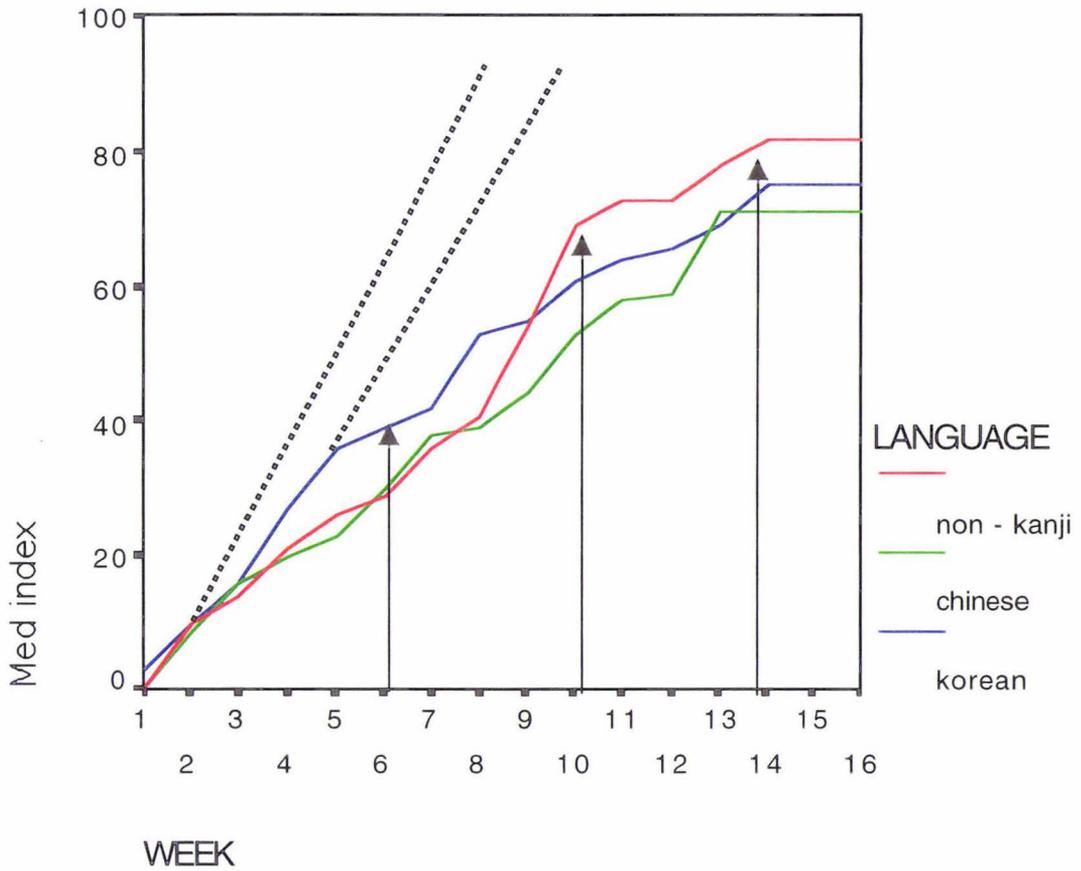


Figure 3 Trends in launching QTKanji, all students by language groups

When analysed on the basis of language groups, the non-kanji group shows the least overall decline in use, and it appears that this group made the most consistent use of the software overall. All groups show increases in use towards the tests, and there is a significant increase in use by the non-kanji group leading up to test 2. Declines in use around week 12 could reflect demands from non-language subjects especially for the BA students, who may have had assignments and preparation for examinations for their Core module.

In terms of the questionnaire students, the non kanji group and Chinese group increased their use of QTKanji after test 1 and test 2, indicating possibly a perception of positive correlation between use and test results (See Disk, File 1: Graph 1). However the trend for the Korean group declines.

### **5.2.2 Trends in using the stacks**

The following looks at the number of times students have used the different stacks.

Of the four stacks (Figure 4), the writing stack proved the most used. However, as expected, it was the lesson stack that was the most used in the first few weeks. This stack has the most novelty effect with the video clip and the drawing facility. The decline in use might be an indication of the novelty effect wearing off.

The listening and the test stacks are the least used, with the trends in use of the test stack being rather surprising. This might reflect students' dislike for being timed, or their preference for more interaction than just pointing and clicking.

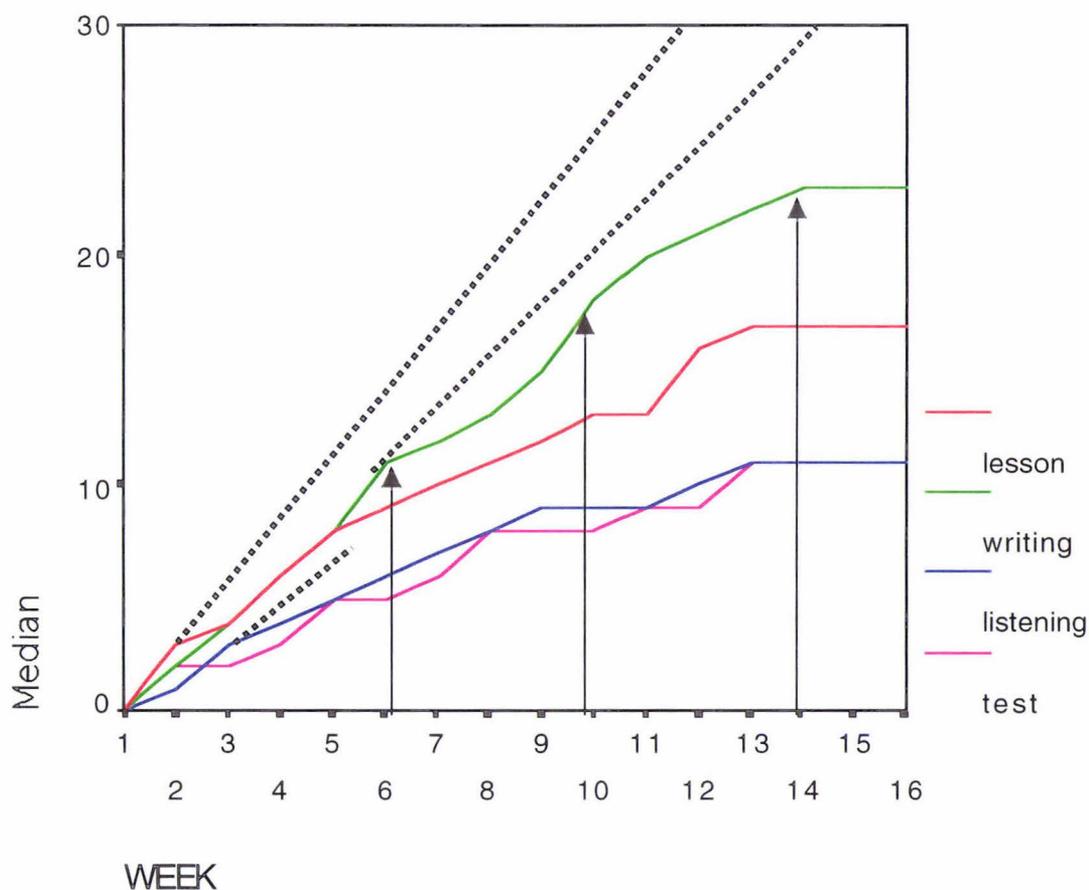


Figure 4 Use of different stacks by all students

The trends are similar for the questionnaire students for the test and listening stacks. However there is a greater use of the writing stack, with slightly less use of the lesson stack (Graph 2).

Lesson stack: the Korean background students made slightly greater use of the lesson stack. This might be because of their greater use of the sound files than the other two language groups, and might be related to the fact that Korean students have the greatest difficulty with pronunciation out of the three groups. The novelty of this stack wears off markedly for the Chinese students and might be a reflection of their kanji background. (Graph 3 and 4, Bar charts 4-6).

In contrast the questionnaire group shows the non-kanji group making more use of the lesson stack. This group also has the highest use of the video clips within the stack, which could reflect their non-kanji background (Disk, File 1: Graph 4).

Writing stack: the Korean and Chinese groups open the writing stack more than the non-kanji group. However it could mean that the non-kanji groups opened the writing stack less frequently but spent longer periods using it (Disk, File 1: Graph 5). The actual amount of work students do in the writing and test stacks can be seen by the number of times a score is recorded for completed exercises. This could be a better indicator of consistency and time spent on the stack, than just the number of times the stack was opened. The trends are similar for the questionnaire group, except the Chinese group shows an increase in use from mid semester (Disk, File 1: Graph 6; File 6: Bar charts 7-9).

Listening stack: there is a dramatic falling off of use after all three tests for each language group (Disk, File 1: Graph 7) overall. However the non-kanji questionnaire students show slightly more use of the stack (Disk, File 1: Graph 8; File 6: Bar charts 10-12).

Test stack: the Chinese students appear to use this stack the most, followed by the non-kanji students. The trends increase before each of the tests for both the groups, but the Korean students virtually stop using it after test 1 (Disk, File 1: Graph 9). In the questionnaire group, the results are similar for the Chinese and non-kanji groups, but the Korean students continue to use it until just before test 3 (Disk, File 1: Graph 10; Disk, File 6: Bar charts 13-15).

Video clips: The video clips prove more popular amongst the non-kanji students than the Chinese and Korean students. In fact the Chinese students cease using them after week 8 (Disk, File 1: Graph 11). Overall, the Chinese students in the questionnaire group make more consistent use of the video clips and they use them more than the Korean students (Disk, File 1: Graph 12; File 6: Bar charts 16-18).

Sound files: The Korean students have made the greatest use of the sound files, and the Chinese students show very little interest in them (Disk, File 1: Graph 13). The trends for the questionnaire students are similar (Disk, File 1: Graph 14; File 6: Bar charts 19-21).

### **5.2.3 Use of QTKanji by RPL background**

The students with more than one year of prior study of Japanese appear to make the most use of the software, followed by those with minimum prior study. The greatest decline in use appears to be amongst the repeating students for both the total number of students and the questionnaire students (Disk, File 1: Graphs 15 and 16).

### **5.2.4 Stack preference by language groups**

Non-kanji students: the writing stack is clearly the most used of all the stacks. With the listening the least used. The questionnaire students show a more consistent parallel use of the lesson and writing stack. This could suggest that the students are using them methodically, interchanging with the lesson stack to introduce the kanji, and the writing stack to learn and practise the kanji. They are using the listening stack less (Figures 5 and 6).

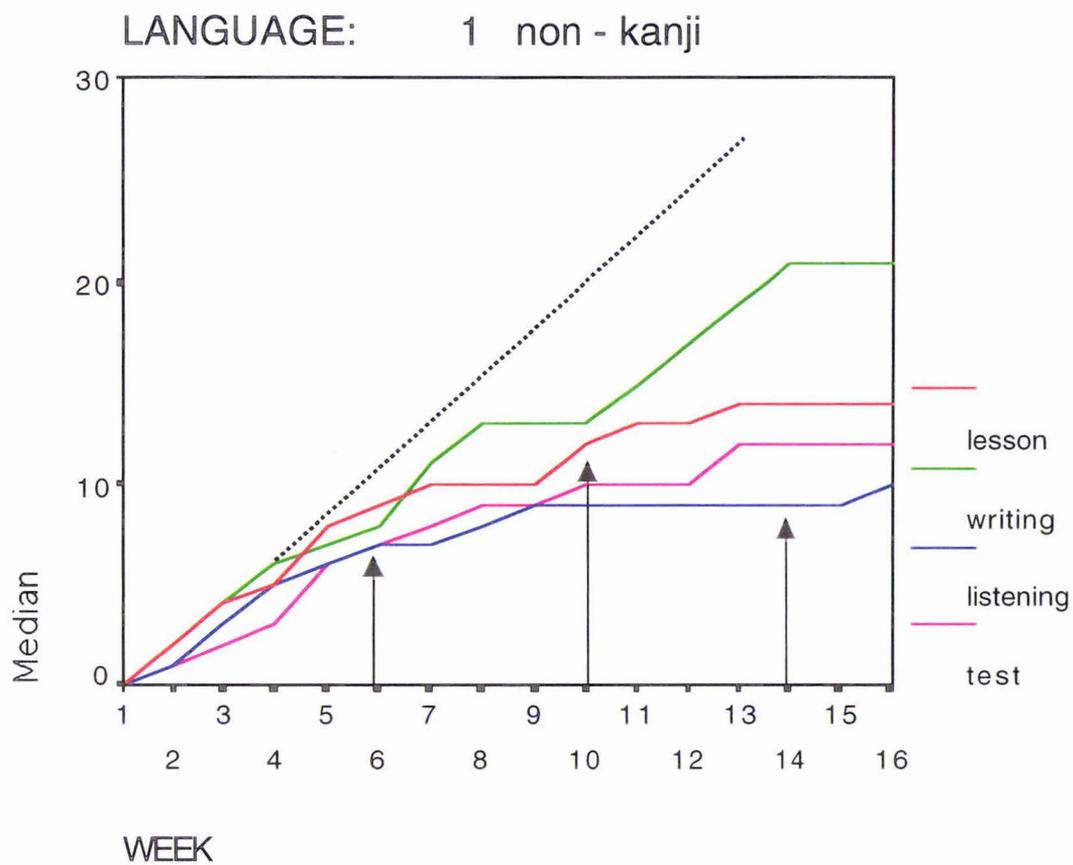


Figure 5 Use of stacks by non-kanji students

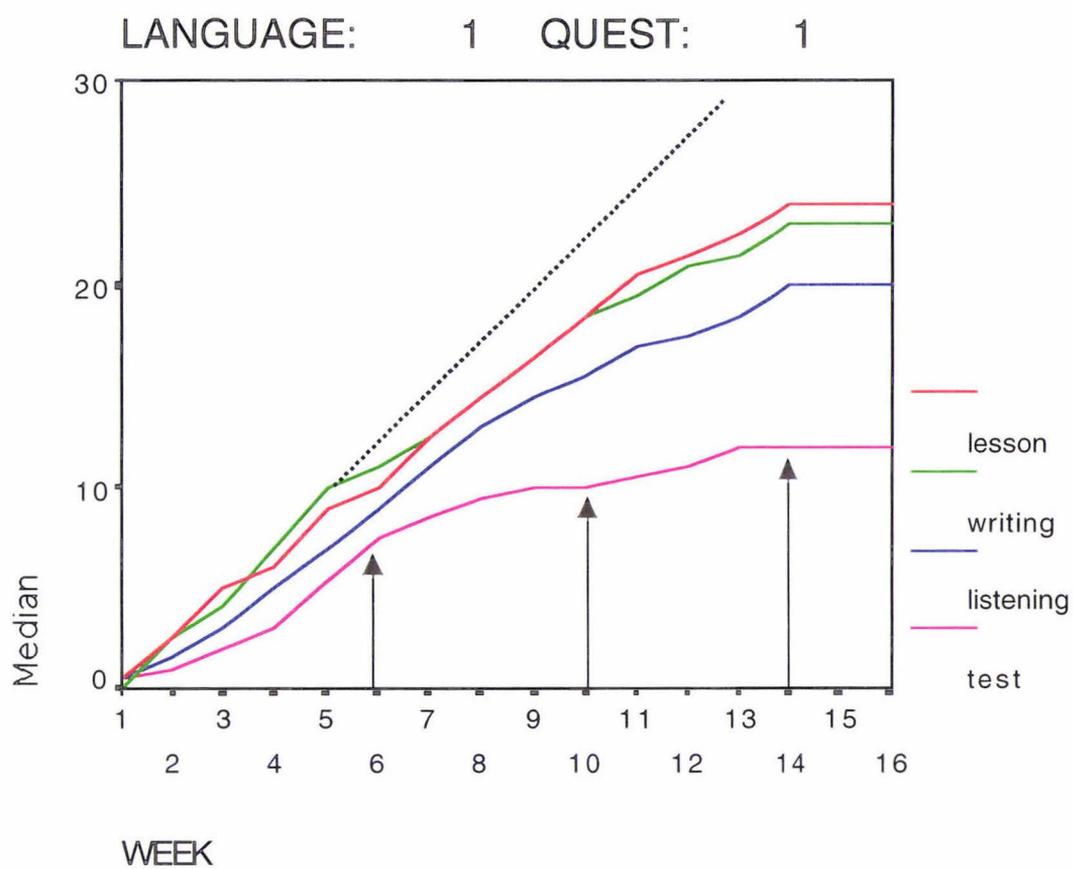


Figure 6 Use of stacks, non-kanji questionnaire students

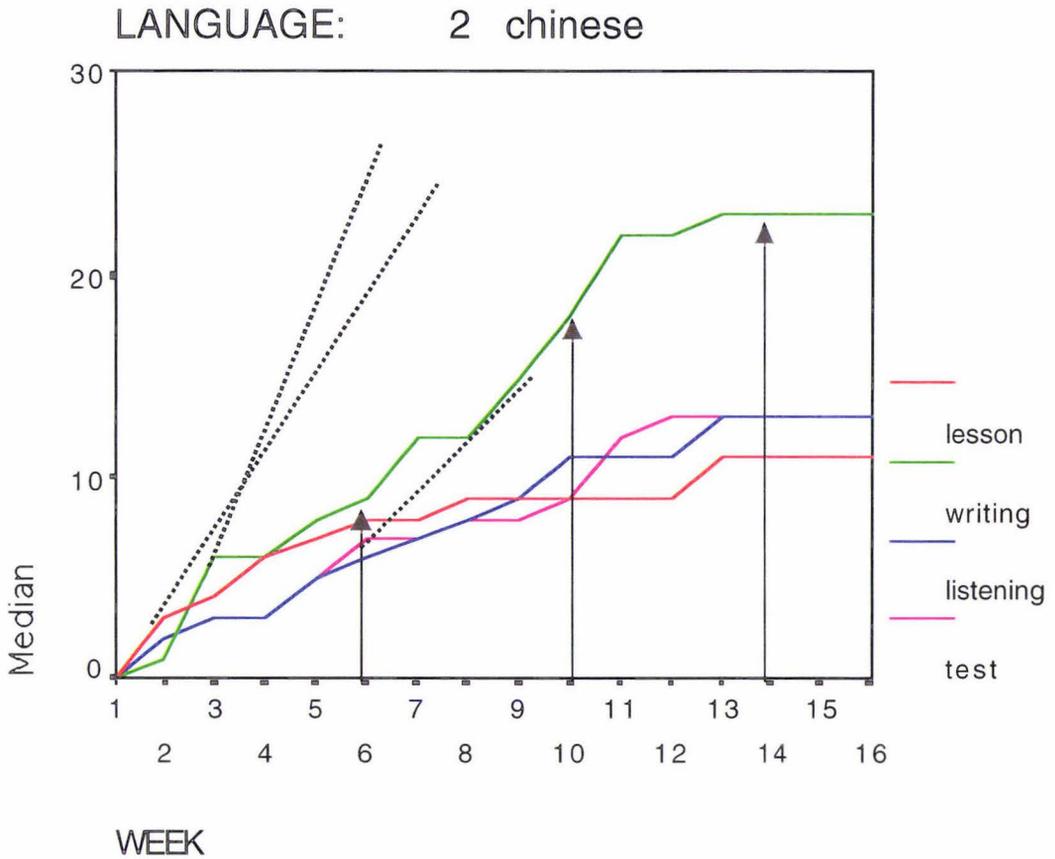


Figure 7 Use of stacks, Chinese students

The trends for the Chinese students are more erratic and there is a surge in use of the writing stack leading up to the final assessments. There is much less use of the other three stacks (Figure 7). The only difference in the questionnaire group is a greater use of the writing stack (Figure 8).

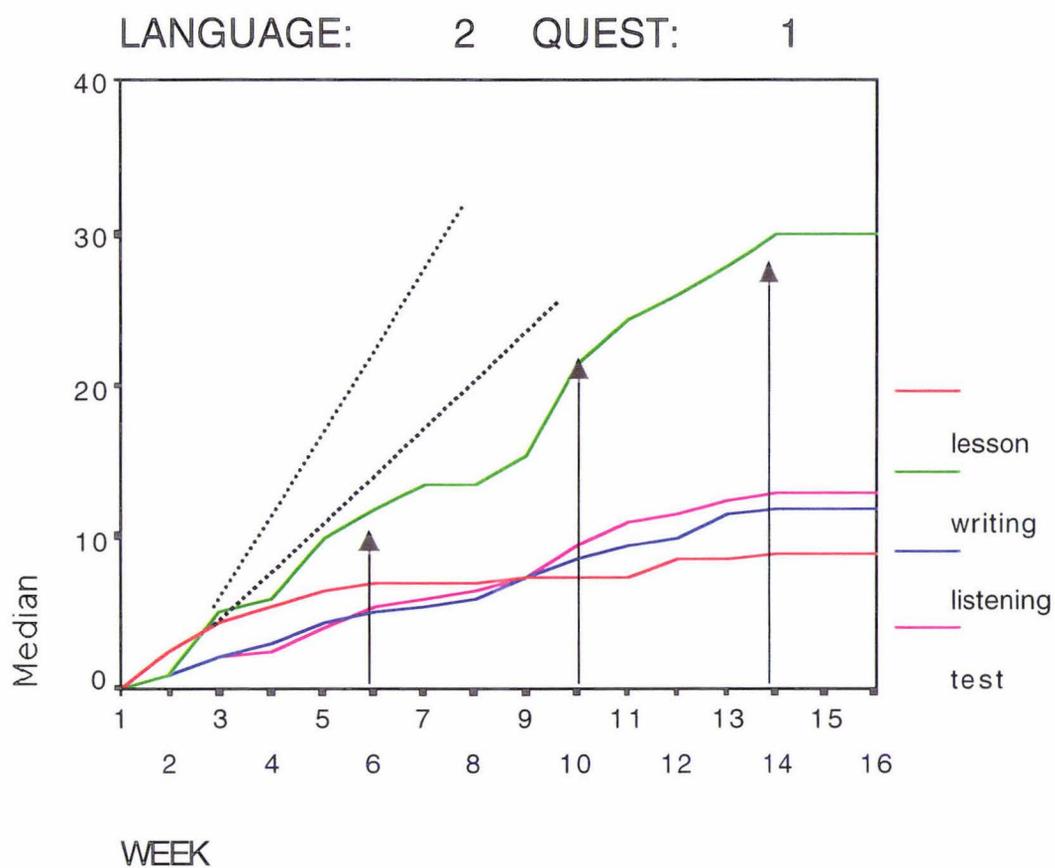


Figure 8 Use of stacks, Chinese questionnaire students

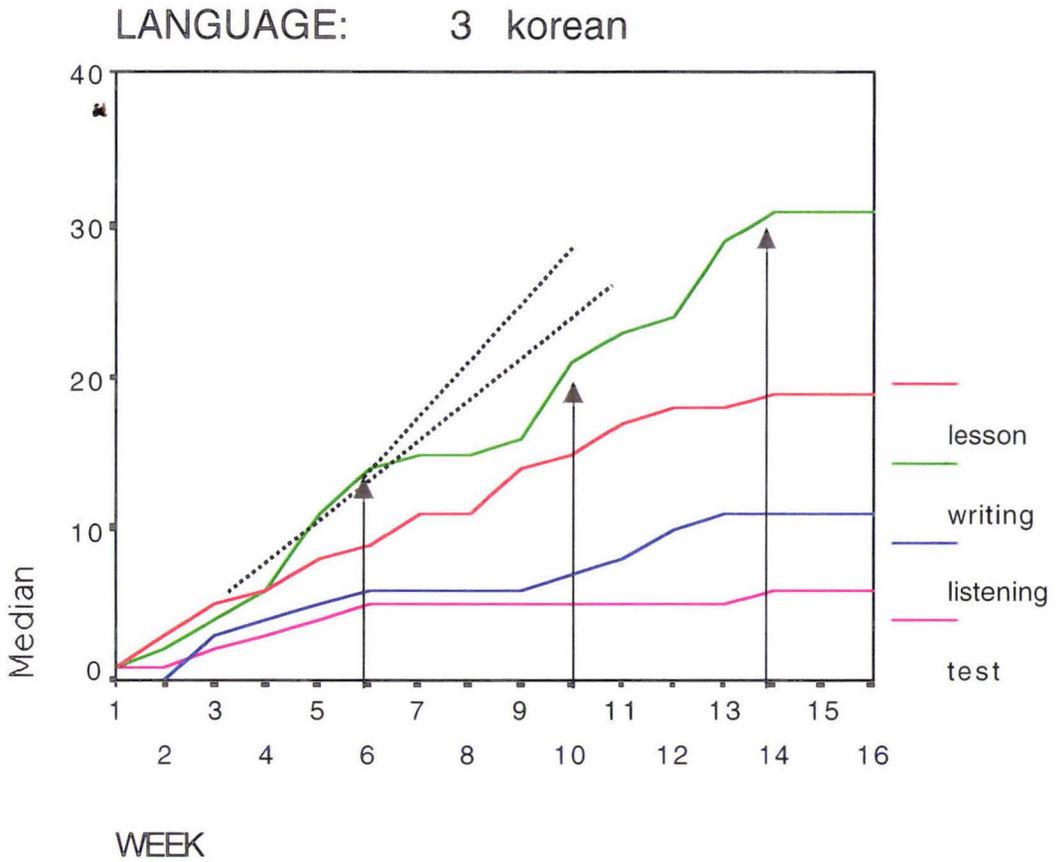


Figure 9 Use of stacks, Korean students

The writing stack is clearly the most popular stack for the Korean students, with a very marked decline in use of the test stack (Figure 9). The trends are similar for the questionnaire students, but with more use of the test stack (Figure 10).

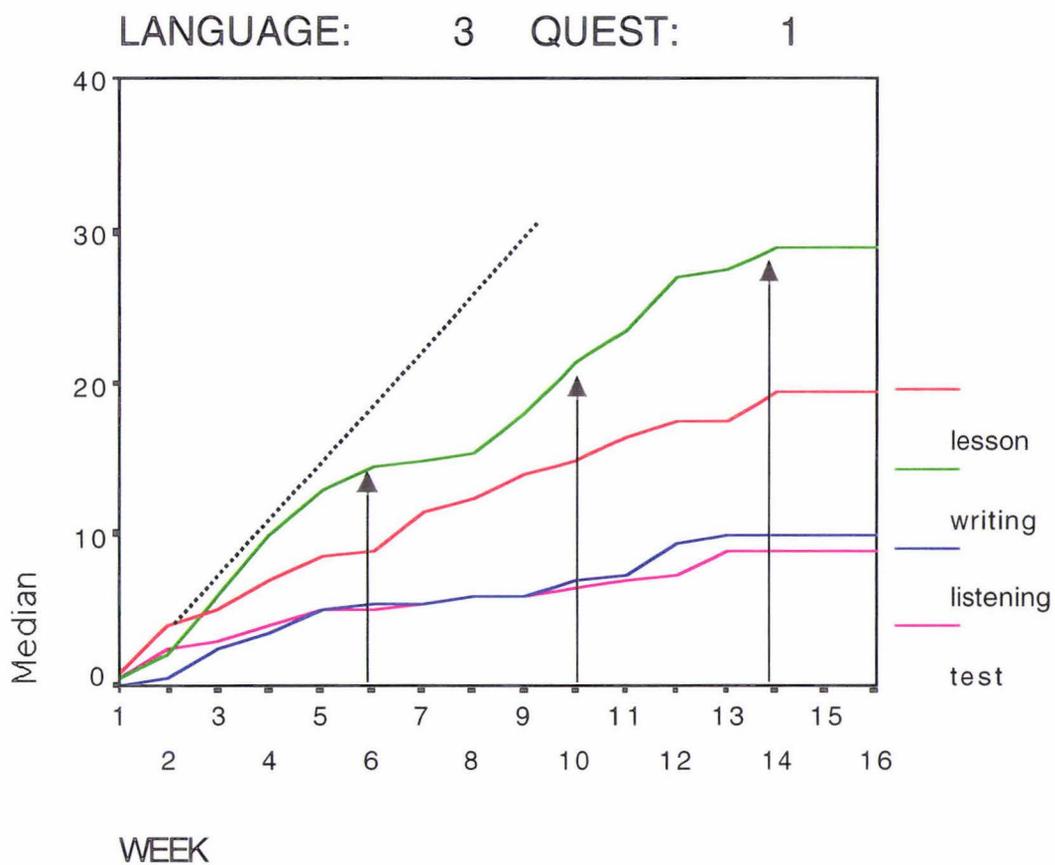


Figure 10 Use of stacks, Korean questionnaire students

### 5.2.5 Use of stacks by gender

In terms of gender, the male students launch QTKanji slightly more frequently than the female students overall (see Disk, File 2; Graph 17). When broken down into language groups, the trends for the males in all three language groups show much less of a decline in use than the females. The males launch it almost twice as many times as the females in the non-kanji and Chinese groups, but the female Korean students launch it almost twice as many times as the male Koreans.

In terms of preference for stacks (Figures 11 and 12), both genders prefer the writing stack, followed by the lesson stack. The listening stack is next for the males, with the test stack the least preferred. For the females, there is a fluctuation between the listening and test stacks, with the test stack being slightly more preferred leading up to the final test.

In terms of language groups (Disk, File 2: Graphs 18-23), the trends for the males in the non-kanji group for the writing and lesson stack are almost the same, with a steady increase in use leading up to the week of test 2, and again for test 3. The frequency of opening the listening stack is half that of the writing and lesson stacks, and for the test stack, one quarter. The writing stack is also the favoured stack for the females, with a steady increase in use up to test 3, after which they cease to use it. The next favoured is the lesson, followed by test and then listening.

For the Chinese male students, writing is the favoured stack with dramatic increases in use leading up to test 1 and 2, after which there is a marked fall. The lesson stack is next but it is hardly used at all between weeks seven and 11. The listening and test stacks are more or less equally used. For the female students, the writing stack is clearly the most preferred, with very marked increases leading up to the weeks of test 1 and 2, and marked decline from week 11. The lesson stack is next, then the listening and test stacks, which are more or less equally used.

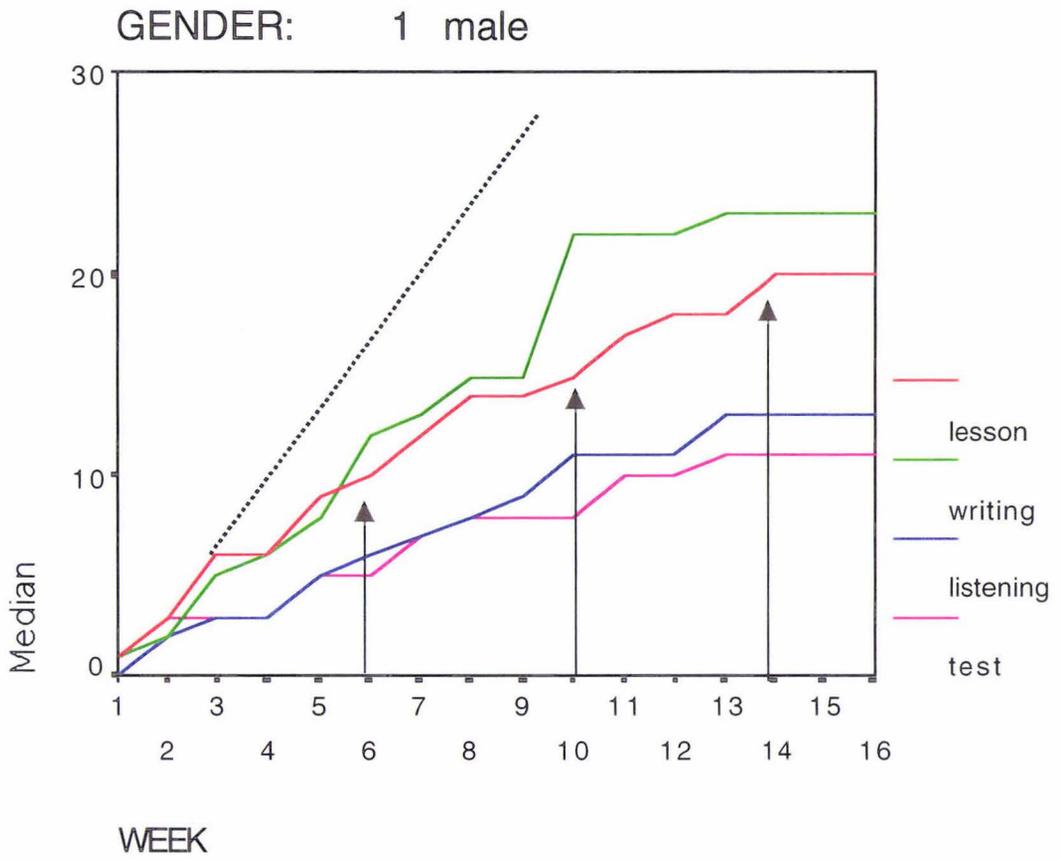


Figure 11 Use of stacks by male students

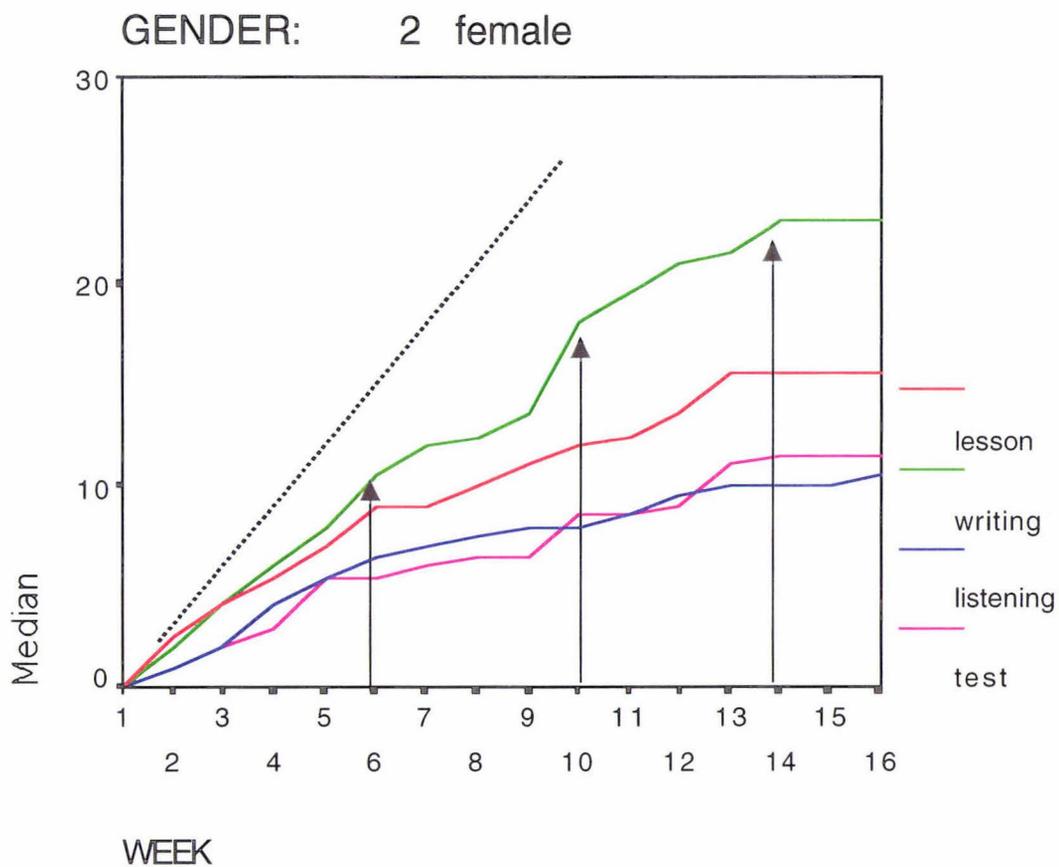


Figure 12 Use of stacks by female students

The trends for the Korean male students are completely the reverse of those for other students, with the lesson stack being a clear favourite, followed by the writing stack. However the writing stack is hardly used from weeks seven to week 13, after which there is a dramatic increase to week 15. The listening and test stacks are used far less frequently and interchangeably. The trends for the female Korean students are more on the lines of the general ones, with the writing stack a clear favourite, followed by lesson, listening and test. However they hardly use the listening stack at all after week 11.

The video clips were used mostly by the non-kanji females, followed by the non-kanji males and Korean females. The Chinese males and females show similar frequency of use, which is low, and Korean males have hardly used them at all. The sound files were mostly used by the Korean males, followed by the females. The female non-kanji students used them about the same number of times as the Korean females. The Chinese females made the least use of them, and the non-kanji and Chinese males were similar.

### 5.2.6 Summary of tracking data (total students and groups)

These graphs show the trends in the number of times students have launched QTKanji, and the number of times they have opened the different stacks. The rate of launching the software progressively decreased, but far less than anticipated and in fact, is encouraging. The trends are less encouraging for the questionnaire group of students and are more in line with anticipated trends. The group that made the most consistent use of QTKanji overall was the non-kanji group, followed by the Korean group, and then the Chinese group.

In terms of how students used the individual stacks, it is not possible to tell from the data whether a high rate of opening of the stacks is an indication of high frequency of effective, structured, methodical use, or of flitting from stack to stack in an unstructured way. However, looking at the data in conjunction with classroom observation, it is possible to say that the most frequently opened stack is the writing stack. This is also confirmed by data on individual use (see also disk files). The next most frequently opened stack is the lesson stack, followed by the listening and then the test stack. The low use of the test stack is a little surprising, as it provides a means for quick self-checking. However it is also possible to self-check using the writing stack. It might be an indication of students' dislike of the test stack with its clock and the point and click interaction, or it might mean that students do not perceive the stack as being useful or necessary for self-checking.

The most popular stack for each language group is also the writing stack, and the least popular is the test stack. The Korean group have the highest rate of opening the lesson stack, followed by the non-kanji group. The Korean group also had the highest rate of opening the writing stack, followed by the Chinese group. Overall, the non-kanji group opened the listening stack the most times, followed by the Korean group. The Chinese group opened the test stack the most, with the Korean group opening it the least.

In the case of the video clips, the non-kanji group by far used this function the most frequently, with the Chinese group making the least use of it. This could be a reflection of the difference in the kanji experience of the different groups. Apart from one student in the non-kanji group, the Korean group used the sound files far more than the other groups.

In terms of gender, the difference in frequency of launching QTKanji by the males over the females was quite surprising, possibly indicating that males prefer using computer software for language learning more than females. The exception is the female Korean students who launch QTKanji twice as often as the Korean male students. This may be because the Korean female students include more mature students than other group irrespective of gender, and most of them are high achievers. They might also be more motivated autonomous learners. The non-kanji males launch the software one-third more times than the next highest group of students, which is the Korean females. In terms of preference for stacks, the trends reflect those for the group as a whole except for the Korean male students who clearly prefer the lesson stack until the week before test 3 when there is a dramatic increase in use of the writing stack. The Korean males have used the sound files the most out of all the groups irrespective of gender, followed by the Korean females and non-kanji females. The Chinese males make the least use of them.

### 5.2.7 Correlations - frequency of use and assessment results

A correlation between frequency of use (launching of QTKanji) and test and examination results has been made. Using the Pearson correlation coefficient, with a two-tailed test of significance, there was no correlation for test 1 (-.085); a weak correlation with test 2 (.252), a weak correlation with test 3 (.157) and a weak correlation for the examination (.204). A weak correlation signals that there is a suggestion of improvement in results the more times some of the students launch the stacks.

When viewed by language groups the results are as follows:

	Non-kanji	Chinese	Korean
Test 1	none (-.585)	none (-.308)	some (.589)
Test 2	none (-.365)	weak (.331)	some (.722)
Test 3	none (-.144)	weak (.271)	weak (.379)
Examination	none (-.132)	weak (.229)	some (.575)

However, a better measure of improvement is to look at the case of individual students because improvement is relative. For a student with minimum prior knowledge, for example, an improvement in five marks might be more of an achievement than for a student

who has done Bursary Japanese. Another student might improve from 20% to 40% in a test, and whilst this is not a pass, it is a significant improvement.

### **5.2.8 Tracking data for individual students**

All the students, apart from three, used QTKanji at least for the first six weeks up to test 1, which was the period of greatest use. After that, the general trend is for a gradual decline, with small peaks leading up to test and examination weeks (see disk Findings/graph/allind.doc, and Findings/graph/allind/stacks.doc for all students). Four stopped using it after week eight. Of these exceptions, one is an average achiever, the rest are low achievers.

The data for a number of students who used QTKanji for more than six weeks has been analysed below to see if any patterns can be seen between using QTKanji and the progress they have made in the semester, including their test scores. The students have been selected for various reasons including high achievement, low achievement, repeating the module, very little prior knowledge of Japanese, and difficulty in learning kanji. Graphs showing the index and stacks are shown here. The stacks are not as clear because of the scale. For graphs showing just stacks, see Disk, File 3:Graphs/ind/noindex.doc. For all the students, see Disk, File 4: Findings/graph/allind.doc, and File 5: Findings/graph/allind/stacks.doc.

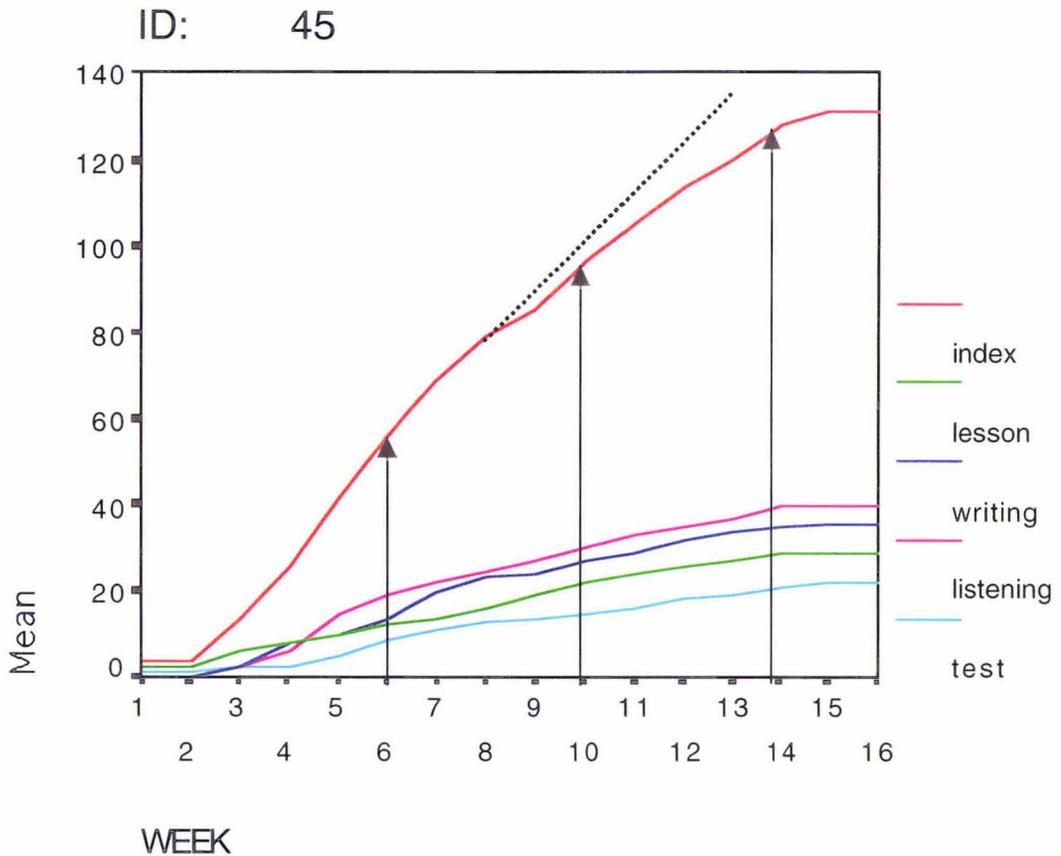


Figure 13 William, non-kanji, Diploma

Test 1 82%; Test 2 88.5%; Test 3 88%; Exam 81.3%; overall 84.5%

No record of use in week one because of delay in logging onto the system.

William's highest qualification is Sixth Form Certificate, but he passed Bursary Japanese. He shows fairly frequent use of QTKanji throughout the semester, and is the second most frequent user in his group, often using it more than once a week in the first half of the semester. He also spends a lot of time learning kanji using non-CALL methods. It should be noted that teaching staff consider him to be highly motivated in terms of effort, attendance, and in performance in class and in assessments. He wants to gain good marks in order to be able to transfer to the BA programme in the following semester. He also says he enjoys learning kanji.

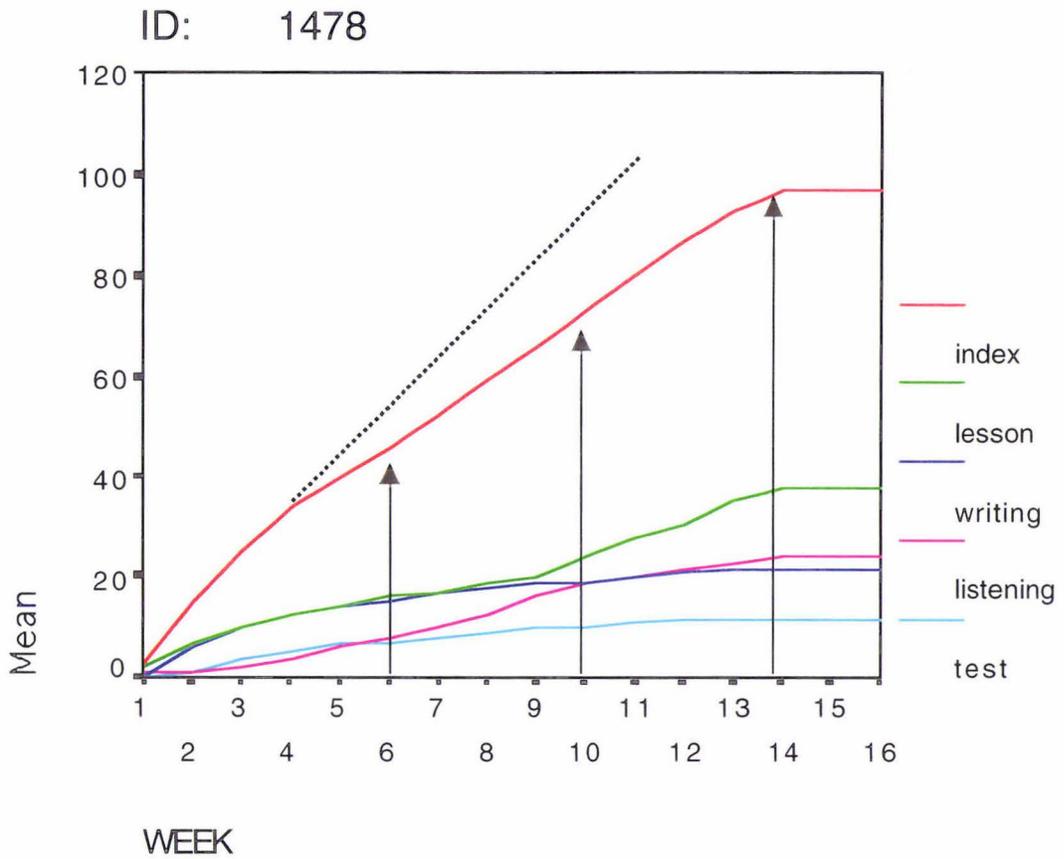


Figure 14 Olivia, non-kanji, BA, first attempt

Test 1 36%; Test 2 65.5%; Test 3 DNS; Exam 20.6%; overall 47.5% (F)

Olivia is a Bursary student, and did Japanese to Bursary level. She shows a marked decline in use of QTKanji from around week four. From her diary entries and casual conversation in class, and absences from kanji classes, this decline perhaps reflects falling interest and effort in kanji. She finds kanji difficult to learn. Her trends in use of stacks show a marked use of the lesson stack: she is third highest user in her language group, and sixth highest overall. She is third highest user of video clips in her group and fifth highest overall.

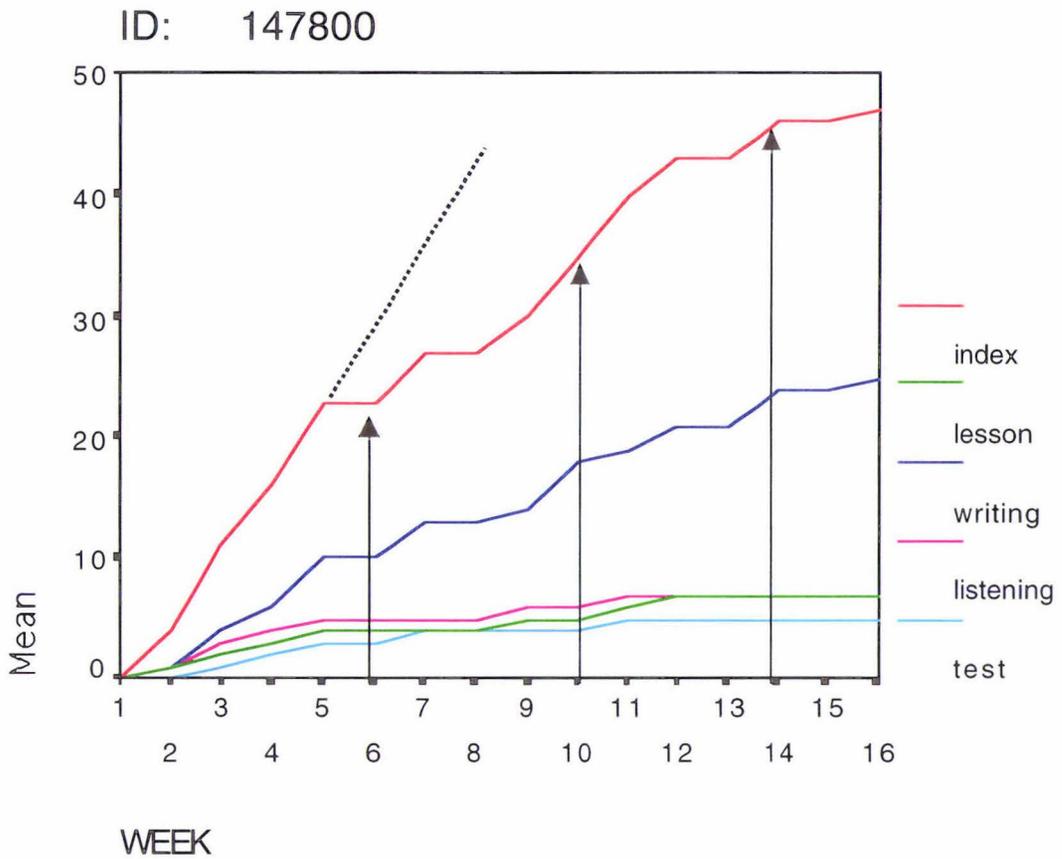


Figure 15 Olivia, non-kanji, BA, repeating the module

Test 1 96%; Test 2 96%; Test 3 75%; Exam 76.4%; overall 76.3% (P)

Olivia shows a dramatic change in patterns of use of QTKanji, with a marked increase in use of the writing stack. Although QTKanji is not opened as often as in semester one, it might be an indication of more efficient use of the stacks. She opens the writing stack less frequently than in semester one, but has tripled the number of times she has recorded a score. From an interview, it is clear that she is approaching her studies differently from her first attempt, and is using QTKanji and non-CALL strategies for learning kanji. There is a dramatic improvement in both her approach and marks.

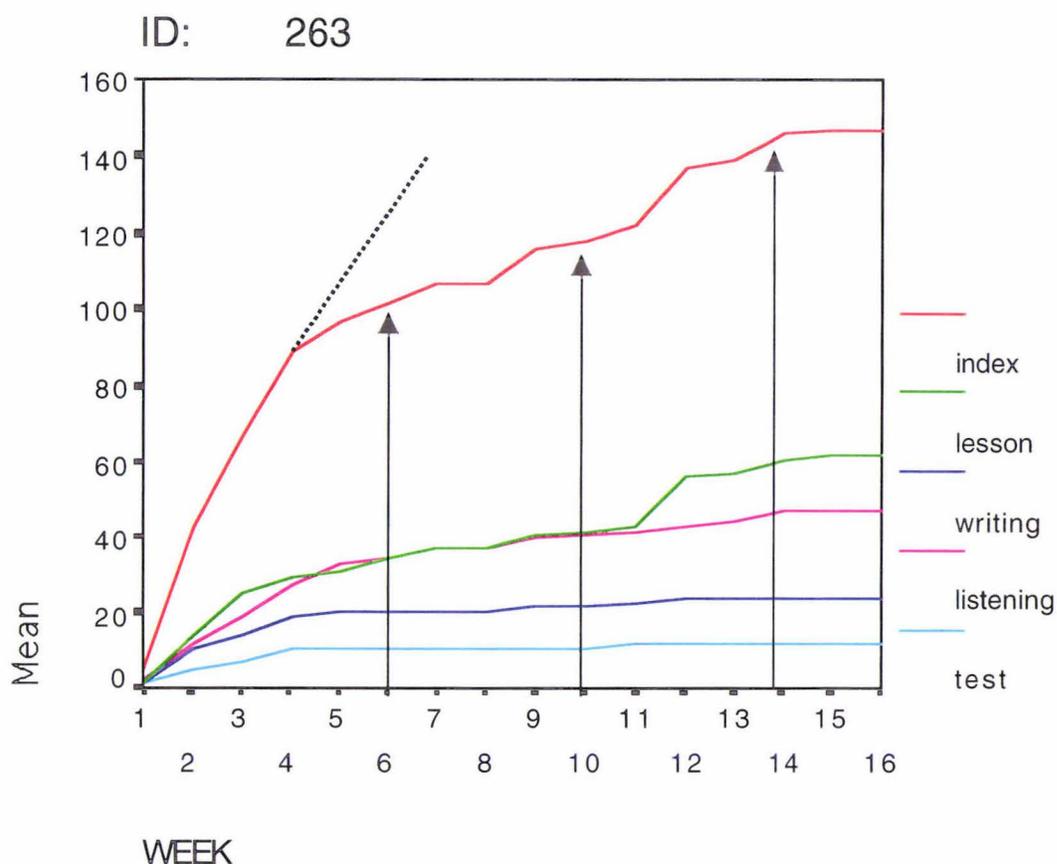


Figure 16 Barbara, non-kanji, Diploma, first attempt

Test 1 19%; Test 2 DNS%; Test 3 DNS%; Exam 12.6; overall 22% (F)

Barbara is in her late 20s and has returned to study after a few years working. Her highest qualification is Sixth Form Certificate and she has very little prior knowledge of Japanese. She has not studied a foreign language before, and from discussions in class and at tutorial classes, appears to be struggling with language learning. She is also distracted by work commitments which means she occasionally misses kanji classes. However she is committed to learning Japanese and appears to put in many hours of study. She often uses QTKanji several times a week in the first five weeks. This makes her overall use of QTKanji the highest in all the three language groups initially, but it falls off after the first test, possibly reflecting the impact of the low mark. She said she was resigned to repeating the module in the following semester. She is the highest user of the lessons in all the groups, and has made the greatest use of the video clips.

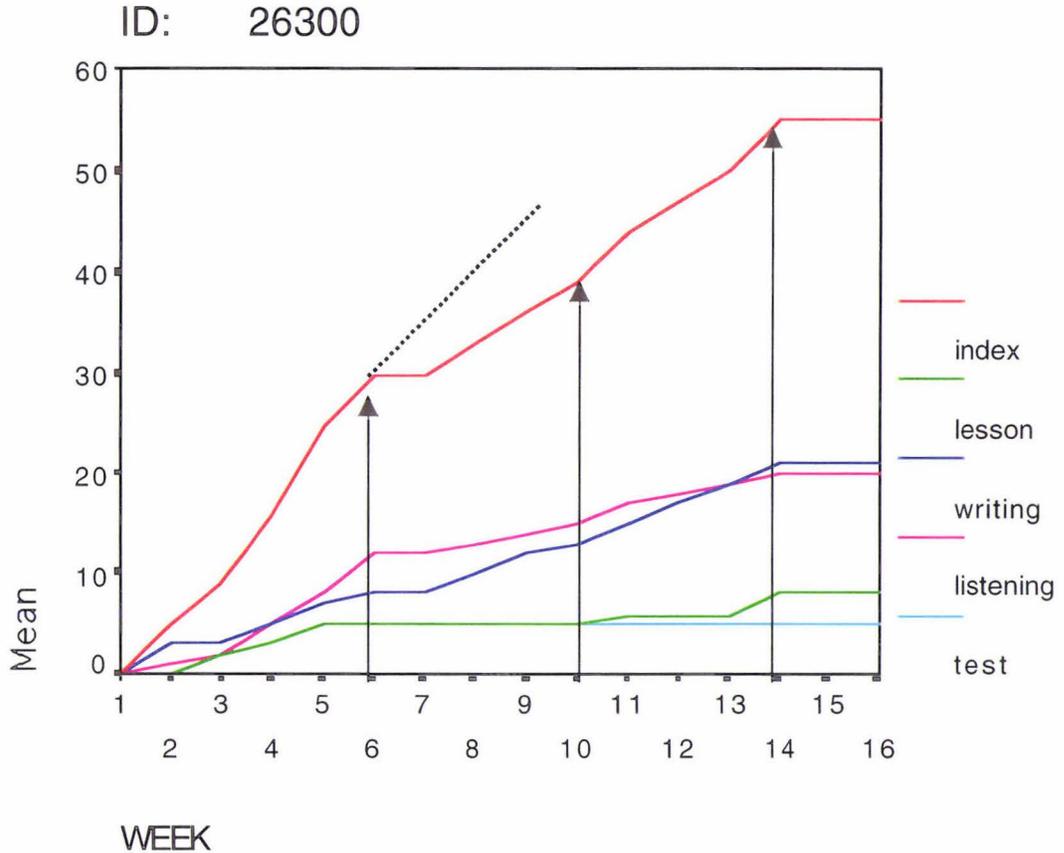


Figure 17 Barbara, non-kanji, Diploma, repeating the kanji module

Test 1 93%; Test 2 61%; Test 3 45%; Exam 60.7%; overall 68.5% (P)

This is a dramatic improvement in marks from the first attempt, and also shows a marked change in patterns of use of QTKanji. She has opened the writing stack far less than in semester one, but the number of times she records a score has doubled. She has opened the listening stack less frequently and her use of the lesson stack and video clips has fallen dramatically. This time she passes the module.

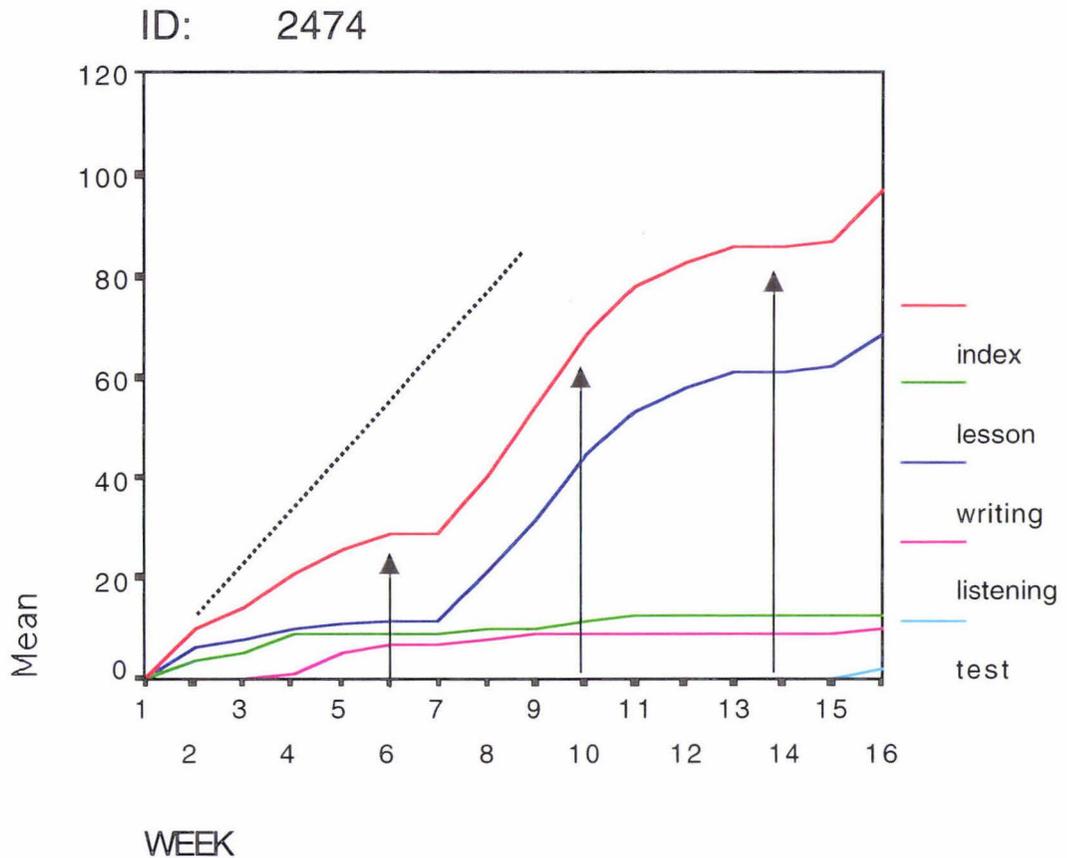


Figure 18 Brian, non-kanji, BA

Test 1 38%; Test 2 72%; Test 3 66.5%; Exam 62.8%; overall 55.6% (P)

Brian is a Bursary student in his late twenties. He has never learnt a foreign language before, and has minimum prior knowledge of Japanese. He has just returned to study, finds Japanese very demanding and spends a great deal of time on kanji, but says he enjoys it. There is a marked increase in use of QTKanji after a poor first test result. He has the largest number of accumulated scores for the writing stack but has not used the other stacks very much, saying he finds the only the writing stack beneficial. He often uses the software several times a week. In terms of assessment performance, he has done well considering his language learning background, and his test marks indicate remarkable achievement.

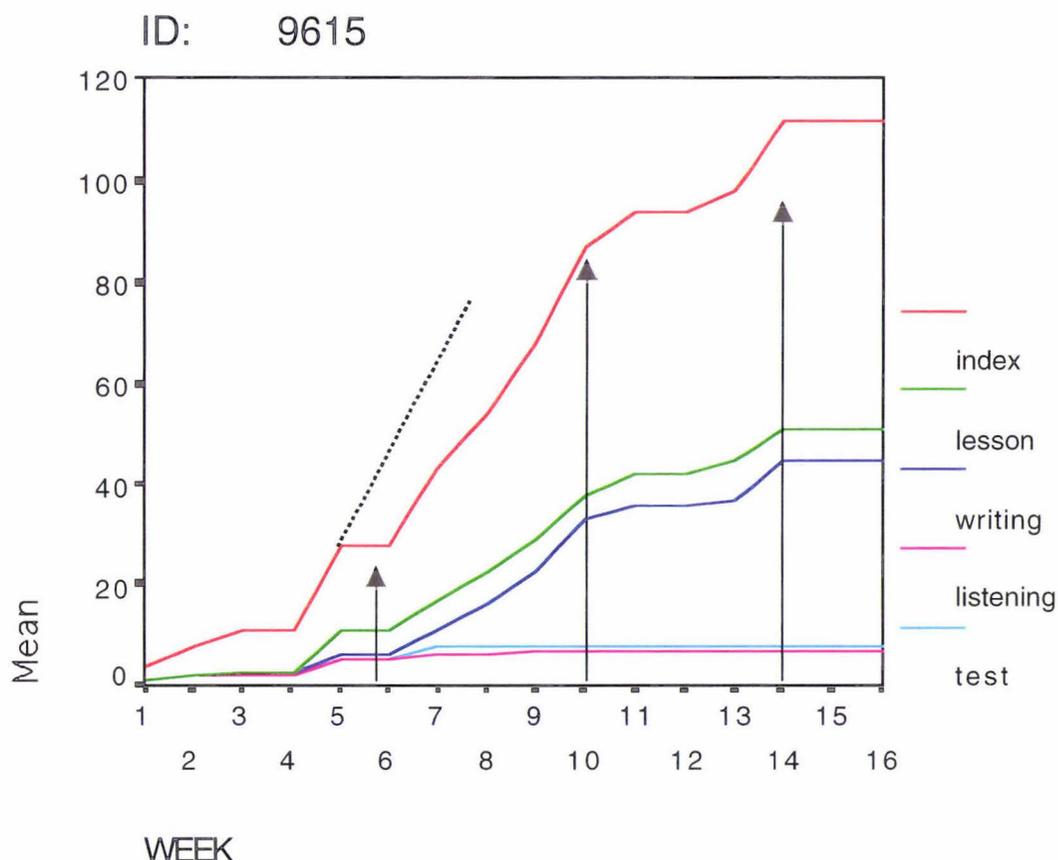


Figure 19 Nigel, non-kanji, Diploma

Test 1 47%; Test 2 57%; Test 3 49%; Exam 37.1%; Overall 49.27% (P)

Nigel's highest qualification is Sixth Form Certificate and he studied Japanese at school for two years. He is confident orally, but has problems with accuracy, and has difficulty managing his time for language study. He finds kanji very difficult. His use of QTKanji increases markedly after a disappointing test 1 result. He was struggling with how to use it initially, so was given a lot of teacher guidance and encouragement. His patterns of use appear to reflect this help but decrease after test 2. Test 3 result could be seen to reflect decrease in effort. He is one of the highest users of the lesson stack in his group and third highest overall, although what he actually did with it is not clear as his selection of both sound files and video clips is low.

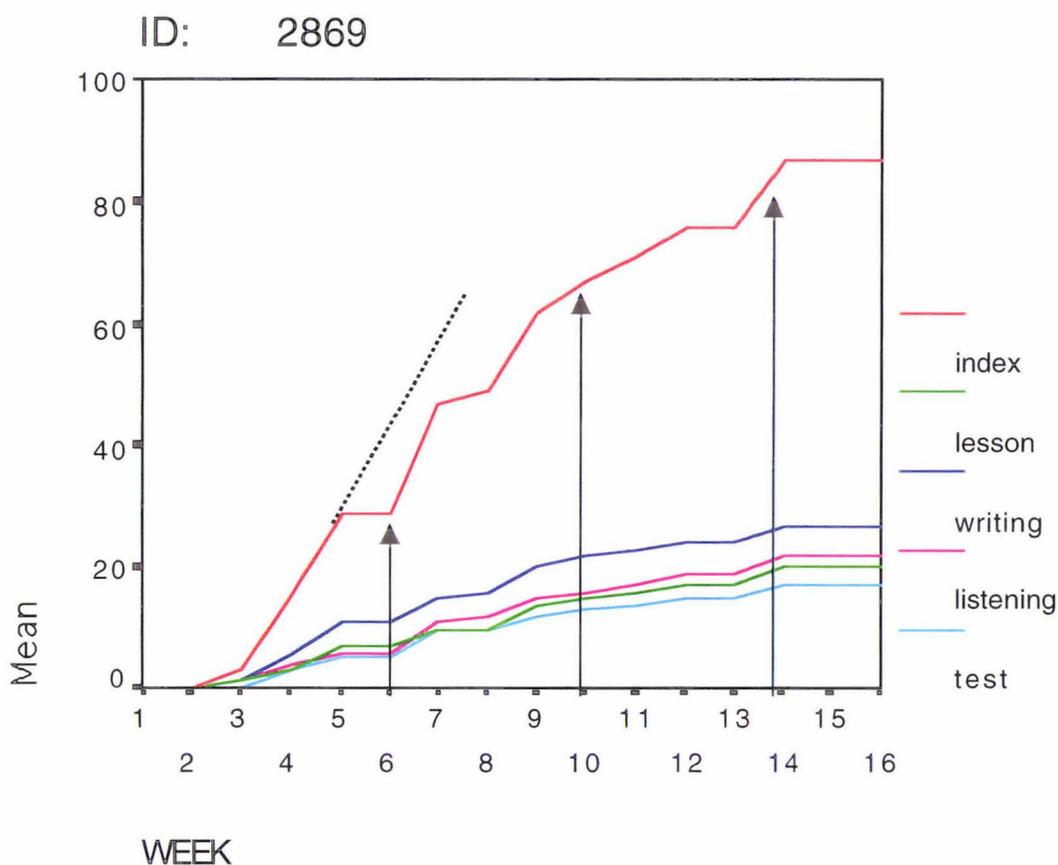


Figure 20 Jane, Korean, Diploma

Test 1 91%; Test 2 96%; Test 3 87.5%; Exam 82.1 %; Overall 90.73% (P)

Jane is in her early twenties, has a degree and has minimum of prior learning of Japanese, having done four weeks of winter school at AUT. She is the second to the top student in Kanji and Japanese I. Of note, she has relatively similar patterns of use for each of the stacks, with the writing stack being the most frequently used. This could suggest she has used the stacks methodically, making use of the different activities to vary the learning style, with writing being the most used. She is by no means the highest launcher of QTKanji, and is probably an average user of all the stacks. The only facility she has not used a great deal is the video clip.

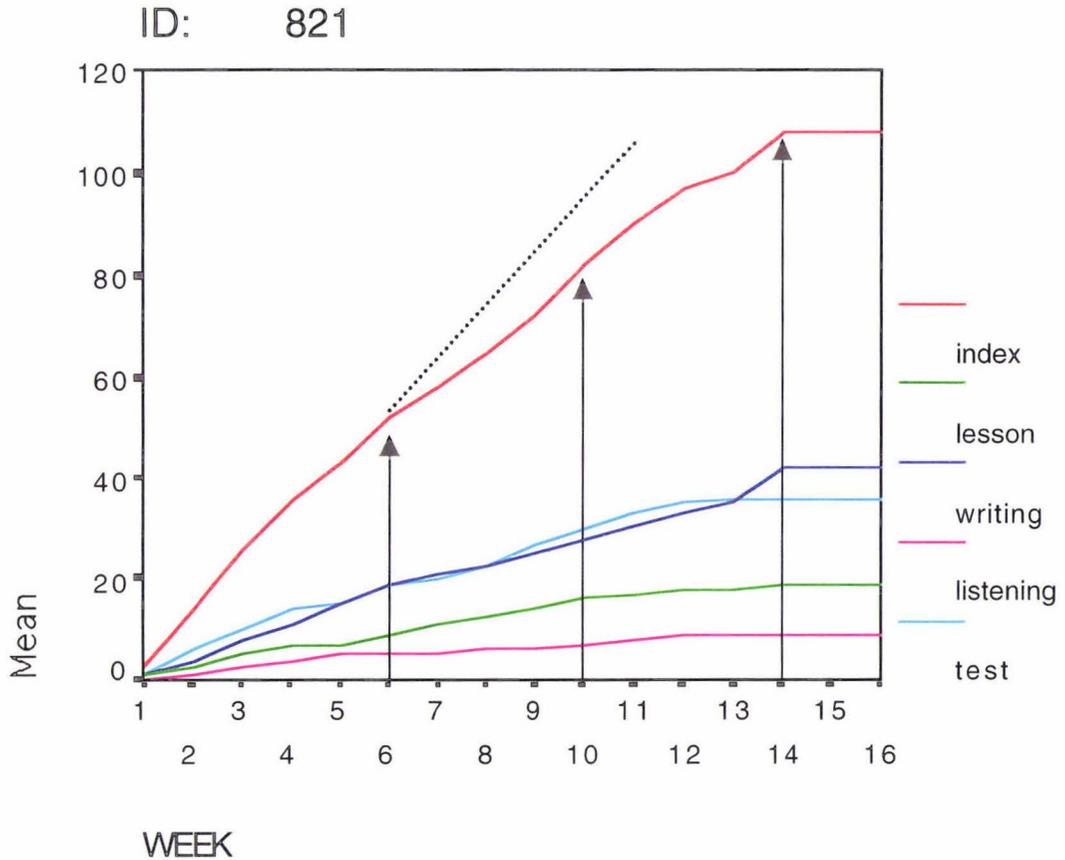


Figure 21 Cathy, Korean, BA

Test 1 78%; Test 2 73%; Tests 3 76.5%; Exam 68.5%; Overall 77.9% (P)

Cathy is in her early twenties, and has done two years of Spanish and Japanese at high school overseas, as well as English. She is viewed by teaching staff as a conscientious student, and is the second highest user of QTKanji in her language group. Of note is that she has used the writing and the test stack relatively consistently for 14 weeks, with an increase in use of the writing stack just before tests 1 and 3. She has used the lesson and listening stacks about half as much.

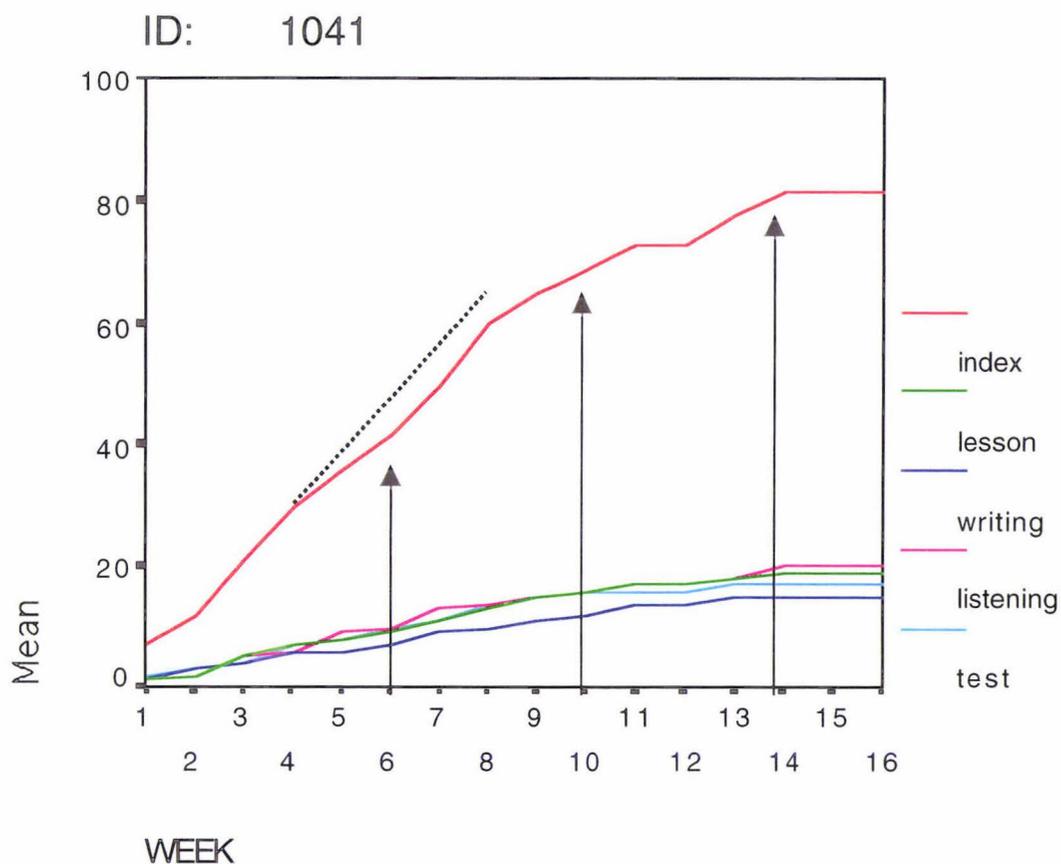


Figure 22 Alison, non-kanji, BA

Test 1 77%; Test 2 79%; Tests 3 34%; Exam 54%; Overall 70.96% (P)

Alison did Japanese at Bursary level, but finds kanji the hardest aspect of learning Japanese. She appeared to lose interest in kanji towards the last third of the semester, and both her use of QTKanji and her test result seem to reflect this. This might have been because of a recurrent throat infection and conflicting demands on her time from new part-time work.

### 5.2.9 Summary of tracking data for individual students

It is important to remember that the tests get progressively harder as the number of kanji increase, so it would not be unusual for test marks to go down from one test to another. Also the final kanji exam tests over 250 kanji, so if the mark is similar to an average of the tests, then this could be seen as a good result. On the basis of the analysis of the individual cases, there seems to be a correlation between consistency in using QTKanji and improvement in grades, a pass in the module, and/or signs that kanji learning is taking place. There also appears to be a marked correlation between increased proficiency in kanji and assessment grades, and a preference for using the writing stack. Where students have focussed on just the lesson stack, their progress has not been good and they have tended to fail.

There is not necessarily a correlation between high frequency of opening the stacks and improvement, and this would suggest that it depends on the approach the students have taken when using the software. It would seem that some use each stack differently from others and it could be a combination of what they are doing with the software and non-CALL methods that is important. It is possible to see just how much a student has worked on the writing, listening and test stacks by the record of their scores. The more scores recorded, the greater the number of exercises they have completed.

A case in point is Brian, who has just used the writing stack. His record of completed exercises is by far the highest of the total number of students, showing that he has done the most exercises in this stack, but he is average in the number of times he has launched the stack. Olivia has used the writing stack a little more on her second attempt at the module but her practice scores for the writing stack have more than tripled. The number of times she launched QTKanji in her repeat module is half that of the first time she did the module.

It would be useful to ask students to keep a log of which stacks they are using and why, in order to gain a more accurate insight into how the students are using QTKanji.

An encouraging sign is that both high and low achievers in different language groups are using QTKanji, and they are all using it differently. This could be an indication that it is indeed meeting different learning needs. It would seem, however, that some students need more guidance than others as to how the software could be used, and that it would benefit all students if there were more of a structured introduction and guidance throughout for those who need it.

### 5.3 Analysis of questionnaire data

From the analysis of data from the questionnaire, it is hoped to gain information for the research questions:

- Is the QTKanji program user-friendly?
- Does the program provide an environment in which the learner can work autonomously? Allied to this, to what extent are students showing signs of independent learning and how much does QTKanji feature in the total learning environment?

#### 5.3.1 Age and qualifications

Twenty three students returned questionnaires, and the composition of their ages is as follows:

Age	Number of students	Percentage
Under 20	10	43
20-25	8	35
26-30	2	9
31-45	2	9
46-50	1	4
Total	23	100

Table 1 Age composition of questionnaire students

As can be seen, 43% are under 20, and 78% are under 25. The Koreans tend to be older students, followed by the Chinese, with the non-kanji group being younger.

Fifteen (65%) of the students are female, eight (35%) are from a non-kanji background, six (26%) are from a Chinese background, and nine (39%) are from a Korean background.

Twelve students are on the BA programme (five non-kanji, four Chinese, and three Korean), and 11 are on the Diploma (three, two and six respectively). Their qualifications are as follows:

Qualification	Number of students	Percentage
School Certificate	3	13
Sixth Form Certificate	2	9
Bursary	11	48
Diploma	2	9
Degree	4	17
Overseas qualification	1	4
Total	23	100

Table 2 Highest qualifications held by questionnaire students

Of these, the highest for the non-kanji group is Bursary (five students), Diplomas for the Chinese group (two students) followed by three students with Bursary, and degrees for the Koreans (four students) followed by three students with Bursary. This makes the Korean students the most highly qualified.

### 5.3.2 Formal kanji education of Chinese and Korean students

In terms of years of formal learning of kanji, the results for the Korean group are quite surprising, with one recording no formal study, one with two years, and two with three years. Unfortunately five did not respond. For the Chinese group, the minimum is six years. It is clear therefore that the Chinese group have an advantage over the non-kanji and Korean groups in terms of experience in Kanji learning, and could also explain why

the Chinese group makes the least use of the video clips. However, the Chinese students do have their own problems, such as confusion with the use and number of strokes of some kanji. Not all Koreans have been taught kanji at school; it depends on their age and whether the teaching of kanji was being promoted by the ministry of education at the time.

### 5.3.3 Previous study of Japanese

There is quite a range of years of previous study amongst the students. Thirteen (57%) have studied Japanese at school, and another three (13%) at tertiary level. Five (22%) have studied Japanese for five years, and in contrast, seven students (30%) have the minimum of prior knowledge of Japanese. With this difference in prior knowledge, the students would be at different stages of learning, and hence their needs could be very different.

Number of years of study	Non-kanji	Chinese	Korean	Total	Percentage
5 years	3	1	1	5	22
4 years	0	2	0	2	9
3 years	0	0	2	2	9
2 years	2	0	1	3	13
1 year	0	2	2	4	17
Less than one year	3	1	3	7	30
				23	100

Table 3 Number of years of prior learning of Japanese

Only six students mention vocational reasons for taking up Japanese either at school or at tertiary level; three Koreans, one Chinese and two non-kanji students. The rest state interest in learning the language and a liking for Japanese culture. It seems that more students have based their study of Japanese on integrative orientation rather than instrumental orientation.

Only just over half the students have visited Japan, and this is mainly on short visits such as school trips.

### 5.3.4 Language learning skills and degree of difficulty of Japanese

As expected, out of reading, writing, speaking and listening, writing is by far the hardest skill identified by the students, followed by reading, then speaking and finally listening. In terms of commanding the most time (reading, writing, speaking, kanji, vocabulary or grammar) kanji is by far the aspect that takes the most time, followed by speaking and grammar, then listening. In terms of language groups, the number of students stating that kanji is difficult, is significantly high amongst the non-kanji group, with all other aspects being equal. The Korean group also indicate kanji as the most time consuming aspect of their study, followed by listening and grammar, and then writing and speaking. They do not mention vocabulary learning. Not surprising, the Chinese group mention speaking as the most time consuming, followed equally by listening and grammar. Reading, writing and kanji are all equal.

### 5.3.5 Approach to studying Japanese

The most popular way of studying in all the language groups is pair work, followed by small groups. Studying individually and whole class rank equal third. Fourteen students (61%) say they prepare in advance for class. Of these, seven are non-kanji, two are Chinese, and five are Korean. Ten (43%) say they set goals weekly, four are in the non-kanji group, and two each are in the Chinese and Korean groups. Only three (13%) of the students have a language exchange partner, and these are all non-kanji background students.

When discussing data on hours of self study, it is necessary to bear in mind that many students have part-time work and/or family commitments. There is quite a spread of hours per week of studying at home ranging from 0 – 20 hours. Six students (26%) do two or fewer hours, 5 (22%) do 3-6 hours, nine (39%) do between 7-10 hours, two (9%) do 12-15 hours, and one (4%) does 20. On the basis of one hour of self study for each hour in class, one would expect at least 16 hours. Only one does 15 hours. This has to be offset by the number of hours of self study at AUT: 10 (44%) do three or more hours, and five (22%) do 16 hours. However they might have confused the question with class hours instead of

self study. Five (22) do no study at all, which is surprising as there often is time between classes.

In terms of using QTKanji more than the one hour timetabled per week, seven (30%) do not use it more than once a week, whilst 14 (61%) use it for one or two hours a week, and one student uses it for three hours a week. The non-kanji and Korean students make extra use of the software.

Hours of study	Number of students	Percentage
0	7	32
1	8	35
2	6	26
3	1	4
Subtotal	22	96
Missing	1	4
Total	23	100

Table 4 Number of extra hours using QTKanji per week

### 5.3.6 Experience of computers

Twenty of the students own computers, 19 of them own a PC, and only one owns a Macintosh computer. Having to use computers that are different from what one is familiar with, could have a negative impact on willingness to use the software, especially if it is not possible to use the software at home (Hatasa and Hatasa, 1997). Of the 23 students, 19 feel confident using a computer, but only four have had any previous experience using Japanese software.

### 5.3.7 Preferences when using the software

The test stack consists of timed exercises. However 16 (69%) of the students prefer to work at their own pace, only five (22%) prefer being timed, and two (9%) like to use both. None of the non-kanji students have chosen working at a timed pace. With such a

high number preferring to work at their own pace, it might account for why the test stack is the least used.

In terms of interaction, twelve students (52%) prefer to type answers, three (13%) prefer typing and point and click, and five (22%) prefer point and click. Only one (4%) prefers click and drag, but there is no such interaction on QTKanji yet. Two (9%) like to be able to use all of the methods. The test stack requires the student just to point and click, whilst the writing stack, which is the most popular, requires the student to type in their answers. The following is a breakdown of preferences by language group:

Language group	Interaction	Number of students	Percentage
Non-kanji	Point and click	1	12
	Typing by oneself	3	38
	Point and click, and typing	2	25
	All of them	2	25
	Total	8	100
Chinese	Point and click	2	33
	Typing by oneself	3	50
	Point and click, and typing	1	17
	Total	6	100
Korean	Point and click	2	22
	Typing by oneself	1	11
	Point and click, and typing	6	67
	Total	9	100

Table 5 Preferred interaction with QTKanji, by language group

Preference for error signals was also surprising. It was expected that students would prefer a less obtrusive way of receiving feedback than a noise or flashing light. However, 11 (48%) prefer the buzzer sound, and 10 (44%) the flashing light. Only one (4%), a non-

kanji background student, prefers a written message on the screen and one (4%) has no preference.

### **5.3.8 Helpfulness of the software**

Eighteen find the software helpful; five find it a little helpful, and no one says it is not helpful. Of the five who say it is a little helpful, one says that he or she prefers other learning methods (Chinese), and two say that the content is limited because not all the kanji and vocabulary from the textbook are on the software (non-kanji and Korean). This is true in the case of some compounds in the vocabulary section that have limited uses and it was decided not to include them on the software. Two give no reasons at all.

### **5.3.9 Helpfulness of the stacks**

Results of students ranking the stacks in order of helpfulness show the writing stack as first, followed closely by the test stack, then the listening and finally the lessons. More of the non-kanji group ranked the writing stack highly.

The following have been identified as the most helpful aspects in each of the stacks. Some students ticked more than one answer, so percentages are not given, just number of responses.

Lesson stack: (11 responses) The video clips and the drawing facility are identified most frequently as being the most helpful, with non-kanji students (three) identifying the video clips, and one each from the non-kanji and Chinese groups identifying the drawing facility.

Writing stack: (15 responses) The typing function, and how it helps develop accuracy as well as retention of the readings, is the most frequently identified helpful aspect (nine), followed by the feedback facility (four) (non-kanji and Korean).

Listening stack: (11 responses) The pronunciation facility, including the native speaker voice is identified as the most helpful (mainly the Chinese).

Test stack: (17 responses) The feedback facility and the self-testing/review facility are the most frequently identified (14); the timing facility is very low (two). The feedback facility is identified by almost equal numbers in all three groups, and only one from each of the non-kanji and Chinese groups thinks the timing facility is helpful.

### **5.3.10 Least helpful aspects the stacks**

The following have been identified as the least helpful aspects in each stack. These are aspects of stacks that students tend not to use very much.

Lesson stack: (seven responses) Using the mouse to write with (all Korean), video clip (all Chinese), all the aspects of the stack – nothing new (Korean), and the vocabulary lists (not extensive enough) (non-kanji) are identified.

Writing stack: (four responses) Problems with the mouse, not understanding some sentences (both non-kanji background), not enough exercises, and ‘do not use it because of kanji background’ (both Chinese background) are listed.

Listening stack: (two responses) One student identifies problems with the mouse (non-kanji), and one says there are not enough kanji compounds (Chinese).

Test stack: (two responses). One student would like more variety (Chinese), and one says the nine seconds is not sufficient to complete the exercises (non-kanji).

### **5.3.11 Irritating aspects of the stacks**

The following have been identified as the irritating aspects in each stack.

Lesson stack: (two responses) One non-kanji, one Korean, both say there are problems using the mouse to draw with.

Writing stack: (five responses) Four have identified the noise when not writing the correct answer (three non-kanji, one Chinese), and one does not like the stack on the basis of having a kanji background (Chinese).

Listening stack: (three responses) All these students are in the non-kanji group. Two identify the noise when making a wrong answer, and one the quality of the sound.

Test stack: (five responses) Three students dislike the buzzer for an incorrect answer (non-kanji), one the ticking of the clock (Chinese), and one the time limit (Korean).

### **5.3.12 Problems with using QTKanji**

Out of 18 responses, just four identify problems. Some sound files are missing (two non-kanji), the computer sometimes freezes (one each for non-kanji and Chinese), and one does not know how to use the software (Korean).

### **5.3.13 Use of the help button**

Only one student out of 22 uses the help button, and this is a Korean student. It seems that the students find the software easy to use and some have not even been aware of the help button. One finds the help explanations too lengthy and prefers to ask the teacher or a friend.

### **5.3.14 Satisfaction with access to computers and QTKanji software**

Out of 22 responses, 15 are satisfied and seven dissatisfied. Of the latter, three say it is not always possible to gain access to the computer room for self study when there is a class running (all three groups), and three would like more after hours access (non-kanji and Korean). One does not give an explanation.

### **5.3.15 Other things that students would like the software to help them with**

There was a reasonably good response rate to the question on what more the students would like to be able to do using the software. Nineteen (83%) indicate they want more

activities to help them with their kanji readings. Some students have indicated more than one factor. They are as follows:

Type of help	Number of students	Percentage	Non-kanji	Chinese	Koreans
Vocabulary	14	61	5	5	4
Stroke order	7	30	5	0	2
Kanji readings, vocabulary and stroke order	3	12	1	2	0
Listening comprehension					
Writing kanji	1	4	0	0	1
Grammar	2	8	2	0	0
	1	4	1	0	0

Table 6 Additional help from QTKanji requested by students, by language group

No students wanted help with radicals, but this might be because of the timing of the questionnaire; radicals were introduced in the kanji class after the questionnaire.

### 5.3.16 Summary of findings from the questionnaire

Student background: the range in age, qualifications and prior knowledge of Japanese means that the students are bringing into the learning situation very different language learning needs in terms of language and strategies. In terms of kanji, it has always been known that Chinese students have an advantage over other students, along with Korean students to some extent. However it is clear that the Korean students have not had the same formal kanji education. Kanji is the most time consuming aspect of learning Japanese for the non-kanji and Korean students. This would explain to some extent why the non-kanji and Korean students make more use of QTKanji than the Chinese students. The Chinese students have more experience using kanji, making them possibly more confident, and because they have developed ways of learning kanji, they might not feel as

much need to use QTKanji, except perhaps to self-check. However they have problems with readings or different meanings of some kanji, and the number of strokes (those from China know simplified characters, and those from Hong Kong know characters with more strokes). Clearly we need to work on their perception of QTKanji.

Student approach to study: the fact that students have a preference for studying in pairs or small groups, might have some impact on students' willingness to work on their own on a computer. This could indicate a need to provide opportunities for students to work with each other, possibly through comparing journals and scores, or pair work activities using the computer. This also raises questions about assessment methods and students learning style/preferences. Some oral assessments are carried out in pairs, but the majority are individually assessed.

Although 60% say they prepare in advance for class, the response has usually been very low when asked this question in class. However this could be reluctance to show their hands in front of their peers. Although 43% say they set goals every week, from the interviews and focus groups, this would seem to be a very ad hoc activity, not written down or followed up. Having a native Japanese exchange partner for language practice, is one of the strategies we promote so students can take a more active role in their own learning: only three students have an exchange partner. In addition, considering language study requires frequent reviewing, the number of hours for self study seems on the low side.

The number of students making use of QTKanji more than once a week (61%) is positive as it could be taken as an indication that students are incorporating it into their study routine. However it must be remembered that this questionnaire was completed in the early part of the semester.

Most of the students have experience of computers and feel confident using them. This is important, bearing in mind Van Aachen's findings (1999) that there is a positive

correlation between students with a positive attitude towards computers and CALL, and CALL being able to assist them in kanji learning.

There are a number of findings that are significant for software design:

- The preference to work at their own pace, indicating a need to ensure students have choices in the software between timed and controlled activities, and a structure that allows them to have complete autonomy in choice of activities, so that they can repeat or do them in a particular order, to meet their needs.
- The preference for typing in their answers, despite the demands for accuracy of typing skills, indicating a preference for activities that require more interaction than just point and click.
- No particular problems with noise or flashing lights at this stage. In the case of noise, it might be because the volume can be controlled.

It appears that the software is meeting different learning needs, with 78% finding the software helpful, and no one saying it is not helpful. The most helpful stack is the writing stack, with the test stack next, followed by the listening and then the lesson stack. This is the anticipated result, but differs from the tracking results in terms of the test and lesson stacks. The writing facility in the writing stack gets the most mention as a helpful aspect of the stacks, and there is some mention of the video clips and native speaker voices for the soundfiles. The least helpful aspects all relate to technical issues such as problems using the mouse for drawing kanji.

A number of students have commented on some limitations in the content. This might be because the software only selects the compounds that occur in the kanji database, whereas the textbook occasionally has kanji in compounds that are extra to the 250 in the index. Missing soundfiles have been added to the second year software, but not for the first year software yet. The developers are therefore aware of these limitations. Most of the irritations could be overcome by ensuring greater student awareness of how to use the computer or software. The sound quality of some of the sound files is a problem. One of

the plans is to redo all the sound files because the quality is not as good as it could be at times. Often it is not clear whether a word is a 't' or 'd' sound, for example.

The overall impression is that the software is user friendly, especially as only one student has used the help button, and there are no major technical issues. Students are generally satisfied with access to the computers. There are some problems gaining access to computers when non-Japanese classes are running, but provision has been made for students to access them at other times, after hours and during other QTKanji hours. From observation, students are not making full use of these times. Overall there is an indication that students have a positive perception of QTKanji and value it as a learning tool. Nineteen out of the 23 students have suggested more ways in which they would like QTKanji to help them with kanji learning.

The questionnaire has provided information to confirm or explain some of the trends in the use of QTKanji that would not have been obvious just from the tracking data. However the timing of the questionnaire, between the third and fourth week of the semester, might mean that the students have not settled into their course sufficiently to be able to reflect as well as they might do at a later stage. In hindsight, it might have been better to give the questionnaire in about week eight or nine, or to delay the questions on computers until this time. Because of this, information from the second questionnaire completed at the end of the second semester for the February intake of students, is included in Appendix 10. This questionnaire focuses on student experience of QTKanji, and answers show students are beginning to reflect on how QTKanji can meet their learning needs, what is not useful and why, and what other activities they would like.

#### **5.4 Diaries**

The diary entries for most of the students in their first semester of study tend to be very descriptive compared with those for some of the same students who have since completed their second semester. As they do not provide much insight into development of strategies or changes in approach to studying, some entries from the second semester will be included.

From the diaries it is hoped to gain some insight into how the students approach their studies and whether they are demonstrating any signs of autonomy. Fifteen out of the 23 students actually kept their diaries. Because there is so much information, the following are taken from four diaries.

**Alison** is a non-kanji background student, who did not start to write in her diary until April, and then it is just a list of tests and generalised statements about what she has to do. There are no deadlines or timelines for study. Signs of frustration with not achieving in kanji emerge by May, and she recognises the need to do something. She decides she needs to do revision more often, which could be seen as beginning to recognise the need to apply structured reviewing, a memory strategy (Oxford 1990). Her motivation is boosted by a telephone conversation with her homestay family in Japan and she is spurred on to do some work after talking to them (sustaining motivation: Ushioda 1996). By June she is beginning to write down how she is studying, not just what she is studying, and she is making use of the reviewing strategy, mainly by writing and listening to drill tapes.

Alison's marks went down in her first semester and she appeared to lose motivation. However, she did pass. Her second semester of kanji study is very different and it is worth including a few points from her diary as she is demonstrating much more of what would be expected from autonomous behaviour.

She is anxious in early August because a test is approaching and she has not done enough work; she has not made any kanji cards and hasn't been using QTKanji. She gains a bare pass in her test (51%). By the end of August she is much happier and doing much better. She explains that this is because she is:

- Doing all the exercises in the text book, which she never used to do.
- Going to QTKanji several times a week, and everyday before the next test.
- Using the writing stack, and doing the exercises until all errors are eliminated.
- Planning the lessons she will work on in QTKanji, and which ones she will review.

Her next test mark is 71%. The third test is only 55% but she didn't expect to do well as she hadn't done much study, and recognises where she went wrong.

Active measures she takes to prepare for her end of module examinations are meeting with a Japanese exchange partner to work on tricky aspects of grammar, beginning to review kanji by creating a kanji notebook, and returning to regular use of QTKanji.

**Olivia** is a non-kanji background student whose diary entries start positively early in the first semester. She describes her study methods (applying both cognitive and memory strategies), and seems to have a plan of which lessons she will study (metacognitive strategy). She is identifying her weaknesses, and thinks that the QTKanji listening stack is helping her, although she needs to do more work on writing (metacognitive strategy). However, her diary entries end on 27 April, the first week back after the mid semester break when she will have received her results from test 1. She failed her first kanji test but knew she had not prepared enough. She passes test 2 but does not sit test 3, and fails the module.

Her approach in her repeat semester is very different, and her diary entries are much more positive and lively, and she acknowledges when she is doing well, which is an affective strategy.

She writes 'After finding out I failed Kanji I in the first semester . . . I decided to make more of a constructive effort to learn and be more enthusiastic about learning kanji. I have made a good start . . .'

She is planning her work much more, uses self testing, and is using time she never used to use (breaks between classes and the bus journey home) to study. She recognises when she has achieved goals and how she has achieved them. She is beginning to find that the kanji are getting easier each time she reviews them, and that what had seemed so difficult in the first semester 'now seems so secondary to me . . . The more I see, read, write, say and

pretty much breathe the kanji characters – the more it is becoming common knowledge. . . I love the feeling of knowing something, being able to read and write kanji that just baffled me last semester.’ (engaging intrinsic motivation: Ushioda 1996)

She also starts to review kanji before going to sleep at night because she finds it helps retention, and has set herself a goal to achieve an ‘A’ grade. She in fact gets a B+ overall for the module. She writes: ‘This semester I have thoroughly enjoyed the kanji paper because I have simply put in the effort to learn, enjoy and think about it positively, instead of complaining about how much there is to learn. I have started to look at it from a different perspective – and hopefully my test results will reflect that change of mind set.’ She is also doing well in her other modules but realises she needs to manage her time more effectively to take them into account.

**William** is a non-kanji background student, who says he finds QTKanji effective for motivating him and helpful for learning kanji. He finds he is more relaxed in class when he studies and prepares for them and plans to study more regularly rather than leave things to the last minute. He appears to be highly motivated, expecting good marks as a result of effort. When he does gain good marks, he often writes that he could do better. However, he does not say how he can do better. He recognises the value of applying kanji and grammar in other activities such as essay writing, for reinforcement and retention (cognitive strategy – practising). By early May he feels the need to use QTKanji more, and decides to use the writing and listening stacks. Using QTKanji ‘makes me feel like I am achieving something great as kanji is so hard to learn as there are so many of them.’ He makes use of opportunities to meet some old Japanese friends and uses it to test his knowledge. He is greatly encouraged by how much he seems to have improved since he last met them, especially his listening skills. He also identifies areas for improvement.

**Elizabeth** is a Chinese student. Ostensibly she appears to be confident and competent but in fact her marks have gone down consistently in all modules over the two semesters. Her diary entries for both semesters are very limited and indicate a negative attitude to her kanji textbook because she learns her kanji a different way, and to using the computer for

QTKanji because of the brightness of the screen. However in semester one, she does find the lesson stack more useful than the actual class lessons. From her interview in the second semester it is clear that she has very fixed ways of studying and is not prepared to adapt to new ways. She no longer uses QTKanji very much in semester two, saying she much prefers other methods of studying.

#### **5.4.1 Summary of diaries**

The diary entries for most of the students in their first semester of study tend to be erratic, and very descriptive. There is very little analysis or reflection, and many stop before the end of the semester. In the second semester some students are analysing more, are less descriptive, and are showing characteristics of autonomy. They are able to talk about their learning experiences, identify their weaknesses and learning needs, and show a willingness to use various strategies including practice and review strategies. These students appear to be motivated and studying consistently, and are continuing to achieve consistent or higher marks. From classroom observation and raw tracking data, these students have also continued to use QTKanji consistently and apparently more effectively (methodical, and much more structured approach).

In contrast, the entries for some students in their second semester are similar to those of semester one, with very little depth, no signs of any development or change in study habits, and a tendency to be negative. These students have gained lower marks in semester two, and have appeared to have lost motivation, or have different levels of motivation. Some say they are finding it hard to keep up the constant effort required of language learning. The ones who were interviewed also admit to missing classes more, and to using QTKanji infrequently, especially compared to semester one.

#### **5.5 Focus Groups and interview**

The following are main points arising from the focus groups, together with Olivia's interview. Olivia's interview is included here because of her dramatic change in approach to study from semester one to semester two, and the fact that she has demonstrated characteristics that could be termed autonomous learning.

### 5.5.1 Focus groups

Five students from the February intake took part in the first focus group (group 1): three non-kanji (William, Susan and Alison), two Chinese (Elizabeth and Richard). Five students from the July intake took part in the second focus group (group 2): Brian, Nigel and Rita, (non-kanji), Mark (Chinese) and John (Korean). The other students were absent or chose not to join in. Both focus groups were held in week 13 of the semester with one week of classes left.

Group one students were more forthcoming with their opinions and feelings, and showed more awareness of their learning experiences. Group two students were more reticent, and had to be prompted more.

As indicated by the questionnaire results, the main reason for studying Japanese even at tertiary level, is an interest in the language, its people and its culture rather than for career prospects. In fact Sarah is planning on being a primary school teacher, and is only doing Japanese because she does not want to waste all those years of study at school. Visits to Japan on school trips seem to be a strong motivating factor to study Japanese. Only Richard says he is studying it because he has done a hotel and tourism course and realised the importance of knowing Japanese after having worked in a hotel for a few months. Also, because of his kanji background, it is not too difficult to study. The general opinion is that it would be a bonus if they manage to find a job as a result of studying Japanese. William and Nigel both want to work in Japan after graduating.

In terms of kanji learning, the non-kanji students and the Korean student all find kanji the hardest aspect of learning Japanese, but William says he likes the challenge, and Alison finds it really rewarding when she masters them even though she finds the process painful. Brian finds kanji help him learn vocabulary and enjoys it the most even though it is hard. They all understand the need for constant review of kanji to help retention, and see their improved marks are a direct result of increased effort. Both Mark and Richard find the

grammar the hardest, not in terms of understanding it but in terms of applying it, especially in oral situations.

The amount of planning of studies and setting short term goals varies greatly amongst the students. None of them write down any plans, but some do think about what they want to achieve each week. However most of them admit to wondering where the weeks go. A few keep lists of what they want to learn, for example grammar points, especially before tests and exams, but there is no detailed planning in terms of time frames so they have no idea whether they have sufficient time to complete tasks. Many in group two believe they work better under last minute pressure and remember more, and Rita does not like the idea of creating a routine, which she thinks, will result from detailed planning. Nigel says he never developed any strategies for studying at school: there was no need to because he managed to scrape through to sixth form without working hard. He did not do seventh form.

Students from both groups are showing signs of taking control of their kanji study, and are developing kanji cards and kanji note books, and using QTKanji. However in other aspects of language learning, they seem to still depend a great deal on teacher feedback and initiative and do not appear to be able to see how they can take more responsibility for their own learning. For example, group one are critical that the teacher does not target the week's grammar during the essay writing class, and that the topic seems totally unrelated to the grammar. They would also like the teacher to give more alternatives for ways of using grammar points when their essays are returned, but do not attend tutorials when they can ask such questions, or check their work against model answers. Only two have language exchanges.

Apart from Rita who prefers to use her own study methods for kanji, all the students say they find QTKanji extremely useful. Nigel likes the fact that it is all laid out and ready to be used, and Brian says he would have been totally lost without it. However he says that it must be used in conjunction with classes and other methods of study, rather than on its own. All would like more variety of activities but only mention the writing and the

listening stack. There is no mention of the test stack. They have a number of suggestions but what they really want is to be able to draw kanji using the computer, and for the computer to give feedback. One alternative suggested by Nigel is to have a workbook in which they are required to write the kanji and perhaps check the answer from the software.

They would all welcome some sort of guide to check their progress against, but none of them want the use of QTKanji linked to a test. They see QTKanji as a tool for learning and for working at their own pace for their own needs. They can do their own self-tests, so a formal test would add unnecessary pressure. They also like the simplicity of the program; Alison is not computer literate and would not be comfortable using a complicated program.

On the topic of motivation, William says his comes from being able to compare his level of competence with before he started the course, and seeing what he could achieve when he hears year three students making speeches. Alison expresses very forcefully that by tertiary level, students should learn to motivate themselves, and not rely on others such as teachers who won't be there all their lives. Rita is finding it hard to keep motivated because of conflicting demands at home, and Mark is feeling exhausted because he has put so much effort into his studies and has not had a break all year. Nigel says getting good marks in kanji tests motivates him to keep putting in the effort to study for the next test. He does not say what he would do if his marks fall. John says he is motivated because he can now read more kanji in Korean newspapers than he could ever read before, and this makes him feel happy.

### **5.5.2 Interview**

Olivia's interview took place in her second semester of studying at AUT when she repeated her kanji module. She plans go to Japan to teach English, but is also interested in advertising and the media. She says it is not hard to stay motivated because she likes the structure of the course and is encouraged by her improving marks. Her motivation to study kanji has increased, and her assessments have improved compared with semester one. She says this is because she has made a conscious effort to have a more positive

attitude and study more. She was taught by her parents at a very early age to set goals, and has identified methods for preparing for examinations. She rolls things over from one day to the next if she does not complete them, but she does not write things down in great detail.

Her use of QTKanji has changed from semester one; she now uses it for revision only, and often to focus on kanji she has identified as causing problems. She never uses the lesson stack now as she finds kanji cards are just as effective and they can be used anywhere. She uses the writing stack a lot, and is enthusiastic because she is finding she is getting more successful with the scoring. Although she only uses QTKanji once a week, she will increase it if she feels she is slipping.

The school she went to had study skills sessions every year, and she was able to find out that she is a visual learner and a little kinaesthetic. She thinks it is useful to know this as she can use the suggestions for how to study for this type of learner. She uses colour and cardboard to help her study, and hence her liking for kanji cards. She is very receptive to new ideas for studying and remembering things. She does not know what 'autonomous learning' means but thinks that independent learning means taking responsibility for one's own learning.

The small sizes of classes and the high contact with teachers, the amount of support available and being able to approach them easily, are important to her and suit her learning style. This includes QTKanji, and how she has been shown ways to use it for certain learning needs. She feels she would not have survived in a less supportive learning environment.

Being part of the research has affected her approach and has made her more conscious of what she is doing. Writing the diaries has been good for reflecting on her learning experience, and she feels she is more focussed, and is setting goals and achieving them.

### **5.5.3 Summary of focus groups and interviews**

Compared with the diary entries for semester one, the reflection and analysis shown by students in group one is particularly encouraging, with comments about self-monitoring of progress. Both groups are taking responsibility for their kanji learning by consciously adopting certain strategies, some more than others, and QTKanji is seen as a very useful learning tool. However there is still a teacher dependence in other aspects of their learning and less of a willingness to pursue an active approach such as going to tutorials to ask for help, marking their homework against model answers, and getting an exchange student.

Group one students are more responsive to talking about motivation. All the students are motivated by different factors. However, positive reinforcement from good marks and being able to see progress seem to be key factors. Fatigue seems to be an important factor in reducing motivation.

The depth of analysis and reflection shown by Olivia in her interview is quite remarkable, and she talks quite comfortably and knowledgeably about what type of learner she is, and how to keep herself motivated. She has a clear goal for what she wants to do immediately after graduating, and is working on ideas for a career. QTKanji is a very important part of her kanji learning methods, and she has identified how she can use it to meet her needs at particular times. Having been given study skills sessions at school and responding positively to them, appears to be an important factor in Olivia's approach to study. In contrast, Rita displays a completely different attitude. Although she also had study skills sessions, she says they were too late, and that she had already developed her way of studying, so has never tried them out.

### **5.6 Evaluation of QTKanji using criteria developed by Komori et al (2001)**

Komori et al (2001) have identified criteria for evaluating software based on other research findings on kanji learning. Although the criteria are used to evaluate web-based software, their theoretical framework – vocabulary learning strategies and autonomous learning strategies – has similarities with those of the QTKanji project.

Evaluation of QTKanji using elements for evaluation of WWKanji and five other programs :

		QTKanji
1	Phonological aspects	
	<i>On</i> and <i>Kun</i> readings	**
	Sound file for pronunciation of the compound word	**
2	Orthographic aspects	
	Stroke Number	**
	Movie clip showing stroke order	**
3	Practice features	
	Area for learner to practice writing with mouse	**
	Feedback for the practice writing	
	Drill or quiz of <i>on/kun</i> reading (hiding)	
	Quiz multiple choice – meaning/pronunciation	
	Flashcard style	**
4	Aspects for grouping kanji	
	Grouping by radical – visual saliency	
	Grouping by Heisig, ie pronunciation of radicals	
	Grouping by Henshall dictionary	
5	Memorization devices	
	Ideographs and radicals with Mnemonics	
6	Referencing aspects	
	Learners decide what kanji to look up	**
	Number of Jouyou Kanji (1,945 or less)	1,075
	Jouyou gai kanji included	
	Search functions	**
	Dictionary references (Nelson's, Henshall's)	
	Links to radical elements	
7	Contextualisation aspects	
	Includes compound words	*

\*\* Program contains the feature

\* Program contains the feature but not sufficiently elaborated

Komori et al (2001: 52)

QTKanji comes out reasonably well on the basis of the above criteria especially when compared to the other programs evaluated by Komori et al. It has the first and second criteria in the lesson stack. For practice features, it has writing with the mouse in the lesson stack and feedback on writing in the writing stack, but not on the drawing in the lesson stack. It has a quiz type exercise with the listening stack and multiple choice with the test stack. However, it does need more variety.

QTKanji does not have any activity for radicals. It does not have memorization devices but these are used when the kanji are introduced in the kanji class, and it is not felt necessary to include it in the software. For referencing devices, it does have the facility for learners to look up kanji, and up to 1075 jouyou kanji, but no references to dictionaries or links for radical elements. For the final criteria, contextualization aspects, there are compound words and kanji in context in the problem sentences. However these sentences are short because of design considerations.

This evaluation using the Komori et al evaluation criteria, appears to endorse the plans for the next stage of QTKanji. The plans include exploring the development of reading comprehension exercises, and activities for radicals and kanji with the same *On* readings.

## 6 Discussion

On the whole, the various research methods have provided some interesting and useful results. However, there were a number of limitations with the research methods. Firstly when analysing the tracking data, it became clear that the only reliable data for frequency of use was the index data, which records the number of times a student launches QTKanji. The number of times a stack is opened does not indicate how long a student spends working on it. However, the record of scores for the writing, listening and test stacks provide an indication of the volume of work a student has done in the stack. These have not been coded for analysis but used for reference. Therefore the index stack has been used for the frequency of use, and the data for the stacks as an indication of preference of stacks. There is no scoring function in the lesson stack, but there is a record of the number of times a soundfile or the video clip has been selected, which is some indication of the amount of time a student has spent using the stack.

Secondly, the tracking data was cumulative, and at the time of coding for analysis by SPSS, it was decided to keep it cumulative as it was thought that the graphs would be satisfactory. However, in actual fact, the trends are not as clear as they would have been had the data been coded for weekly totals, and it has been necessary to insert dotted lines to increase clarity. Data will be coded on a weekly basis when analysis is carried out in the future.

The questionnaire was too long, and in terms of getting feedback on using QTKanji, was perhaps given too early in the semester at week three. It might have been better to have two questionnaires, one in week three for background information, and one at week eight or nine for the software information, when the students had had more experience using it. Because of this, data from the questionnaire completed by the February intake of students at the end of their second semester of using QTKanji has been included: the questions focussed on the use of QTKanji and the students give more detailed answers than they do in semester one.

The fact that a number of the February intake of students had failed the Kanji module and were taking it again in semester two proved a bonus. It was possible to compare their use

of QTKanji in each semester. One of them, Olivia, also wrote diary entries over two semesters and was interviewed at the end of the second semester. Her case will be drawn on in this discussion section, as there is some very useful detail on autonomous learning behaviour in her repeat semester.

The research findings will be discussed in relation to each of the research questions.

### **6.1 Is the QTKanji program user-friendly?**

Issues relating to this question include ease of understanding how to use the software and to navigate around the stacks, technical problems, content issues, and ease of access to the computers.

Only one student needed to use the help button, and students commented that they like the simplicity of the program. On this basis, it would seem that QTKanji is user friendly. Apart from one student who said she did not know how to use the software in week three, there are no comments about difficulty in navigating around the stacks. There have been a few technical problems such as freezing, but this has not happened very often. A number of kanji in the textbook are not in the software, and a few soundfiles are missing from the vocabulary section. In addition, the quality of some original soundfiles is not very good, making it difficult to distinguish between for example, 't' or 'd' sounds. These problems were noted as students commented on them during classes, and will be rectified.

An analysis of the content of QTKanji compared with other software for learning kanji, using a set of criteria developed by Komori et al (2001) together with feedback from students would seem to indicate that there is a need to develop activities for:

- Radical activities as another strategy for remembering kanji.
- Reading comprehension exercises where kanji can be seen in passages rather than just simple sentences.
- Vocabulary activities.

There are plans to investigate the possibility of developing these. Students would like to be able to draw kanji using the computer and find using the mouse difficult. Providing them with writing pads would enable them to draw kanji more easily but the technology for providing effective feedback has not been refined yet. Until suitable writing pads become available, it might be better to introduce a workbook to go with QTKanji as suggested by one of the students.

In terms of design, the main finding has been that the students prefer typing in their answers, rather than interaction such as pointing and clicking. This appears to be because they seem to find it more effective for remembering, for example, double consonants and long vowel sounds.

Access to the computers outside timetabled classes appears to be satisfactory generally, although students have encountered some problems getting into the computer room when another class has been running. On the other hand, they do not appear to have made full use of the times when it is available.

## **6.2 Do students actually use the program, and how are they using it? Are there any trends based on individual differences (background, gender, or prior learning)?**

The tracking has revealed differences in use between individuals, language backgrounds and gender. The unexpected result has been the extent to which the Korean students have made use of the software. It might be significant that this group had many of the higher achievers in terms of exam results, and highest number of mature students. However, all language groups had the same number of students failing, three in each.

Using the index data, all the students who were tracked, apart from three, used QTKanji at least for the first six weeks up to test 1, which was the period of greatest use. After that, the general trend showed a gradual decline, with small peaks leading up to test and examination weeks. Four stopped using it after week eight. This decline in use reflects

trends shown in other CALL research projects and was anticipated in this project, from the weekly tracking data and classroom observation. Although it is encouraging that the trends show some use for the whole of the teaching weeks, the fact that there is a decline in use could be seen to be disappointing bearing in mind the software was designed specifically for the course. Initially this general loss of sustained effort to use QTKanji was simply thought to be because of the novelty of the software wearing off, and lack of student motivation to keep using it. However this is a rather simplistic explanation and fails to take into account the range of possible contributing factors identified in this research and by other research. These include:

- The novelty effect of the technology wearing off as students realise that it requires regular use to achieve any benefit (Levy 1997).
- The change in perception of QTKanji as an effective learning tool, if students do not think it suits their learning style or learning needs. This might stem from inability to adjust their use of QTKanji to meet changing needs, which might in turn be due to lack of language learning strategy awareness (Hoven 1999, Blin 1999, Van Aachen 1996).
- The usual ebb and flow of motivation of students over a period of time in response to assessment results, fatigue, and the general effect of learning a language in an institutional setting (Ushioda 1996).
- The demands of other parts of the course. The BA students in particular have deadlines and examinations for their core module around week 13.
- The amount of teacher guidance received by a student on how to use the software to meet individual learning needs.

Some factors cannot be changed, such as the demands from other parts of the course, or as Van Aachen points out, there will always be a handful of students who will not accept using computers as a learning tool (Van Aachen 1996: 12). However other factors, such as motivation and learning style can change (Ellis 1994: 479). An example is Olivia, a BA student, who repeated the kanji module in semester two. Her change in attitude and approach to kanji study between semester one and two is quite remarkable, and the change in her trends in use of QTKanji can be seen to reflect this. Her semester one trend is similar

to the general trend, but in semester two, there are long periods of sustained use leading up to tests and examinations, with short periods of much less use. She does not use it at all in week 12 leading up to a Core module exam but returns to it in week 13 leading up to her final kanji exam. In fact she launches QTKanji twice as often in semester one than in semester two, but analysis of the scoring in the stacks indicates more extensive use in semester two. This trend reflects her comments in semester two that she has used QTKanji much more to meet specific needs at specific times, and that she maintained her use of QTKanji throughout the semester.

Perceptions of technology as a useful tool for learning are an important factor in how much students use the software. Findings by Toyoda (2001:8) and Van Aachen (1996) suggest that generally speaking technology can have a positive impact on learner autonomy when learners have extensive experience with technology. However they also suggest that this will happen only when learners perceive technology as a useful tool. At the time of the questionnaire, 18 (78%) students thought the software was useful, five thought it was a little helpful and none thought it was not helpful. In terms of extra use out of class time, 69% of the students used it more than one hour a week. However, it is clear that this was not sustained by all of the students. It could be significant that all eight students who returned questionnaires at the end of semester two, were still using QTKanji regularly, and six of them had been using it for more than one hour a week. It is possible that it takes longer for some students to adjust to using software as part of their learning and that semester two data will reveal more encouraging trends like those of Olivia. Nevertheless, it would seem to indicate that the need to carefully integrate CALL software into a teaching programme is not just a matter of ensuring the content is relevant.

The results for the frequency of launching QTKanji are not totally unexpected. Overall, the non-kanji students launched QTKanji the most frequently, followed by the Korean students, with the Chinese students using it the least. Students with prior knowledge of Japanese tended to launch it more often, followed by those with minimum prior knowledge. The overall trend for the five students repeating the module showed the least sustained use of

QTKanji. However Olivia, mentioned previously, is the exception, and this is reflected in their results. Olivia passed with a B+; three students gained C grades and one failed again.

From the tracking data it is possible to identify how students have been using the kanji in terms of preferences for stacks. It is also possible to see how much they have worked on the writing, listening and test stacks from the record of scores. Some of these results were unexpected. Initially the lesson stack was the most popular stack, which is not surprising because it is the first stack, and has the novelty effect of the drawing function and the video clip. From classroom observation, it was thought that the Korean students favoured using the lesson stack far more than the other groups. However, the tracking data shows that use of the lesson stack declines after the second week for all three language groups, and the writing stack emerges as the most favoured stack. The Korean students open it the most frequently, followed by the Chinese students.

A surprising result is that the test stack is the least favoured by all groups, but the Chinese students opened it the most frequently out of all the groups, and the Koreans the least. It was designed to provide quick feedback on recognition of kanji readings with a point and click activity. However this might reflect the preference of students for typing in their answers over pointing and clicking. It might also be that students feel the writing stack is more testing, and provides the same amount of feedback. It appears that one of the reasons why the listening stack is not so popular is because the activity goes on indefinitely. This means that students have to set their own targets to evaluate themselves, and so it is not as straightforward to gain feedback as with the writing stack. However, the listening stack was designed to provide students with practice for listening and recognition, hence the lack of a limitation on how many times they can attempt to recognise the kanji. It is clear that more guidance is required on how to gain effective feedback, and possibly an activity that restricts the number of attempts possible for each kanji, should also be included.

Of no real surprise in terms of different language backgrounds, is the fact that the non-kanji students made the most use of the video clips showing the kanji stroke order, and the Chinese students, with their kanji background, made the least use of them. The Korean

students made the most use of the sound files, which could be seen to reflect the fact that one of their main weaknesses is pronunciation.

In terms of gender, there appears to be no real difference in terms of preference of stacks. The exception is the male Korean group. They prefer the lesson stack while all the other groups prefer the writing stack. In addition, whilst the male students in general tend to launch the software slightly more frequently than the female students do overall, and the non-kanji male students launch it the most frequently, the female Korean students show the next highest frequency. The male Korean students launch it the least. It will be interesting to see how these trends develop in the second semester of the research.

From the tracking data, it has not been possible to identify how students have been using the software in terms of their approach. This involves identifying whether, for example, they have been using metacognitive strategies to plan how they are going to use the software, whether they have goals in mind, and whether they are evaluating themselves. The focus groups and interviews, and some diary entries especially from semester two have provided some insight, but the informal discussions with the students during class time proved the most useful. In hindsight, it might have been useful to ask some students to keep logs of how they are using the software and why. However, whilst this could help them reflect on what they are doing, it might be seen by some students as something else to worry about, and therefore deter them from using the software. A simple checklist completed after each session might be the answer.

From observation and talking to students, it appeared that some students knew clearly what they wanted to achieve in a session, and would use the lesson stack to review some kanji, then the writing stack to practice and test themselves, working on the exercises until they had no errors. In contrast others would spend a great deal of time drawing kanji using the mouse, and/or using the sound files to listen at great length to the native speaker pronouncing the vocabulary in the lesson stack. Whilst the soundfiles provide excellent guidance on pronunciation, it might have been beneficial for these students to move more quickly onto the listening stack where they could also test their kanji recognition. The

students struggling to draw kanji using the mouse might have been better to use pencil and paper. Some students responded to teacher guidance, and their patterns of use changed to some extent, others felt more comfortable continuing to do what they had been doing. It was also not uncommon to see a number of students who had not used QTKanji very much during the semester, using it everyday in the last week before the final test and examination.

From classroom observation, casual discussions, diaries, and focus groups, it became apparent that a number of factors were linked to consistent and effective use. These factors are not mutually exclusive, and include:

- Sustained intrinsic motivation and self-motivation for study as a whole.
- Enthusiasm for learning kanji.
- Some awareness of and willingness to use different learning modes (including QTKanji) and strategies generally to meet learning needs.
- Perception of the value of spending time using the software.
- Teacher guidance on how to use it more effectively to suit individual needs.
- Not necessarily high achieving in terms of tests and examination.

### **6.3 Is there a correlation between student usage of the software and improved performance in tests and examinations?**

The Pearson correlation coefficient with a two-tailed test of significance was used to test for correlation. There was a weak correlation between frequency of use of QTKanji and results for all assessments apart from test 1. This correlation would suggest some improvement based on use of QTKanji for some students. When the test was applied to different language groups, there was no correlation at all for the non-kanji students, weak correlations for the Chinese students, apart from test 1, and slightly stronger correlations for the Korean students in all the assessments. However, closer analysis of trends in the use of QTKanji by individual students provided a clearer picture of correlations. From this analysis, it appeared that sustained regular use of QTKanji tended to result in:

- A maintenance of consistently high marks for the high achievers, or
- A maintenance of relatively good grades for students who are having to put in a great deal of effort into their kanji learning, or
- An increase in marks (not always sufficient to be a pass grade)

In some cases, an improved test result follows a marked increase in use of QTKanji. Conversely there is a fall in marks following reduced use in QTKanji. It is not possible from this to say that QTKanji is the only reason for the improvement or the decline, but it could be said that there are good indications that a student benefits from using QTKanji as part of their programme of learning.

Of significance, students who focussed mainly on the lesson stack tended to fail, and students who used the writing stack either the most frequently, or frequently together with another stack, tended to pass. The information in the lesson stack is very much the same as the textbook. It is excellent for reviewing kanji, but does not require input from the student: they can choose to draw the targeted kanji and indicate the number of strokes, but there is no record of scores to provide feedback. The writing stack is more demanding in interaction, and requires accurate input. Students also become more aware of their progress because of the feedback from scoring. The trends would seem to suggest that the writing stack is more effective in aiding retention of kanji.

**6.4 Does the program provide an environment in which the learner can work autonomously? Allied to this, to what extent are students showing signs of independent learning and how much does QTKanji feature in the total learning environment?**

From the tracking information and observation in class, it is clear that students have been using QTKanji differently, and have been making their own decisions about which stacks to use and the order of the lessons to work on. To this extent, it can be said that QTKanji provides an environment for students to work autonomously. It is encouraging that both

high and low achievers in the different language groups are using it. This is particularly so bearing in mind the range in age, different backgrounds in language learning and prior knowledge of Japanese, and the very different language learning needs. As a result, it could also be said that QTKanji is meeting different learning needs.

However, from classroom observation, focus groups, interviews and some diary entries, it became clear that some students were using the software more effectively than others were, and there was a wide variation in language learning strategies used by students. It was clear that the software alone was not facilitating the development of autonomous language learning, and would seem to support Blin's (1999) view that students need to be autonomous to some extent to benefit from the full potential of CALL software.

Students who tended to use the software effectively demonstrated characteristics of:

- Good use of a range of language learning strategies.
- Receptivity to new ideas for learning indicating a flexible approach to learning.
- Awareness of learning needs.
- Frequent use of QTKanji to work on their specific learning needs.

Students who appeared not to be using it effectively demonstrated characteristics of:

- Limited range of language learning strategies, and/or ineffective strategies.
- Inflexibility and tendency to be unreceptive to new ideas, often a preference for the same strategies used at high school.

It was clear that some intervention was needed in addition to the guidance provided in the classroom, and it was decided to take the approach of strategy awareness training as described in the section on implementation.

The workshops did not just focus on kanji learning but learning Japanese in general. Those who did attend, found the most beneficial aspect was listening to how their peers deal with particular aspects of language learning. The results of the workshops for some students was quite marked, and led to their trying out different strategies. Nigel, who was struggling

with learning kanji at the beginning of the semester and failed his first test, provides a good example. From the time of the workshop and increased guidance in the classroom, he began to use QTKanji for planned reviewing, and there is a dramatic increase in his use of the software. He managed to keep consistent marks for his tests and to eventually pass the module, albeit only just. He was also encouraged to use other strategies in conjunction with QTKanji, such as kanji cards, and stories linking kanji to pictographs, ideographs, and radicals.

It would seem therefore, that while QTKanji provides an environment for students to work autonomously, in order for them to be able to make informed decisions about which stacks to use and why, there is a need to introduce the scaffolding concept suggested by Hoven (1999):

- Provide a more structured introduction to QTKanji.
- Monitor student use and provide regular guidance on how the software could be used to meet their needs.
- Provide some sort of programme or schedule for students to monitor their progress and set goals. Some students have in fact requested this.

Not all the students responded to the strategy sessions and as mentioned, not all of them took up the opportunity to attend. This brings to mind the often quoted phrase ‘You can lead a horse to water, but you can’t make him drink’ (Good and Brophy 1994: 209, cited in Dörnyei and Csizér 1998: 205). AUT runs study skills sessions for all students, and the Japanese section runs similar sessions for language students. Not all students attend these sessions, or take up the suggestions. It would seem therefore that these sessions might not be enough, and that there is another stage, and this could be on the lines advocated by Ushioda (1996). This is to follow through with teacher/student dialogue on learning experiences to help students identify their needs and how, as Ushioda says, to become subjectively involved in the learning process (1996: 52). And even before this, it would also seem necessary to look at other aspects of the learning environment as suggested by Littlejohn (2001), Dörnyei and Csizér (1998), Dörnyei (1999), and Ushioda (1996). These

would include classroom relationships and atmosphere, and relevancy of curriculum and realistic learning outcomes, in order to generate initial motivation and experiences of success; and providing choices for students, encouraging student input, and teacher modelling, in order to maintain and protect motivation.

The relationship between providing teacher guidance and feedback, and student perception of the value of using QTKanji might well become more apparent when the analysis on the students not included in this evaluation, has been completed. The raw data, classroom observation, interviews and diaries, indicate that student use of the software has declined markedly over the two semesters of the research. Their kanji teachers had only a small amount of involvement in the development of the software. For timetabling reasons, they only stayed a short while in the computer room with the students, leaving the students to use the software as part of their self access time. These students started using QTKanji at least one semester after they started their Japanese course. Because they had not used language learning software up to that time, this might be a factor affecting willingness to use the QTKanji software.

One of the areas that CALL research is lacking, is detail on what students actually do when in the process of becoming autonomous learners (Blin 1999). The diary entries for semester one were not very helpful in this respect. They were very descriptive of everyday events, showed very few signs of awareness of learning needs or analysis of learning experience, and provided very little evidence of characteristics of independent learning. However, the focus groups held at the end of the students' first semester of study, proved to be much more informative. Much of the detail relates to aspects of motivation, which Ushioda (1996) believes is essential to being an effective autonomous learner. Students talk about enjoying kanji learning because of the challenge and the rewarding feeling – or what Ushioda calls the 'buzz' – from mastering kanji despite the effort required, and being able to measure progress by being able to read newspapers that were too difficult before. All of this relates to what Ushioda identifies as intrinsic motivation necessary to become autonomous learners. Of particular significance, bearing in mind the importance attributed by Ushioda (*ibid*) to the concept of attributing success to effort and not level of ability, they

all see their grades, good or bad, in relation to the effort they have been putting into their language learning. This effort includes learning kanji in particular, which requires so much effort, and the amount of time they are spending on QTKanji. So there are signs that they are viewing QTKanji as part of their language learning. Brian, for example, says he finds QTKanji invaluable, but more importantly, recognises that its value lies not in the software alone, but because it is a component of the whole kanji module, and complements what is taught in the classroom. This reflects the views of CALL researchers such as Cameron (1999: 3) that a CALL program 'is but one element in the teaching/learning', and was exactly what was intended when we introduced QTKanji into the Japanese learning programme.

One of the ways suggested to overcome the decline in use of software is to make it compulsory (Tchaïcha 1999: 298). However, this would go against the aims of the project which was i) to meet different learner needs, and it was recognised that not all learners would want to use the software; and ii) to provide an autonomous learning environment in which students could make their own decisions and take responsibility for their own learning. In addition, none of the students want QTKanji to be compulsory or part of the assessment system. They like it as it is so they can use it to suit their needs. They feel that the scoring facility in QTKanji enables them to assess themselves, so any additional form of assessment is not required. In their view, making it compulsory would just add unnecessary pressure. This view reflects Ushioda's (1996: 51) concept of self-motivation stemming from doing something in the target language that is enjoyable, that is not teacher controlled or tested. The students were not at all sympathetic towards other students who say they would be motivated to use QTKanji if it were assessed. In fact, it is assessed as the kanji in the software are from the syllabus, and form the basis of the tests and examination, which are currently carried out using non-CALL methods.

An example of intrinsic motivation pointed to by Ushioda is provided by William in his diary entries. He talks about looking forward to meeting up again with Japanese friends he has not seen for a long time, and using the opportunity 'to really test my Japanese'. This is what Ushioda (1996) says is a way of measuring perception of success in language learning

and engaging intrinsic motivation. William is using this opportunity to communicate in Japanese outside the classroom to measure his success in language learning. Ushioda maintains that such activity could induce stronger and more meaningful self-perceptions of ability or skill development for some students than grades (1996: 32). Fortunately in his next entry, William is able to say how well he has improved since he last met his friends. More importantly, in terms of autonomous learning, he sees where he can improve.

In terms of motivation, Alison is adamant that self-motivation is the responsibility of the student and not the teacher, and that students at tertiary level should be able to motivate themselves. She is critical that some students say that teachers should do more to motivate the students, because teachers will not be there forever. She is correct in the sense that one could ask the question, can self-motivation be anything other than the responsibility of the individual student? As Ushioda says, the impetus must come from within the learner, and 'it is the learner who must apply the appropriate thinking, [and] take the necessary initiatives' (1996: 52). However, as mentioned earlier, Ushioda also says that the teacher has an important role in capturing students' intrinsic motivation and helping them become self motivated.

The students are able to identify factors they feel are reducing their motivation such as conflicting demands on their study time from home, part-time jobs and fatigue. This is good according to Ushioda as it is a shift in attribution, from their own ability to some other reason, thus enabling them to believe that they could still be motivated. Against this it might be argued that attributing reduced motivation to external factors shifts control away from the individual. Therefore it is how the students 'take control of their motivation, and thereby their learning' that is important (Ushioda 1996:63).

In terms of kanji learning, most of the students were showing signs of taking responsibility for their own learning, for example by making kanji cards and developing systems for using them, and making a conscious effort to use QTKanji a certain number of times a week. However in other areas, there would appear to be still signs of teacher dependence, for example expecting teachers to give more examples, and taking no action when it does not

happen. A few are setting short-term goals, but these are often not written down or checked off systematically. Despite frequent teacher advice only a few of them had clear study plans for the week, and none of them had detailed schedules for exam revision.

However, it might be a matter of time and development. As Blin (1999: 140) says, often students who come straight from school are ‘Spoon-fed and exam-driven students entering their first year . . . show poor learning skills and generally seem ill prepared for their new learning environment.’ Olivia, by her second semester of tertiary study, is demonstrating characteristics of autonomous learning. She is conscious that she needed a complete attitude change if she was ever going to pass in kanji. Before beginning her repeat semester, she made a decision to be more positive and systematic in her studies. She is now planning more carefully, setting goals, and has a clear idea of what she wants to achieve each week. She is able to identify how she motivates herself and how to monitor her progress, and rewards herself for working hard or achieving a goal. She is very aware of her learning needs and whilst flexible to new ideas, knows clearly what works for her. Of interest is that she feels having kept a diary has made her more aware of what she is doing and why, and she feels that being able to talk to staff about her learning experience is very important for her learning style. This highlights the importance of the role of the teacher as tutor and facilitator in the learning process. It will be interesting to see just how representative Olivia is when data from semester two for the students is collated and analysed.

In line with findings from research by, for example, Dörnyei (1998) and Ushioda (1996), evidence from research for the QTKanji project would indicate that independent or autonomous learning and motivation are interlinked in a dynamic relationship. It would also support the view that the affective aspects of motivation play a key role. In terms of CALL software facilitating autonomous learning, just providing students with the software is not going to bring about autonomous learning. The following are necessary:

- Learner training on how to use the computer software effectively.

- A support structure on the lines of the ‘scaffolding’ concept. It is not sufficient just to build it into the computer; there needs to be interaction and dialogue with the teacher to ensure feedback and guidance.
- Learner training in terms of language learning strategy awareness and awareness of individual learning needs.
- Integration of the software into the teaching programme not just in terms of content but also as a learning tool.
- Learner feedback on language learning experience to encourage them to reflect on their learning behaviour, and to capitalise on both negative and positive experiences.
- Increased awareness of teaching staff, of the role of the software, and how it can be used to meet learner needs.
- Increased staff awareness of the importance of motivation in language teaching, and its relationship with autonomous learning.

From a teacher’s point of view, carrying out the research to evaluate the QTKanji software has proved invaluable. For example, getting students to write the diaries was a constant effort, but the process of discussing what they had written, suggesting strategies they could use, and listening to their viewpoints, has been mutually beneficial. It has led to greater awareness of learner needs and in-depth reflection on my teaching strategies. Research findings by Griffiths and Parr (2001) showed discrepancies between student and teacher perception of language learning strategy use. For example, teachers ranked memory strategies as being the most frequently used strategy by students, whereas the students ranked them as the least used. The students ranked social strategies followed by metacognitive strategies as being used the most frequently. These findings would indicate a need for teachers to increase their awareness of student strategy use and needs, if they are to enhance the language-learning ability of students.

I also believe that some students, particularly those who have taken part in the focus groups and written diaries, have benefited from the dialogue. When interviewed in their second semester of study, William, Olivia and Alison for example, say that being part of the research has made them think more about what they are doing. Egbert et al (1999; 10) say

this might be attributable to the ‘Hawthorne effect’ in which ‘Any group that is being studied while doing a new or different activity usually performs better’ because of the extra attention. This could well be a factor, but engaging in dialogue with the students about their language learning experience is, in itself, giving students extra attention, and has proved effective in improving student learning.

The experience from the QTKanji research confirms that learner training is more than just strategy training and awareness training (Sinclair 2000). Sinclair suggests that learners need to learn how to reflect on their learning, and on aspects that affect them such as attitudes, motivation, and beliefs, and be able to utilise both positive and negative experiences. This does not just apply to language learning. In their third year, our students take the Co-operative Education Practicum module in which they spend some time in the work place. They are required to reflect on their learning experience at AUT and in the placement. Some students find this difficult and do not progress beyond description. It is clear that they need to start this process much earlier in their course of study.

From a researcher’s point of view, the importance of knowing the audience (Levy 1997), and being able to work with them as their teacher has been invaluable for this research.

**6.5 Does the evidence collected for 1 – 4 above, indicate that the QTKanji program is meeting the aims of the project and warrant further research and development of the program?**

The aims of the project were:

- To facilitate kanji learning while providing learners with the opportunity for autonomous learning.
- To involve students in the design and development of the software in order to try to find out more about their needs and ways of learning.
- To evaluate the use and effectiveness of the software, and providing the results are supportive, use the findings to form the basis of further software research and

development. As CALL does not operate in isolation, the evaluation must look at the learner and the total learning environment, as well as the software.

From this initial evaluation it would seem that most of the students are using QTKanji and perceiving it as an effective learning tool. There also appears to be correlation between using the software as part of the learning process and benefits to performance evaluated on the basis of test and examination results. In addition, there is evidence that it provides students with the opportunity to work autonomously. The extent to which they are working effectively has varied and has led to intervention in terms of guidance on how to use the computer and on strategy awareness raising. Nevertheless, the results of the evaluation of the first semester of use, and indications of trends in the second semester of use, would seem to support further development of CALL software at least for the study of kanji.

## **7 Conclusion and further research**

This thesis has been the basis of an initial evaluation of the effectiveness of the QTKanji software program for kanji learning, and whether it provides an environment in which students can study as independent learners through an autonomous learning process. The theoretical framework for the development of the software is based on learner differences and independent learning, which meant that the evaluation has looked at the learner and the learning environment as well as the software. Because of the need to track changes in use of the software over time, the methodology has been a longitudinal case study approach, using both quantitative and qualitative methods to increase validity. This has involved computer tracking of student use of the software, together with questionnaires, learner diaries, focus groups, interviews, classroom observation and informal discussions with students. The data from the computer tracking and questionnaires was coded and analysed using SPSS statistical software. The aim has been to identify patterns of use and changes in learning behaviour, particularly towards characteristics of autonomous learning, and whether there is any correlation between frequency of use and improved performance in learning kanji.

The evaluation has focussed on students who entered their first semester of the Japanese programme in February and July, which was also their first semester of using the software. However, because a number of students repeated the module in July, some of the data covers two semesters of study. In addition, because the information from the diary entries and questionnaire in the first semester was not very helpful for detecting signs of independent learning and providing feedback on using QTKanji, some information from their second semester has also been included.

### **7.1 Main findings**

The results from the research questions have been discussed in some detail in the previous section. However the following is a summary of the main findings.

### 1) **Is the QTKanji program user-friendly?**

The students find the software easy to use, many say they like its simplicity, that they enjoy using it, and find it useful. In terms of additional content, they would like activities for reading comprehension. Using criteria developed by Komori et al (2001) to evaluate kanji software, it comes out favourably, but there is a need to develop activities relating to radicals as well as reading comprehension. Students would also like to be able to draw kanji using the software. This would require special writing pads, but technologically, they are still not very efficient, so it is not being considered as an option at the moment.

### 2) **Do students actually use the program, and how are they using it? Are there any trends based on individual differences (background, gender, prior learning)?**

The software is being used by students in all three main language groups – non-kanji, Chinese and Korean, and on the whole the non-kanji students have made the most use of the software, closely followed by the Korean students. The trends show that there are differences in use by individuals, and by gender and language group, and that the non-kanji male students have launched the software the most, followed by the female Korean students. The male Korean students have launched it the least. In terms of how they use the software, preferences for stacks are similar for all students, except for Korean males. However it was clear that some students are using the software more effectively than others, and this led to intervention in terms of increased teacher guidance and workshops on language learning strategies. Student response to this intervention varied.

As expected from class observation and from the raw tracking data, the findings show a decline in use of the software in the first semester, with the rate of decline varying with each student. However, they also show that, even though it was declining, there was continuous use made by many students until the final few weeks of the semester. This trend is promising, bearing in mind that the use of the software was not compulsory. In addition, patterns of use of students in their second semester show

very different trends, and for some, would indicate more consistent use throughout the semester, but with more marked periods of reduced use that seem to coincide with assessment periods in other parts of the course.

**3) Is there a correlation between student usage of the software and improved performance in tests and examinations?**

Close analysis of individual cases indicates that there appears to be a correlation between frequency as well as how the software is used, and benefits to performance in terms of tests and examinations. In terms of how the software was used, students who focussed just on the lesson stack, tended to fail, whilst those who included the writing stack tended to maintain or improve on their assessment grades.

**4) Does the program provide an environment in which the learner can work autonomously? Allied to this, to what extent are students showing signs of independent learning and how much does QTKanji feature in the total learning environment?**

The design of the software enables students to make their own decision as to how they will use the activities, and there is evidence to show that the students perceive it as useful and are consciously using it as part of their total learning programme. However, because of the need for teacher intervention in terms of increased guidance on how to use the computer to meet individual needs, and workshops on strategy awareness raising, it is clear that the software alone does not facilitate autonomous learning. Some students were showing signs of independent learning towards the end of their first semester and in their second semester. The extent to which this intervention or indeed the research, influenced the development of characteristics of autonomous learning is not clear. However, student feedback from interviews, diaries and informal discussions, indicate that taking part in the research has made them reflect more on their approach to learning. It would also seem that students

may need time to adjust not just to the CALL software but to tertiary education, and this would point to the value of longitudinal case studies.

**5) Does the evidence collected for 1 – 4 above, indicate that the QTKanji program is meeting the aims of the project and warrant further research and development of the program?**

On the whole the findings from this initial evaluation are promising, and would seem to support further development of the software especially in terms of kanji.

Involving the students in the development and evaluation of the software proved mutually beneficial. The students gave very useful feedback on design and content, and we are able to eliminate any problems that they have alerted us to. It has also proved invaluable in terms of finding out more about their learning needs and has led to deeper reflection on our teaching strategies.

The findings have confirmed a number of findings from other CALL research discussed in the literature review. These include declining use, the link with motivation, the need for careful integration of the software into learning programme, and the need for learner training in language learning strategies so that they can use the software effectively to meet their learning needs. However, this initial evaluation of the QTKanji software, which has also looked at autonomous learning, has also highlighted the importance not just of motivation, but of the affective aspect of motivation, and the role of the teacher in helping students to engage intrinsic motivation and maintain self-motivation. As mentioned in the introduction, a main attraction of CALL software is the argument that students can work at their own pace with the minimum input from teachers. However, the findings strongly indicate that taking steps to ensure the software is effective for language learning requires more than careful integration in terms of content. Providing students with software, no matter how relevant to the curriculum, will not in itself, guarantee that students will use it, let alone use it effectively, or that it will facilitate autonomous learning. In fact, the findings point to a complex relationship between, on the one hand student

awareness of the language learning process, their needs, and ability to manage and maintain motivation, and on the other the language learning environment including assessment, expectations, the curriculum and the influence of teachers.

The significance of these findings to the field of CALL research is that when planning the introduction of CALL software, whether for self-access or for distance learning, whether as a tool or a tutor, there is still a need for a teacher. It would appear that the role of the teacher as facilitator and advisor is the same in both CALL and non-CALL environments, and particularly in one which is designed for self-access and autonomous learning.

## **7.2 Implications for introducing CALL software into a teaching programme**

In terms of ensuring software is effective for learning, is meeting individual learner needs, and facilitates autonomous learning, the findings indicate that:

- The software must be integrated into the learning programme. However, this integration is not just in terms of content. The software must not be used in isolation. It must become an integral part of the learning programme and actively used alongside the other teaching and learning methods. This implies that all members of the teaching team are familiar with the aims of the software. Even though they do not teach the students how to use the software, they nevertheless actively contribute to its integration by raising student awareness of how it can be used for certain language learning needs, just as they would any other teaching and learning method.
- Because of different learning needs, it should not be made compulsory. However students need to be taught how the software can be used to meet different learning needs so that they can make informed decisions whether or not to use it.
- Students need ongoing teacher guidance on how to use the software to meet their individual learning needs. Because of different learning backgrounds, this should be on the lines of ‘scaffolding’ and could include checklists or schedules.
- Whether or not this structured guidance is integrated into the software program itself, there is a need for teacher/student dialogue on the learning experience. This will give

students feedback on their progress, and is necessary to engage a student's intrinsic motivation, and to sustain self-motivation.

- Motivation – in particular intrinsic and self-motivation – is an essential component of autonomous learning. For students to be autonomous, they must be able to manage their motivation in order to capitalize on their learning experiences and maintain their motivation over the period of study.
- Teachers can play a key role in helping students maintain self-motivation. This goes beyond increasing language learning strategy awareness, and providing an optimum learning environment with relevant materials and a supportive atmosphere. It involves teaching students, through informative and constructive feedback, how to reflect on their learning experiences, how to become more subjectively involved in their own learning, and how to develop effective motivational thinking.

### **7.3 Further research**

This evaluation focussed on the first semester of the Japanese programme. The aim of the QTKanji project is to evaluate groups of students over two semesters at different stages of the Japanese programmes. This data has already been gathered for three groups of students, but is still to be collated and analysed. Classroom observation, tracking data, interviews and diaries for these groups indicates that the amount and type of teacher guidance, and the stage in the programme of study at which QTKanji was introduced, could also be important factors influencing student use of the software.

Further research activities will therefore be to:

- Complete data collection for July 2001 intake of students, and complete interviews.
- Collate and analyse data already collected on the other groups of students.
- Consider the merits and feasibility of extending the period of evaluation by a further two semesters for the 2001 intake of students.
- Evaluate the current assessment programme on the lines suggested by Dörnyei and Csizér (1998), Littlejohn (2001) and Ushioda (1996), to see if some adjustments can be made to provide more effective feedback to students on their progress, and whether there is a need for more achievable goals.

- Provide workshops for staff to involve them more in the aims of QTKanji, and to discuss strategies for helping students to improve their motivational thinking. This would include strategy awareness raising, reflection on course content, and effective feedback.
- Gain more experience of the functions of SPSS software to enable more complex statistical analysis of the data.
- Research and develop additional activities including those for radicals and reading comprehension.
- Investigate cross platform possibilities so that QTKanji can be made available to a wider audience.

## Appendix One

### Components of foreign language learning motivation

Level	Motivational components
<i>Language Level</i>	Integrative motivational subsystem Instrumental motivational subsystem
<i>Learner level</i> (personality traits)	Need for achievement Self-confidence <ul style="list-style-type: none"> <li>• language use anxiety</li> <li>• perceived L2 competence</li> <li>• causal attributions</li> <li>• self-efficacy</li> </ul>
<i>Learning Situation Level</i> (motivational sources)	
Course-specific motivational components	Interest Relevance Expectancy Satisfaction
Teacher-specific motivational components	Affiliative motive Authority type Direct socialization of student motivation <ul style="list-style-type: none"> <li>• modelling</li> <li>• task presentation</li> <li>• feedback</li> </ul>
Group-specific motivational components	Goal-orientedness Norm and reward system Group cohesion Classroom goal structure

Source: Dörnyei Z 1994: 280, cited in Dörnyei and Csizér 1998: 206

‘Ten Commandments for motivating language learners’ (Dörnyei and Csizér 1998: 215)

- Set a personal example with your own behaviour.
- Create a pleasant, relaxed atmosphere in the classroom.
- Present the tasks properly.
- Develop a good relationship with the learners.
- Increase the learners’ linguistic self-confidence.
- Make the language classes interesting.
- Promote learner autonomy.
- Personalise the learning process.
- Increase the learners’ goal-orientedness.
- Familiarise learners with the target language culture.

## Appendix Two

Some recognised and broadly accepted aspects of learner autonomy:

- A willingness to take responsibility for one's own learning (Little 1996: 204).
- It is not necessarily an innate characteristic (Holec 1981: 3).
- Complete autonomy is an idealistic goal (Boud 1981: 23).
- There are degrees of autonomy depending on the activity and point in time, affective factors (eg mood), environmental factors (eg noise, temperature), physiological factors (eg tiredness, hunger), motivation (eg attitude towards the task, subject matter, the teacher, materials, co-learners) and so on (Sinclair 2000: 8).
- It is not just a matter of placing learners in situations where they have to be independent (Candy 1991: 12). They must be trained and have proper support.
- Developing autonomy requires conscious awareness of the learning process (reflection and decision making based on metacognitive awareness and knowledge about learning) so that they can make informed decisions (Bruner 1986: 127).
- Learner training requires more than just strategy training and awareness training. Learners need to be trained to reflect on various actions that affect their learning (attitudes, motivation, beliefs about language learning and so forth). This reflection involves planning, experimenting, reviewing and making decisions about their learning (Sinclair 2000: 11).
- It requires willingness to work in co-operation with others (Little 1996: 211)
- Different cultures may have different interpretations of autonomy.

Sinclair 2000: 6

Framework to illustrate the concept of greater awareness in autonomous learners

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Learner awareness (Who and why?)	Subject matter Awareness (What?)	How to learn a language (How?)
attitudes beliefs cultural context expectations learning approach learning style motivation needs political context preferred environment, etc.	language systems language varieties similarities and differences between first and target languages cultural appropriacy pragmatics, etc.	activity evaluation strategy evaluation self-assessment goal-setting monitoring progress organising (time, resources environment) awareness and exploitation of available resources etc.

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Sinclair 2000: 9

## Appendix Three

Hubbard's courseware development module (1992: 42)

<b>Approach</b>	<b>Design</b>	<b>Procedure</b>
Linguistic assumptions	Learner variables	Activity type
Learning assumptions	Syllabus orientation	Control options
Language teaching approach	Language difficulty	Input judging
Computer delivery system	Program difficulty	Presentational scheme
Approach based design criteria	Content	Feedback
	Learning style	Help options
	Program focus	Screen layout
	Classroom management	
	Learner focus	
	Hardware & programming language considerations	

Richards and Rodgers' framework for comparing language teaching methods  
(1986: 28)

<b>Approach</b>	<b>Design</b>	<b>Procedure</b>
Theory of language	General & specific objectives	Classroom techniques practices & behaviours
Theory of language learning	Syllabus	
	Learning & teaching Activities	
	Learner roles	
	Teacher roles	
	Role of instructional Material	

## Appendix Four

### Summary of design considerations

This research has produced a great deal of useful information on the designing of CALL material, and a lot of advice on how to ensure it is effective. The following is a summary of the main points obtained mainly from reviewing CALL research projects (eg McCarthy 1995, 1996, McMeniman and Evans 1998, Pilus 1995, Kennedy et al 1995, Van Aachen 1996, and Cabot and Brew 1997), and from discussions with other teachers/authors of language software.

#### Considerations for introduction of CALL to a teaching programme

- The function of CALL is to enhance, not replace more traditional media. Just as it is not pedagogically sound to use one teaching methodology, it would not be sound to have all teaching done by computer, despite sophisticated multimedia capabilities (McCarthy 1995).
- ‘Among the first rules of software design are the principles of exploiting the computer for what it is good at, being frank in assessing its merits and weaknesses compared to other media and approaches, and integrating CALL materials into the teaching program only where they are most appropriate’ (McCarthy 1995: 30).
- CALL material should not add to the student’s workload; it should be incorporated into the learning programme. If it becomes a burden, then it will lose its effectiveness as a motivator and become an object of resentment. (McCarthy 1996:24)

#### Organisation of material

The learner’s needs must be anticipated at all times:

- Use logical, consistent branching and looping so the learner can navigate quickly and easily through the material, whether it is exercises, explanations on how to do exercises, grammar notes or tutorials.
- Include grammar notes possibly stratified in various degrees of complexity, accessed as required by students.

- Write clear explanations of what is required for each exercise. These can consist of examples with or without animation.
- Provide hints to guide the student to reach the correct answer. Use a tutorial option for more complex explanations.
- Include information on the progress through a stack (numbering).
- Consider making control over progression through the exercises optional: depends on level of learner and objective of the exercise.
- Ensure there is a quit option.
- Provide options to check or erase an answer.
- Keep the exercises focused: do not attempt too much at any one time. For example, don't complicate it by requiring use of kanji in the answer if it is a grammar exercise because this assumes a certain level of knowledge.
- Provide variety in activities to suit different learner preferences and objectives.
- These can include multichoice, cloze exercises, re-organisation of text, or writing. Point and click, or dragging and dropping may be preferable for lower level learners. Typing requires accurate keyboard skills, and typographical errors not errors in form can result in an 'incorrect answer'.
- Take care with long strings of words as these make providing automatic answers more difficult because of possible permutations. Single words are easier to accommodate.
- Ensure there is good interaction between the learner and the computer and that reading is not predominant. Books are a better medium for this.

#### Display of items

- Avoid eyestrain and clutter by using a suitable font size and maximum amount of text. Suggest font size of 18 and maximum of 16-18 lines of text.
- Place buttons for help, quit and so forth in the same place on each card in a stack.
- Avoid complicated sequences of actions to complete an exercise or get information.
- Ensure automatic clearing of answers and resetting of balloons and other functions on exiting the card.
- Use Icons that are meaningful, interesting and clearly displayed.
- Ensure icon meanings are consistent.

## Navigation

- Ensure progression from one card to the next is smooth and quick.
- Make all responses instantaneous to avoid students having to wait and hence getting bored.
- Make exiting one stack and starting another quick and easy.

## Content

- Ensure that material is interesting, relevant and useful.
- Design material to reflect what is being taught in the classroom, and consequently the assessment programme.
- Plan the number of cards in any one stack according to the objectives; this may vary with stage in development. Points to bear in mind are: a large number of cards or wells with random accessing means students focus on mastering the principles and not memorising answers; limited numbers avoids the danger of overwhelming students with a seemingly endless task.
- Guard against writing exercises that are obscure or so complicated that the student has to figure out what the teacher was thinking in order to complete them.
- Ensure there is a positive correlation between developer's time versus benefits gained from a program. Finding up to date suitable authentic material can be time consuming.

## Feedback to students

- Provide answers to ensure feedback to students; this maintains motivation and enables students to evaluate their own progress.
- Choose type of feedback carefully. The options range from noises, flashing lights, balloons with messages or model answers, or symbols such as a thumbs up sign.

There are advantages and disadvantages to using noise or flashing screens to indicate mistakes; some students prefer noise as it alerts them quickly to errors; others find it embarrassing. Flashing screens could be a problem for epileptics, and both noise and flashing screens could be a problem with large numbers in a computer room.

- Consider including a number of variations to model answers for exercises requiring keying-in, for example translations. This may make it more difficult to have automatic feedback to answers.

#### Scoring and record keeping

- Provide a record of scores if possible so students can self-check. This can be done by recording the number of correct or incorrect answers. Scores can be shown on each card or at the end of the exercise.
- Explore the benefits of keeping records of each student's performance to provide feedback to both learner and teacher. These can be kept confidential by using passwords.

#### Graphics, animation, sound and video

- Use these selectively. Graphics are relatively easy to incorporate, do not use up memory and can be useful to reduce the amount of written text on the screen. However avoid making them distracting and obscuring important buttons or text.

Animation: sound and video can be effective, but sound and colour could cause memory problems. In addition, sound (for example music) and video can be impressive but can also be tedious and boring if not relevant, or hinder speedy navigation and responses.

#### Trialling

Trial all material with both colleagues and students to ensure it is:

- Technically sound, for example all navigation and option buttons work.
- Easy to use.
- Relevant and at the appropriate level.

#### Target group - age considerations

Further research may be needed into age factors in design considerations. This research has mainly been based on tertiary students. However, having looked at the very successful Decade software which is used by adult learners of all ages, it may be that level of learner rather than age, is a more important factor. It is possible that the needs of different age groups can be met by what the teacher does with the software rather than the software itself. In other words the importance of careful integration, frequency and length of lessons, progress checks, setting of goals, rewards and so forth. (Corder 1997:23-27).

## Appendix Five

### The QTKanji program

The QTKanji program (Corder & Waller 2001:2) is a kanji learning program for Macintosh computers that lets the user, the teacher, customise the program to suit the needs of the learner. It can be adapted for any level, from beginners to advanced, and to match any curriculum. It covers the 1006 *kyoiku kanji* and more than 3000 related and commonly used kanji compounds.

The QTKanji program allows the user to divide kanji up into different levels according to student needs, for example, Kanji I, Kanji II and Kanji III representing three years of study. Each level in turn, consists of three main sections to give reading, writing, listening and multiple choice type practice exercises and tests:

- 1 Lessons stack
- 2 Practice stack
- 3 Tests stack

**The lessons stack** functions like a computer-based textbook, and provides students with a variety of information relating to each kanji. This includes a digital movie of a calligrapher demonstrating the stroke order of each kanji, *on* and *kun* readings of the kanji, and a range of *jukugo* (related compounds) with sound files for pronunciation recorded by a native speaker. It is also possible to write the kanji, but in order to make full use of this function, it is recommended that a writing tablet is provided at each computer, in addition to the mouse. A search function is also available to enable the student to search the database of a particular kanji, and find the relevant lesson for the kanji.

**The practice stack** consists of stacks for reading and writing exercises, and for listening exercises. The kanji for these stacks are divided up into lessons, like chapters in a textbook, with each chapter containing up to 12 kanji. The learner selects as many or as few lessons as they wish and the software selects the relevant problem sentences from the database.

The reading and writing exercises show the target kanji in context in a short sentence. The learner is required to type in the reading of the kanji. This demands accuracy in long and short vowel sounds as well as doubled consonants. The learner's score is recorded for each answer, and at the end of the exercise, the learner can request a summary of incorrect answers shown against the correct versions. At this point, the learner is asked whether they would like to work on the incorrect answers, and this pattern can be repeated until the incorrect answers have been eliminated.

The listening exercise consists of a shoji screen with single kanji or compounds. The learner can check individual readings or listen to all the readings, and then request a test. In the test, the learner responds to a native speaker recording of the kanji, and clicks on the relevant kanji in the shoji screen. The learner's score is recorded for each answer, but this time the exercise goes on indefinitely. There is a shuffle button to reorder the kanji should the learner get to the stage where they memorise where the kanji are on the shoji screen. A new test can also be requested.

**The test stack** consists of timed multichoice tasks and the learner selects whether they wish to have nine, six or three seconds to complete each task. As in the practice stacks, the kanji for this stack are divided up into lessons, and the learner selects a lesson or a range of lessons for the kanji to be tested. The target kanji is underlined in a short sentence, and the learner is required to click on one of four possible correct answers. Once again the learner's score is kept and at the end of the exercise the learner can request a summary of incorrect answers shown against the correct versions. At this point, the learner is asked whether they would like to work on the incorrect answers, and this pattern can be repeated until the incorrect answers have been eliminated (ibid 5 – 6)

### **Innovative feature of the QTKanji program**

The most innovative and perhaps the most important feature of this program is that it can be customised to match the curriculum and learner needs of the user or host institution. By altering a few simple text files, the program can be instructed to automatically reshuffle the

order in which the kanji are introduced. Because this is done automatically by the program, there is no need to modify the programming of the package, so the user does not need to have any computing or programming knowledge.

In addition to changing the order of kanji, the user can modify, add or delete the sentences in the database used for the various exercises and tests. This ensures that the content of the program is always relevant to the needs of the learner and the curriculum. Compounds and sound files can also be edited, and additions can be used for both the lessons and listening stacks (ibid 6)

A high school version consisting of up to 300 kanji is available for distribution, and a complete version consisting of 1075 kanji and 3000 associated compounds will be ready by December 2001.

### **System requirements**

The QTKanji program has been developed on a Power Macintosh with 32 MB of RAM using Mac OS 8.1 and 8.6. It has also been run successfully using OS 9. It has not been tested on pre-PowerPC Macintosh computers (with 68030 or 68040 processors), nor on computers running systems prior to Mac OS8.

Although the program will probably function satisfactorily on computers of lower specification, the lowest specification on which the program has been tested is as follows:

- Macintosh computer with a PowerPC processor (66MHz), which would include all iMac computers.
- 6 MB of free RAM (although 8-10 MB is preferable).
- Approximately 550 MB of free hard disk space.
- MacOS8 or later with the Japanese Language Kit (JLK) installed.
- Apple Computer's HonMincho and Osaka fonts (provided with the CD)
- QuickTime 3.0 or later.
- HyperCard 2.3 or later or HyperCard Player 2.4.
- Adobe Acrobat Reader (for printing the manual). (ibid 3)

## Acknowledgements

The QTKanji program is the combination of software produced on three different continents.

- 1 Saeko Komori and her team from Chubu University in Japan authored the original QTKanji stacks which now form the Lessons stack of this program.
- 2 Grant Waller and Debbie Corder designed and authored the remaining Practice and Test stacks in the program.
- 3 The Kana font used in the Typing Practice stack was designed by Kazumi Hatasa, Peter Henstock and Tin-Yu Hsu from Purdue University, USA. (ibid 2)

The QTKanji program is freeware and may be freely copied and distributed for any non-profit teaching purpose. However, no part of the software may be used in any commercial product without permission of the authors. Because it is freeware, it is available for a small charge to cover materials, administration and postage.

## Appendix Six

Cumulative Tracking data for two weeks for one student

Index-stack-open,16  
 Lessons-stack-open,3  
 Practice-Writing-stack-open,6  
 Practice-Shoji-stack-open,4  
 Test-stack-open,3  
 QTMovies-Lessons,0  
 Jukugo-soundfiles-Lessons,196  
 Help-buttons-Lessons,0  
 Help-buttons-Practice-Writing,0  
 Help-buttons-Practice-Shoji,0  
 Help-buttons-Tests,0  
 Practice-Writing-  
 Scores,30(63%),30(63%),17(77%),30(77%),30(93%),30(93%),30(80%)  
 ,30(80%),6(83%),30(83%),30(83%),30(100%)  
 Test-Scores,30(87%),30(87%),30(83%),5(100%)  
 Shoji-  
 Scores,19(100%),30(100%),(100%),104(96%),100(100%),36(100%),36  
 (100%),19(100%),36(100%),

Jane Kanji 1A Dip  
 computer number B4  
 03-08-01  
 10-08-01

## Appendix Seven

### An analysis of the relationship between CALL software and the development of autonomous language learners.

#### Questionnaire 1

Dear Student

Thank you for giving your time to complete this questionnaire. The questionnaire is in four parts:

- 1 Your background, such as your first language and how long you have been studying Japanese.
- 2 How you study.
- 3 How you use kanji computer software what you think about it.
- 4 What you think of the QT Kanji software.

Please read the questions carefully and answer as accurately as you can.

**Code:** \_\_\_\_\_ (a) Please circle your programme of study:

BA (Japanese)    Diploma in Japanese

(b) Please circle your age group:

under 20

20 – 25

26 – 30

31 – 45

46 – 50

(c) Please circle your gender: M    F

#### Part one: Your background

- 1 What is the highest qualification that you hold? Please tick.

School Certificate

Bursary

Diploma

Degree

Other


2 Please state your first language.

3 If you are from a kanji background, how many years have you been studying kanji in your own language?

4 Before coming to AUT, had you studied Japanese? Yes No

If yes, please state: where how long

5 Did you study any other languages at primary, secondary or tertiary level before joining the AUT Japanese programme?

Yes No

If yes, please state where, which language, and for how long:

	Name of School	Language(s)	Length of time
Primary	<input type="text"/>	<input type="text"/>	<input type="text"/>
Secondary	<input type="text"/>	<input type="text"/>	<input type="text"/>
Tertiary (can include AUT winter/summer school)	<input type="text"/>	<input type="text"/>	<input type="text"/>

6 Did you study Japanese?

Yes

No



Please explain why you did or did not study Japanese.

--

7 Before joining the Japanese programme, had you ever been to Japan?

Yes

No



If yes, please state:

When	
How long	
What you were doing.	

8 Why did you decide to study Japanese at AUT?

--

9 Why did you choose the BA or the Diploma?

--

10 List some of the things you like about the AUT Japanese programme.

--

- 11 List some of the things you don't like about the AUT Japanese programme.


**Part two: How you study**

For some of the questions you may choose more than one option. You will be asked to either tick the options, or use numbers to show your preference.

- 1 When learning Japanese, you are developing skills in reading, writing, speaking and listening.

Please number the skills you find difficult, using 1 for the most difficult.

reading	<input type="text"/>
writing	<input type="text"/>
speaking	<input type="text"/>
listening	<input type="text"/>

Please write down a few reasons why you find these skills difficult.


Please explain why you find some skills less difficult.


- 2 How do you like to work during a class? Please number, starting with 1 for the one you most prefer.

individually

in pairs

in small groups

the whole class

other (please state)

- 3 Which of the following techniques do you prefer to use to learn Japanese? Please tick the ones you prefer.

memorization

listening

writing

language games

oral activities/conversation

problem solving

reading

songs

other (please state)

- 4 Please tick the following strategies (tricks, ways, gimmicks) you use.

repeating words (after the teachers/tape)

In class    Out of class

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

reading aloud to yourself

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

asking questions

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

notetaking

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

helping other students

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

preparing in advance for class

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

sitting at the front of the class

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

sitting with someone who is good at Japanese

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

checking what you have learnt against a target

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

others (please state)

5 Do you set yourself weekly targets/goals?

Yes

No



6 If yes, please give a few examples.


7 What are your favourite exercises? Please number, starting with 1 for the one you most prefer.

isolated sentences

dialogues

short texts

other (please state)

8 How do you like to learn new material? Please number starting with 1 for the one you most prefer.

from examples

from texts/passages

questions and answers

learning formal rules

other (please state)

- 9 In class, your teachers use a number of ways to teach you (such as lectures, language lab, listening activities, role plays, pair work).

Please write down the method(s) you find most helpful for developing the knowledge and skills listed below.

	Method
reading	
writing	
speaking	
listening	
grammar	
kanji	

Please give reasons why you find them helpful.


- 10 What resources are usually used in your language classes? Please tick.

films, TV, videos

radio programmes

tapes

language laboratory

other (please state)


posters, pictures

whiteboard

OHP

handouts


Please briefly explain which ones you find the most useful.


- 11 What resources would you like to use to learn by? Please tick.

films, TV, videos

radio programmes

tapes

language laboratory

other (please state)

<input type="checkbox"/>

posters, pictures

whiteboard

OHP

handout

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Please briefly why.


- 12 How many hours a week do you spend on self-study ?

Number of hours

at home

at AUT

- 13 Taking an average week, please indicate what you study and how.

What you study (grammar, kanji, vocab)	How you study (writing, listening to tapes, flashcards)

- 14 What aspect of learning Japanese would you spend the most time on?

--------------

Please explain why.


- 15 Do you think it is necessary to study outside of class time?      Yes      No
- 

Please explain why.


- 16 Do you have a language exchange partner?      Yes      No
- 

If yes, please state:

how often you meet

where you meet

what you talk about


- 17 What do you find is the most helpful about having an exchange student?


- 18 How do you like to be assessed? Please number, starting with 1 for the one you most prefer.

Writing

multiple choice

comprehension

grammar exercises in sentences

short written dialogues or texts

other (please state)

Oral

roleplay

short dialogues

interpreting exercises

impromptu

other (please state)

**Part three: Use of computers and computer software.**

- 1 Do you own a computer?

Yes

No



If yes, please tick to show the type of computer.

Mac

PC



- 2 In the Japanese programme, we use Macs.

What type of computer do you prefer?

Mac

PC



Please explain why.

- 3 Do you feel confident using a computer?

Yes

No



Please explain why.

- 4 Before joining the Japanese programme, did you ever use Japanese software?

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

- 5 What other software programs are you confident in using? Please list.


- 6 Not all computer software programs are in colour; some are in black and white. Which do you prefer? Please tick.

Colour	Black and white	No preference
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please give a reason for your choice.


- 7 Some software lets you work through the material at your own pace. Other software gives you a specific time to work through. Which do you prefer? Please tick.

Working at own pace	Timed exercises
<input type="checkbox"/>	<input type="checkbox"/>

Please explain why.


- 8 Some software indicates an error by a noise of some sort; other software uses a flashing screen or some other indication.

What method of error indication do you prefer? Please tick your choices.

Flashing light

Noise

Other (please state)

Please explain why.


- 9 Which of the following types of software do you prefer using? Please tick.

all text

text and pictures

no particular preference

Please explain why.


- 10 Which of the following do you prefer computer software to have? Please tick.

thorough instructions on the screen

some instructions

very few instructions

Please explain why.


11 Do you prefer computer software that has on-line help available?

Yes

No

Please explain why.


12 What would you like software for kanji learning to help you with? Please tick.

kanji readings

vocabulary

stroke order

other (please state)

13 What type of activities do you prefer when using software? Please tick.

point and click

click and drag

typing in yourself

Please explain why.


**Part four: using the QT Kanji software.**

You have been using QT Kanji since the beginning of the semester.

- 1 Excluding classtime, how many hours a week do you use this software?

--

- 2 How do you find the kanji software? Please tick.

helpful

--

a little helpful

--

not helpful at all.

--

Please explain why.


- 3 What section do you find the most helpful and use the most? Please number, using 1 for the section you use the most.

lessons

--

practice – writing

--

listening

--

testing

--

Please explain why.


- 4 What aspects do you find helpful in each of the sections? For example, the video clip in the lessons, or the feedback in the testing.

lessons

practice – writing

listening

testing


Please explain why.


- 5 What aspects do you find the least helpful in each section?

lessons

practice – writing

listening

testing


Please explain why.


- 6 What aspects do you find irritating in each section?

lessons

practice – writing

listening

testing


Please explain why.


7 What else would you like the software to be able to help you with?


8 Do you use the help button?

Yes

No

Please explain why.


9 What problems have you had when using the software? Please give a brief explanation.


10 Are you satisfied with access to the computers?

Yes

No

Please explain.


Thank you for taking the time to complete this questionnaire.

**Questionnaire 1 for coding**

ID Code:

Teacher 1 = DC 2 = DN 3 = YW

year – stream – 1 = 2000y2s1(K) 2 = 2001y1s2(k) 3 = 2001y1s1  
 4 = 2001y1s1(K)

(a) Please circle your programme of study:

- 1 BA (Japanese)
- 2 Diploma in Japanese

(b) Please circle your age group:

- |   |          |
|---|----------|
| 1 | under 20 |
| 2 | 20 – 25  |
| 3 | 26 – 30  |
| 4 | 31 – 45  |
| 5 | 46 – 50  |

gender 1 M 2 F

**Part one: Your background**

1 What is the highest qualification that you hold? Please tick.

Qualifications

- 1 School Certificate
- 2 Sixth Form Cert
- 3 Bursary
- 4 Diploma
- 5 Degree
- 6 Other in NZ
- 7 Overseas qualification

2 Please state your first language.

1 English 2 Chinese 3 Korean 4 Maori 5 Pacific Island 6 Indian  
7 Indonesian

- 3 If you are from a kanji background, how many years have you been studying kanji in your own language?

Kanji background: years or 99 if Korean and no hours. 0 if non Chinese or Korean

(4) Before coming to AUT, had you studied Japanese?

~~Yes~~

~~No~~

and (6)

**RPL** – previous study of Japanese and place

0 = no previous study 1 = primary 2 = secondary 3 = tertiary 4 = AUT S/S  
5 = overseas 6 = overseas and AUT S/S

Years = years of study

6 Did you study Japanese?

Please explain why you did or did not study Japanese.

0 = did not study Japanese  
1 = interest in Japan  
2 = work opportunities  
3 = school subject  
4 = could do it (good at it)  
5 = interest and job opportunities

- 5 Did you study any other languages at primary, secondary or tertiary level before joining the AUT Japanese programme?

Other language

**One1** 0 No 1 Yes If Korean or Chinese – usually have done English = 1

- 7 Before joining the Japanese programme, had you ever been to Japan?

**one2** 0 no 1 yes

Yes

No

What you were doing.

**15 one3 What were you doing – reason for visiting Japan**

1 = school trip 2 = exchange 3 = work 4 = study 5 = study & work 6 = holiday

8 Why did you decide to study Japanese at AUT?

**one4**

1 = practical/vocational course 2 = excellence of course 3 = small classes  
4 = study Japanese

**Part two: How you study**

- 1 When learning Japanese, you are developing skills in reading, writing, speaking and listening.

Please number the skills you find difficult, using 1 for the most difficult.

**Two1a** reading enter 0 for ones not ticked, and 1 for one ticked.

- 1b writing
- 1c speaking
- 1d listening

- 2 How do you like to work during a class? Please number, starting with 1 for the one you most prefer.

- two2a** individually  
 2b in pairs  
 2c in small groups  
 2d the whole class

- 3 Which of the following techniques do you prefer to use to learn Japanese? Please tick the ones you prefer.

- 4 Please tick the following strategies (tricks, ways, gimmicks) you use.

two3  
 preparing in advance for class 0 = no 1 = yes

- 5 Do you set yourself weekly targets/goals?

two4 0 = no 1 = yes

- 7 What are your favourite exercises? Please number, starting with 1 for the one you most prefer.

- 8 How do you like to learn new material? Please number starting with 1 for the one you most prefer.

- 9 In class, your teachers use a number of ways to teach you (such as lectures, language lab, listening activities, role plays, pair work).
- 10 What resources are usually used in your language classes? Please tick.
- 11 What resources would you like to use to learn by? Please tick.
- 12 How many hours a week do you spend on self-study ?

two5 = Number of hours

Two5a = at home two5b = at AUT

- 14 What aspect of learning Japanese would you spend the most time on?

two6 enter 0 for ones not ticked or mentioned and 1 for ones ticked or mentioned.

6a = reading 6b = writing 6c = speaking 6d = listening 6e = kanji 6f = vocab 6g = grammar

- 15 Do you think it is necessary to study outside of class time?

two7 0 = no 1 = yes

- 16 Do you have a language exchange partner?

two8 0 = no 1 = yes

**Part three: Use of computer software.**

1 Do you own a computer?

three1 0 = no 1 = Mac 2 = PC

If yes, please tick to show the type of computer.

Yes No  
Mac PC

3 Do you feel confident using a computer?

three2 0 = no 1 = yes

4 Before joining the Japanese programme, did you ever use Japanese software?

three3 0 = no 1 = yes

6 Not all computer programs are in colour; some are in black and white. Which do you prefer? Please tick.

three4 0 = no preference 1 = colour 2 = black and white

7 Some programs let you work through the material at your own pace. Others give you a specific time to work through. Which do you prefer? Please tick.

three5 1 = own pace 2 = timed 3 = both

8 Some programs indicate an error by some sort; other programs use a flashing screen or some other indication.

three6

What method of error indication do you prefer? Please tick your choices.

0 = no preference

1 Flashing light

2 Noise

3 Other (written message on screen)

12 What would you like software for kanji learning to help you with? Please tick.

three7 (look also at Section 4 Question (7) for data too.

- 7a kanji readings
- 7b vocabulary
- 7c stroke order
- 7d other = everything in Japanese
- 7e other = radicals
- 7f other = reading comprehension
- 7g testing
- 7h typing
- 7i writing kanji

13 What type of activities do you prefer when using software? Please tick.

three8

- 8 .
- 1 point and click
- 2 click and drag
- 3 typing in yourself
- 4 point and click
- 5 point and click, typing
- 6 click and drag, typing
- 7 all of them

**Part four: using the QT Kanji software.**

You have been using QT Kanji since the beginning of the semester.

1 Excluding classtime, how many hours a week do you use this software?

four1 = number of hours

2 How do you find the kanji software?

Four2

- 2 helpful  
 1 a little helpful  
 0 not helpful at all.

Please explain why. Enter 0 for the category not selected above. 99 if no info

Four 2a not helpful: 1 = kanji background, no need

Four 2b a little helpful 1 = prefer other learning methods 2 = limited content

Four 2c helpful: 1 = interesting and varied 2 = intensive so learn a lot quickly  
 3 = good for self study 4 = helps with readings 5 = covers all skills  
 6 = feedback

3 What section do you find the most helpful and use the most?

Four3 Ranking

- 3a lessons  
 3b practice – writing  
 3c listening  
 3d testing

4 What aspects do you find helpful in each of the sections?

Four4

- 4a lessons 1 = stroke order (writing) 2 = stroke order (video)  
 3 = vocabulary 4 = readings  
 5 = hearing the readings of the kanji  
 6 = everything
- 4b practice – writing 1 = feedback 2 = reading/spelling (typing)  
 3 = meaning 4 = practice 5 = everything
- 4c listening 1 = shuffle 2 = help with pronunciation  
 3 = testing practice 4 = native speaker voice  
 5 = everything
- 4d testing 1 = feedback 2 = self testing/review 3 = timing

4 = everything

Please explain why – use to select above

5 What aspects do you find the least helpful in each section?

Four5 (not sure whether to keep the four5 criteria or just work with four5a etc use 0 if no answers

1 = lesson 2 = practice writing 3 = practice listening 4 = testing

- |    |                    |   |
|----|--------------------|---|
| 5a | lessons            | 0 = none 1 = using the mouse to write with<br>2 = stroke order (video clip) 3 = all of it<br>(nothing new) 4 = not enough vocabulary/compunds |
| 5b | practice – writing | 0 = none 1 = kanji background – don't use it<br>2 = not enough exercises 3 = problems with mouse<br>3 = don't understand some sentences       |
| 5c | listening          | 0 = none 1 = not enough kanji 2 = problems with<br>mouse  |
| 5d | testing            | 0 = none 1 = need more variety of exercises<br>2 = the timing (not enough)  |

Please explain why – use for the above

6 What aspects do you find irritating in each section? Please tick.

Four6

- |    |                    |   |
|----|--------------------|---|
| 6a | lessons            | 0 = none 1 = using the mouse to write kanji                                   |
| 6b | practice – writing | 0 = none 1 = noise when wrong 2 = kanji<br>background – don't like it         |
| 6c | listening          | 0 = none 1 = noise 2 = quality of voice sound                                 |
| 6d | testing            | 0 = none 1 = noise when wrong 2 = ticking of<br>clock 3 = timing (not enough) |

Please explain why – use for the above

7 What else would you like the software to be able to help you with?

Use for three 7a, 7b, 7c etc

8 Do you use the help button?

Four7 0 = no 1 = yes

9 What problems have you had when using the software? Please give a brief explanation.

Four8 0 = none

1 = some sound files missing

2 = sometimes getting back to main menu

3 = sometimes freezes

4 = not familiar with Macs

5 = don't know how to use the software

10 Are you satisfied with access to the computers?

Four9

0 = no

1 = no, can't always use if there is another class

2 = no, would like more access

3 = yes

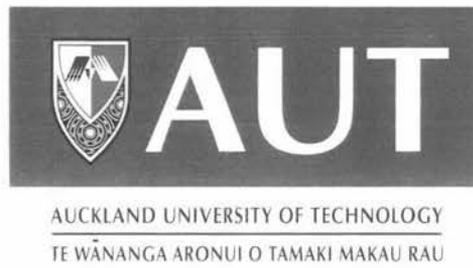
## Appendix Eight

### Guidelines for focus group/first interview

Aim: as an initial session, to get students to relax and talk about themselves and their approach to study.

- 1 Thanks for agreeing to take part – valuable contribution to the QTKanji software development.
- 2 Purpose of the interview – discuss approach to study of Japanese, and the role of QTKanji.
- 3 Warm up – talk briefly about how many years been studying Japanese, why, what will student do after graduation.
- 4 Preferences/strategies –
  - Aspects of Japanese best at/good at?
  - Why that is so?
  - Why weak at some aspects?
  - What can be done to improve them?
  - Talk a little about approach to study.
  - How much self study?
  - Language exchange?
  - Use of language lab, computer lab?
- 5 Opinion of QTKanji?
- 6 How can we improve it?
- 7 What do the terms: self-access, independent learning and autonomous learning mean?
- 8 Study skills at school, AUT. How can we help?
- 9 Has taking part in the research affected study behaviour?

## Appendix Nine



### PARTICIPANT INFORMATION SHEET

**PROJECT NAME:** **An analysis of the relationship between CALL software and the development of autonomous language learners**

**RESEARCHERS:** **Dr Grant Waller and Debbie Corder, Japanese Section, School of Languages, Faculty of Arts**

As you know, we have developed a kanji software package called QT Kanji to help you learn kanji, and you will be using this software this year during class time and for self access. This software has been trialled by some students in year two, and they seemed to find it helpful.

We would now like to carry out a project called **An analysis of the relationship between CALL software and the development of autonomous language learners.**

#### **What is the aim of the project?**

The aim of the project is to take a closer look at just how helpful the software really is to students and if necessary make some improvements. We would also like to find out how students study so that we can find ways of helping them develop good strategies to study independently using computer software as well as other methods.

We would like to invite you, along with all the members of your class to take part in the project. Students from classes in year one (2001) and year two (2000) of the BA (Japanese) and Diploma in Japanese are being invited to take part.

#### **What will you have to do?**

If you take part, you will be helping us get information about the software, how you use it, and how you study as an individual. This will be done three different ways:

1. We will get information on what sections of the kanji software you use by automatically recording how many times you use it, and which activities and lessons you use. To do this, we will give you a log-in number, and ask you to use the same computer each time, if possible.
2. We will compare your results for Kanji I and II, to see if there is any significant changes in your achievement over two semesters. This comparison will remain confidential using your log-in number.
3. We will compare your results from Kanji I and II, along with those of everyone in my kanji class participating in this project, with results of past students to see if there are any changes in percentages of A, B C or D grades. These results will be looked at anonymously, without log-in or student ID numbers.
4. We will ask you to complete a questionnaire on your own language background, your study of Japanese, and how you study. We will also ask you about your experience using computers and what you think about QT Kanji. There will be a total of three questionnaires: one at the beginning of the semester, one at the end, and one at the end of the next semester. This will be done during Student Forum time.
5. Some of you will also be invited to take part in interviews and to keep a journal. Like the questionnaires, there will be a total of three interviews: one at the beginning of the semester, one at the end, and one at the end of the next semester. They will be done during Student Forum time as much as possible, but sometimes it will be necessary to have them in your free time between classes. Each interview will take about 30 minutes, and will deal with the same sort of things as in the questionnaires. The interviews will be recorded and transcribed. The journals will be like a diary of your study habits and experiences and ideally you will write in them every day.
6. The same code number you will be given to log into the kanji software will be used for the questionnaires and the interviews. All the information we get will be locked away and kept confidential, and we will never use your real name when writing up our reports.

### **Is it compulsory to take part?**

Taking part in the project is entirely voluntary. If you prefer not to take part, you would not be at all disadvantaged on the course, and it would not affect your results. If at any time you wish to withdraw, then the same applies: you would not be at all disadvantaged on the course, and it would not affect your results. At any time, you can ask to see the information we have gathered on you and if you are not happy with any of the information, you can ask for it to be removed. When the project is completed, you will be able to see the written report. This

written report could be used to start other projects. If you decide to withdraw, you must do so before analysis of the data begins: ie you must withdraw before the last day of the first semester of the project, or the last day of the second semester of the project. If you withdraw before the last day of the second semester, information you provided for the first semester will still be used for the project.

If you have any concerns or questions about the nature of the project, we would be very happy to talk to you.

Grant Waller

email: [grant.waller@aut.ac.nz](mailto:grant.waller@aut.ac.nz)

Tel: 307 9999 ext 6010

Fax: 307 9978

Room WT807 State Insurance Building

Debbie Corder

email: [debbie.corder@aut.ac.nz](mailto:debbie.corder@aut.ac.nz)

Tel: 307 9999 ext 6080

Fax: 307 9978

Room WT809 State Insurance Building

Any concerns regarding the conduct of the research should be made to:

Madeline Banda

Executive Secretary, AUTEK

email: [madeline.banda@aut.ac.nz](mailto:madeline.banda@aut.ac.nz)

Tel: 307 9999 ext 8044

Approved by the AUT Ethics Committee on 26 June 2000 for a period of two years,  
Reference 00/43

## Consent to Participation in Research

Title of project: An analysis of the relationship between CALL software and the development of autonomous language learners.

Researchers: **Dr Grant Waller and Debbie Corder**

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1. I have read the information provided about this research project and understand that:
  - the project will run for two semesters.
  - the information I provided for the research project will be completely confidential, that I will be identified only to the researchers and that this will always be through my log-in number.
  - I will be asked to complete up to three questionnaires, and the information I will give will include my language background, my approach to studying a language, my experience of computers, and my opinion on the kanji software.
  - when I use the kanji software, I will endeavour to always use the same computer.
  - when I log in, my use of the software (when I use it and how I use it, for example, choice of activities, choice of lessons and so forth) will be recorded each time I use it.
  - my results from Kanji I and II, along with those of everyone in my kanji class participating in this project, will be compared with results of past students to see if there are any changes in percentages of A, B C or D grades, and that the results will be looked at anonymously.
  - That my result from Kanji I will be compared my result from Kanji II to see if there is any significant changes in achievement over two semesters, and that this comparison will remain confidential using my log-in code.
  - If I am invited, I agree to take part in up to three interviews of 30 minutes each, and to keep a journal recording my language study, as far as possible, every day.
2. I have had an opportunity to ask questions and to have them answered.
3. I understand that the interviews I give will be audio-taped and transcribed, and that I will have access to the transcriptions of my interviews.

4. I understand that I may withdraw myself or any information that I have provided for this project at any time prior to completion of data collection, without being disadvantaged in any way. Once the data has been collected, I will not be able to withdraw. Because the project will run over two semesters there are two stages at which I can withdraw: before the last day of the first semester of the project, or before the last day of the second semester of the project. If I withdraw in the second semester, the data I provided in the first semester will still be used for the project. If I withdraw, I understand that all relevant tapes and transcripts, or parts thereof, will be destroyed
5. I agree to take part in this research.

Participant signature: .....

Participant name: **<click here and type the subject's full name>**

Date: **<Click here and enter date>**

**Approved by the Auckland University of Technology Ethics Committee on 26  
June 2000 AUTEK Reference number 00/43**

## Appendix 10

### Use of QTKanji (eight respondents – second questionnaire, semester two)

Some respondents gave more than one response.

#### Helpful stack

- I use the lessons most, and practice helps for memorising my weak parts. (Korean)
- Lessons are good to learn the pronunciation and words. Practice writing is good to check and reconfirm what I have just learned. (Korean)
- The writing stack – just using it is good for learning. (non-kanji)
- The writing stack –it helps with the spelling. (non-kanji)
- The writing stack because you can repeat the questions till you get them all right. (non-kanji x 2)
- I found that when I stopped doing the lesson stack and spent more time on the writing stack, my mark went up. I think this is because I can see the mistakes, instead of presuming that my answer is right. (non-kanji)
- I mainly use the writing stack to practice the readings of kanji to hiragana. (non-kanji)
- The listening stack helps with pronunciation. (non-kanji)

#### Least helpful stack

- The lesson stack – it's the same as the textbook. (non-kanji)

#### Most helpful aspect of each stack

- The vocabulary and pronunciation practice in the lessons. (Korean)
- The video clips in the lesson. (non-kanji)
- The sentences in the writing stack where the kanji is actually used. (Korean)
- The summary sheet at the end of the writing stack, with the correct and incorrect answer. (non-kanji x 2)
- The test part of the listening stack. (non-kanji)

- Being able to work on my incorrect answers until they are eliminated in the writing stack. Also the typing in helps reduce mistakes. (non-kanji)
- The response time in the test stack – as you get better, you can adjust the response time. (non-kanji)

#### Least helpful aspect of each stack

- The lesson stack – I find it easier to do lessons either through class, and/or on my own at home by writing on cue cards. (non-kanji)
- Drawing kanji in the lesson stack. (non-kanji)
- I don't find it practical writing with the mouse in the lesson stack and it's hard to remember all the vocabulary. (non-kanji)
- The test stack – it is similar to practice and listening. (Korean)
- The test part of the listening is too easy. (Korean)

#### Irritating aspects of each stack

- Can't practice writing in the lesson stack. (non-kanji)
- In the writing stack, when I make a mistake, the correct answer disappears too soon, not giving me enough time to memorise the correct answer. (Korean)
- The repetition of the same kanji for a while in the listening stack. (non-kanji)
- The listening stack just goes on and on – each session does not end like in the writing or test stacks, so I waste time. I don't really use it any more. (non-kanji)
- I don't find anything irritating. The stacks are all helpful in their own ways, but just use some more frequently than others. (non-kanji)

#### What would you like the software to be able to help you with?

- Writing kanji from hiragana readings, eg from a reading comprehension. (non-kanji)
- English meanings for the problem sentences. (non-kanji)
- Learning vocabulary. (non-kanji)
- It's good now. (non-kanji)

#### Do you think you have developed any different learning strategies from using QTKanji?

- It has showed me a different way of learning language (Chinese)
- Based on the writing stack, I have developed my own study strategy applying the same techniques, hiragana to kanji, and kanji to hiragana. (non-kanji)
- Yes, kanji cards don't work for me therefore what else can I do? I use the writing stack and do each lesson at least twice. (non-kanji)
- Yes, I have made my own kanji book to practise writing everything out. (non-kanji)
- Yes, using a different way to review the kanji. (non kanji)

Has QTKanji made a difference to your mastery of kanji?

- Yes, it makes it easier to learn kanji. I am sure if I did not have QTKanji I would have found kanji learning much more boring and difficult. (Korean)
- Yes, the typing in has improved my accuracy in terms of long and short sounds, and doubling of consonants. (non-kanji)
- Yes, it has given me another resource to use. I'm not just limited to the textbook. (non-kanji)
- Yes, when I use it properly, I get much better marks in my tests. (non-kanji)
- Yes, the extra practice helps a lot. (non-kanji)

General comments on QTKanji

It will be helpful to have sentences that give clear examples of how certain words are used, for example transitive and intransitive verbs. (Korean)

Would like more opportunity to draw kanji using the computer, and get feedback on accuracy. (non-kanji)

It's a really good way of learning. (non-kanji)

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