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你能想象出來嗎？

Using mnemonics with distributed
practice and practice testing to
facilitate learning of Chinese
characters

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Abstract

This study investigates student experiences of the experimental memory technique called the People Placing Method, which is a collection of adapted learning techniques. This study looks at the students' experiences of using this experimental method, using an individual psychological theoretical framework. The People Placing Method was taught to a group of Swedish foreign language students during spring 2013. Data was collected using two surveys, a diagnostic test and a series of interviews. The analysis showed that few students actually use the whole method after training and many students view the method as having a high initial threshold. Users, however, rated the technique as effective and users also gained a non-significant higher mean value on the diagnostic test. The study showed that students work in an adaptive way when learning new techniques, and that they use selected parts of the People Placing Method and sometimes combining these with digital support.

Keywords: People Placing Method, Chinese characters, Keyword Mnemonic, Practice Testing, Distributed Practice

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Introduction

This study is bilaterally written by the authors. In the process of writing this paper, each of the authors has written sections which have been extensively edited by the other and again by the author himself. This paper is mostly co-written, although the authors divided up the different sections.

In the Background chapter Jonecrantz wrote the relevance of study and both authors about the People Placing Method. In the Literature overview, Jonecrantz wrote about KMT, imagery technique and learning to read Chinese and Andersson wrote about distributed practice and spaced repetition. The Background theory and Method section are co-written. Jonecrantz had the main responsibility for the survey study and Andersson for the interview study, and the different sections which pertain to the instruments for data gathering is chiefly written by the appropriate author. Jonecrantz wrote the survey results, and Andersson the interview results and the concluding remarks are co-written. The discussion is co-written, and strength and weaknesses is mainly written by Andersson. Further research and recommendations is mainly written by Jonecrantz. Conclusions are co-written.

We would like to extend our gratitude to Helena Löthman, who spent hours explaining Chinese character system to us, created and corrected the Chinese Character Test, helping us keep in contact with students and encouraging them to participate – while always remaining cheerful. We would also like to thank Björn Liljeqvist for advising us on questions concerning the People Placing Method during the period of the study. Thank you.

Background

In the section below we present the societal context and the method which was the starting point of our interest and work with this study.

Relevance of Study

Individual language skills are becoming increasingly valued and since the radical economic development in China, skills in the Chinese language are also becoming more valued. In Sweden, Folkpartiet (the liberal party whose leader holds the post of minister of education), has put forth the proposition that English should be taught from the beginning of elementary school and that Chinese should be offered an optional language for pupils in upper secondary school (Svenska Dagbladet, 17/10-2009). This is not only an opinion presented by political parties, in a debate article the head of Lärarnas Riksförbund (a teacher union) and the head of Svenskt Näringsliv (Confederation of Swedish Enterprise), both argued for that the German and Chinese languages should be strengthened in Sweden as a response to the growing demand of these language skills (Dagens Nyheter, 21/9-2011).

But is this really possible? In a response debate article, professors in the Chinese language from different universities in Sweden have questioned the value of beginning to teach pupils Chinese as late as in secondary upper school. They claim that when making the curriculum, it will become necessary to weigh the alternatives of focusing on learning to speak or read Chinese, as learning to read Chinese takes a lot of time. Without intense focus on reading abilities, Swedes will find themselves practically illiterate in a Chinese environment (Dagens Nyheter, 18/12-2012). In order to weigh these alternatives, there is a need to understand how many Chinese characters a student can reasonably learn during a specific period of time. By extension, there is a need to discover if any particular learning techniques can facilitate the learning of Chinese characters and ease the process for students to become literate in Chinese, as this will impact the reasonable amount of weight that reading should receive in the curriculum. The conditions of character learning is one of the core issues in the Swedish debate that underlie which role the Chinese language can have as a part of the Swedish school curriculum.

The People Placing Method

One such possible learning technique, The People Placing Method (hereafter PPM), has been devised by Björn Liljeqvist from the Swedish private company Braingain. In January-February of 2013, this learning technique was taught by Liljeqvist to a class of students who were studying their second semester of Chinese language at Uppsala University.

The PPM consists of different learning techniques used in a system; visualizing, practice testing and regular re-testing. First, you use a systematic approach to translate different components of the character/word into something possible to visualize. In modern Chinese, there are 24 initial sounds¹, and 35 final sounds, and five different tones. To visualize using the PPM, the student first makes a list of the initial sounds and then connects each one of 24 initial sounds to a different person, whose name begins with the same letter as the initial sound he or she represents. Second, the student takes a new list and connects the 35 final sounds to different places that the student is familiar with. Finally, the student chooses a direction which represents each of the first four tones; the fifth tone is seldom used in characters and thus has no specific guidelines concerning direction². Thus, before visualizing, the student needs to create two lists, one for persons and initial sounds, one for places and final sounds, and then to think of four different directions at each place to represent the different tones.

For example, let's say you are to learn the character and word 聽 (tīng; to listen). If you are a novice with this method, you would look at the schema you have made: the character representing the initial sound "T" for you is the Terminator, the place representing the final sound 'ing' for you is the central station fountain of your hometown, the direction for the first tone "ˊ" for you is when you watch something from north. To learn 聽 (tīng; to listen), you would then create a visualized image of the Terminator standing beside the central station fountain, seen from the north. In the visualization, you now have a visual clue of how to pronounce the character.

Then you need to find some way to try and add the character's meaning. The PPM does this in two ways. First, The PPM encourages students to take components of a character that bears meaning and insert it into the mental representation. With the example above, a semantic component of 聽 (tīng; to listen) is 耳 (ear). The student might incorporate this into the representation by visualizing the Terminator having an enormous ear.

Second, you try to add the character meaning to your mental image. Following the example above, you could visualize something like "The Terminator is looking at you, listening carefully to what you are saying", to try and involve the character meaning into the mental image. You should now have a mental image that includes cues both for pronunciation and meaning of the target character.

When you have done this visualization for a set of character, the PPM encourages you to take a ten minutes break from studying (called the ten minutes rule). Afterwards, you test yourself on the characters you just learned, and try to remember them and use the visualized cues if necessary. If you fail to remember one of the characters, you mark it as not-learned and begin learning them again on the next day. After this, you test yourself on the character from earlier

¹ There are 23 actual initial sound, and one "zero" sound for those characters/words which consist of just a final sound, such as the word ài [love].

² During the training sessions, it has been suggested that when using directions for the fifth tone, the student might do something like looking down at the ground from above.

days, also putting them in a pile those you fail to remember. After this, the daily studying of characters is finished.

So far, we have discussed the visualizing, repeating and practice testing parts of the technique. The technique encourages you to use a fixed interval for re-testing of characters. The first practice test is scheduled on the following day. After this, the suggested interval is the number of days multiplied by three (ergo, 3, 9, 27, 81, 243, 729 etc.), meaning that you wait two days until the next practice test (day three after learning it). In PPM, the practice intervals stop at 27 days (but the students can continue for longer intervals if they wish to remember characters for a longer period of time).

At the training seminars, the students were encouraged to use flashcards or similar learning artifacts to use while repeating and practice testing. The prior visualization which was used to learn the character is here used as a set of clues which the subject uses as recall cues when practice testing, and the clues are not meant to be remembered in the long term (when the student no longer needs a cue to remember the character). The four basic building blocks of the PPM thus are these components; visualizing, repeating, practice testing and regular re-testing.

This study seeks to investigate the student's experiences of using this experimental method.

Literature overview

In the section below, we present a number of studies which describe different learning techniques and what results that have been found for these techniques. Then we present relevant research about studying Chinese and how different study techniques have been tested in this particular context. Finally, we also present a number of theoretical perspectives and which theoretical tradition our study adheres to.

Research on Different Learning Techniques

Different learning techniques and their efficiency have been studied extensively, and a thorough review of such techniques is beyond the scope of this thesis. Still, there are four such techniques that need to be explained in order to better understand the People Placing Method and its relation to current research, namely: The Keyword mnemonic, Imagery use for Text learning, Practice testing and Distributed practice. These techniques are briefly presented below.

The *Keyword mnemonic technique* (hereafter KMT) is a learning technique where the learner creates mental images while practicing, using part of words that are to be learned. For example, when studying foreign language and trying to learn the French word for ‘tablecloth’ (nappe), a student could mentally imagine themselves taking a nap on a tablecloth (Gruneberg & Sykes, 1991, p. 60). KMT along with practice testing has been shown to be more effective than rote rehearsal³. The technique offer an opportunity to help learners acquire new information with speed, but requires some creative effort from the learner, who has to go beyond what is read and find a mental image for each word (Fritz, Morris, Acton, Voelkel & Etkind, 2007). KMT has been subjected to review, and while the technique does show promise for keyword-friendly words, its effects are uncertain when learners need to produce their own keywords. It is also not certain whether using KMT can be seen as efficient, compared to other learning techniques (Dunlosky, Rawson, Marsh, Nathan, Willingham, 2013). It has also been suggested that different learning techniques might be effective depending on which task they are used in, as well as differently effective depending upon individual ability characteristics. The KMT for example, seems to be more effective for individuals who are very good at associative memory (Goldman, 1972), perhaps because these association assists them in creating mental representations.

The *Imagery technique* (for text content) is reminiscent of the KMT. The idea is that when people read a text (without pictures) it always induces a certain amount of cognitive load, how much depends on the difficulty level of the text and the users’ prior knowledge about the text’s content. When the text is too difficult, this induces a cognitive overload which inhibits learning.

³ Rote rehearsal means simply listening to a recorded tape that presents a word and its translation, in this case 10 times, with a 5-second interval (Fritz et al., 2007)

The imagery technique is said to reduce the cognitive load when reading a text. It does this by encouraging the reader to create a mental picture of the texts content while reading, something that is supposed to be less cognitively demanding than simply trying to understand or drawing pictures on paper. By generating mental pictures for text material, a person lessens this cognitive load, and thus helps facilitate his or her learning (Leutner, Leopold & Sumfleth, 2009). This view is somewhat supported, as imagery technique for texts have been shown to boost performance but only in certain conditions. Still, in a research review the technique has been rated as having low utility. This is because of problems similar to those of the KMT, as learning is dependent on how easily the text material lends itself to imaginable representations (Dunlosky et al., 2013).

Practice testing is another extensively reviewed technique. Tests and exams are both phenomena which are generally disliked by both students and educators because of the stress and burden using this pedagogical tool usually involves (Dunlosky et al. 2013). This is a regrettable attitude since practice testing as a learning technique has proved to be of great value for long term retention of information. This phenomenon, known as the testing effect, describes that retrieval of information from memory produces better retention than restudying the same information for an equivalent amount of time. This effect is particularly strong when practice testing is done with effortful processing (such as production rather than recognition), combined with feedback and done with relatively long retrieval intervals (Roedigger & Karpicke, 2006a; Roedigger & Karpicke, 2006b; Roedigger & Butler, 2010). This might be due to the relation with *cued recall* which has also been stated to be highly beneficial to learning. The act of retrieving information from one's memory might in itself be a potent act of learning, since a successful recall facilitates further retrievals of information which is superior to additional times of re-reading (Bjork & Bjork, 1992).

According to current research, there is a need to differentiate between teacher-led testing (high stake) and the kind of testing students engage in during their free time, for instance, by recalling target information by using flashcards or similar methods (low stake). If used as a learning technique by a teacher, testing should mainly be low stake practice for the students. The Research mentioned above is also based on these versions of low stake practice testing (Dunlosky et al. 2013).

Distributed practice is the last learning technique presented in this study. Distributed practice needs to be understood in relation to its counterpart, *massed practice*, since both types refer to how you apply yourself to your studies. Ergo, how you spend your time studying. Massed practice refer to the studying practice of putting all effort into a limited time, for instance, arranging all of your studying to take place in the days/hours preceding a test. Distributed practice, on the contrary, means that you disperse you studies over time, and study for shorter periods within a long period of time (Dunlosky et al. 2013). Distributed practice seems to have a beneficial effect on long term memory retention, but requires more study trials (more total time) to reach the same results as with massed practice (Bahrick & Hall 2005).

Learning to Read Chinese

Full literacy in the Chinese language requires knowledge of about 3000-4000 characters. Approximately 1000 may cover about 92% of the written material and 3000-4000 circa 99% (Wong, Li, Xu & Zhang, 2010, p. 27). A student who wants to be able to read and write Chinese thus has a fair number of characters to learn before they can consider themselves literate.

Most Chinese characters can be separated into two different categories; Pictographic/Ideographic and Semantic-Phonetic. Pictographic characters have their origin in a simplified picture, and Ideographic characters are simplified pictures which convey ideas (Wong et al., 2010, p. 8). An example of a pictographic character is 木 (mù; tree), which becomes an ideograph with the character 森 (sēn; forest) - the character for forest tripled.

Contrary to popular belief, pictographic and ideographic characters make only a very small number of the Chinese script. Over 90% of the Chinese characters are instead Semantic-Phonetic. These characters are composed of two or more components, one semantic which gives the word meaning⁴, and one phonetic component representing a sound (Wong et al., 2010, p. 8). The reliability of this phonetic component is low, and in only about 26% of the compound characters does it cue the sound (Shen, 2004). An example of a component character is 河 (hé; river), which consists of the semantic component 氵 (shuǐ; water) and the phonetic component 可 (kě; may/possibly).

When learning to read Chinese, students must use different approaches to learn the characters. For example, in some cases the pictographic/ideographic meaning can be visualized and/or inferred from looking at the character. With some creativity, the student can see 木 (mù; tree) as an actual tree. Sometimes, this approach is not possible, such as with Semantic-Phonetic characters. In these cases, students may try to use the semantic part of the word such as 氵 (shuǐ; water) to try and get a memory clue to learn the character 河 (hé; river). In addition, students will most likely also need to work with the associated Chinese word and tone when learning the character. In the end, the student must use a repertoire of approaches when learning Chinese characters.

A handful of studies have looked on the learning strategies used by foreign language students when learning to read Chinese. Shen (2005) have been cited as the most comprehensible study up to date (Sung & Wu, 2011). Her study included 95 university students from beginning to advanced level, and among them she found 30 commonly used strategies, which were separated into eight factors (shown in order of decreasing amount of explained variance); Orthographic knowledge (looking at graphic structures), Preview-Review (before and after class), Memory-enhancement (making mental linkages and relate a new word/character to context), Attentive

⁴ The semantic component of a character denotes what group the character belongs to. This group is connected to a general field of meaning, and provides a hint to what the character as a whole means. For instance, if a character contains the water radical, it usually has a meaning connected to water such as ocean or sea.

introduction (paying close attention to stroke order and tone when a character is introduced), Sound cuing (read character out loud and try to associate sound with meaning and later quizzing oneself), Comparison (understanding characters by using them in sentences and comparing to one's native language), Aural (improving retention by listening to native speakers and say the character out loud) and Meaning (understanding the meaning of a character in different contexts). Orthographic knowledge is thus the most commonly used technique among students, but the study also shows that use of orthographic knowledge and preview-review are based on prior knowledge. The more advanced students use orthographic techniques more, which is somewhat to be expected as beginners have less orthographic knowledge to rely upon when learning new characters. It might also be somewhat expected that students become more adept at understanding previews and gain more from reviews as they progress. Suggested by the study results, Memory-enhancing techniques (such as KMT and imagery) and Sound cuing (which included practice testing) are not related to students' prior knowledge.

A learning technique similar to KMT has been tested in relation to learning Chinese characters. Kuo and Hooper (2004) found that self-generated coding (encouraging students to draw pictures, invent stories, writing sentences) was more effective than using translation (Chinese character and English translation shown), verbal coding (translation and the characters etymology) or visual coding (translation and picture representing character) alone, but not significantly different from dual coding (translation, verbal and visual coding). This suggests that generating a personal relationship with a character and its meaning appears to be an effective strategy for learning Chinese characters. But, as has also been stressed in other words by Dunlosky et al. (2013), students took three to four times longer on task than did other groups, this suggests that it may not be relatively more efficient compared to other possible learning techniques for equal amount of time.

Concluding Remarks on Previous Research

To the best of our knowledge, no studies have examined the effects or student experiences of PPM. There are, however, studies on learning strategies and techniques that students use when learning Chinese characters. The studies presented above have pointed out numerous general techniques and some background variables (such as how long one has studied Chinese) that affect the use of some techniques.

These often experimental studies have sometimes included qualitative elements in the analyses, such as student quotes, but none of the studies have been based on qualitative methods. Some studies, such as Shen (2004) have a quantitative-interpreting method, but use student experiences more as a complement rather than a focus of the study. Thus, although there are studies about the conditions in which different learning techniques show effect and which techniques are being used, students stated experiences and reasons for working with different techniques is still largely unexplored in a qualitative measure.

As shown above, the Chinese language is in the present Swedish public debate for curriculum in Chinese, and research exists that give different directions for learning techniques and their possible effects in relation to learning to read Chinese. As proposed by Dunlosky et al. (2013), techniques such as imagery or KMT might be a good approach to ease students burden of learning many characters, but might also not since their effect somewhat differs depending on the students' task. The study by Fritz et al. (2007) was done with vocabulary learning and found support for KMT. The study by Leutner et al. (2009), which found support for imagery, did so with imagery as a learning technique for non-vocabulary based material. As proposed by Dunlosky et al. (2013), both practice testing and distributed practice have strong support, which still suggest that PPM could be effective (no matter if the KMT or imagery part of the technique is not).

But how do the students reason when orienting among different learning techniques? To understand how the students experience and work with the PPM technique to learn to read Chinese characters, in relation to other learning techniques known or used, a mixed method approach is necessary. By doing this, it is possible to understand the learners' perspective while still maintaining more comparable results to earlier studies.

Theoretical Background

Liberg (2006, p. 16-21) presents three different perspectives that has dominated the last decades of learning to read and write; the individual psychological, the sociocultural and the sociocognitive perspective. According to Liberg (2006, p. 16-17; 1990, p. 4-6) the *individual psychological perspective* view reading as a process of perception. The letters are adapted in the brains visual centre, and from there the information is sent to the centre for spoken language. Development of reading and writing skill is viewed as a process of automatization of brain's information processing processes. As a reader develops his or her read/write ability, the encoding or decoding process grows gradually quicker and more automatic.

Assumedly, this perspective thus focus on our process of learning to decode and building up working bottom-up and top-down processes to understand and increasingly rapid learning to read (and understand what we read). Since this is seen as an individual process, the role of others in a social context is not stressed within these studies.

Säljö (2000, p. 17 - 19) presents a *sociocultural perspective* of learning. He states that humans have a fixed set of physical and cognitive resources which are essentially the same as they have been for the last 50-75 000 years. The difference now is that we have developed tools and activities which are based upon complex forms of interaction between individuals. The sociocultural perspective focuses on how human knowledge as formed and acquired through social interaction and how collective knowledge is replicated through social interaction.

Another, similar but different perspective is the *sociocognitive perspective* of learning. Gee (2001) describes reading as a contextual activity which gains different meanings from different contexts.

Language exists in different Discourses, with their own contexts, that give the language separate meanings.

Liberg (2006, p. 20-21) explains that the biggest difference between sociocultural and sociocognitive perspective lies in the researchers focus. Within the sociocultural perspective, researchers focus on how individuals contribute to create social contexts, which conditions apply to the context and what differences exists between the contributions. Within the sociocognitive perspective, researchers instead focus on how the individual develop knowledge within different contexts, such as differences between learning to read when also writing or when trained in a group with other learners.

Liberg (1990, p. 17-19) describes the individual psychological perspective, as part of the statistical-experimental paradigm, has become less favored within linguistic research focused on learning to read and write. One reason for this is that the statistical-experimental paradigm encourages different descriptions of assumed components, which leads to intra-scientific controversy concerning the interpretation of the description and supposed relations. Researchers using these methods also lack the possibility to make qualitative judgments about the researched phenomena. In response to this, observation and participating observation have become increasingly favored and advocated along with other theoretical assumptions, such as with the sociocultural and sociocognitive perspectives.

The study by Liberg (1990, 2006) is focused on early literacy and children's learning to read and write. In this learning process, children work with multiple interactions under a long time to help prepare for and support with acquiring literacy. With this kind of research object, using a sociocultural/sociocognitive perspective helps to mirror learning contexts that children work within when learning to read. This study leans more to the individual psychological perspective, as the individual understandings and experiences rather than the social contexts that the students work within are the aim of the study.

When we experience a phenomenon, we can be said to form a relation with it. This relation consists of our knowledge of the world and the observed phenomenon, and our knowledge influences how the phenomenon is understood or experienced. The relationship is not direct and sometimes we can have knowledge without it affecting our understanding of a phenomenon. For example, we might know Newton's laws of motion which says that an object in motion remains in motion unless acted upon by a force. But we might still understand or experience an object in motion as in need of external force to remain in motion. Thus, we form a relation with a phenomenon, where prior knowledge can contradict the understanding we form. To be able to apply some knowledge, we may need to change the way in which we understand a phenomenon. The theoretical perspective, where researchers look at how phenomena are experienced or understood, is called phenomenography (Marton, 1997).

In this study, we assume that students have established a way of forming relations with characters, based on how they use and understand the knowledge mediated by the character.

When using PPM, students get a new distinct way of gaining knowledge (such as by interpreting the initial letter “T” as “Terminator”) and this in turn can affect the understanding formed when learning to read characters. Thus, by using a phenomenographical theoretical approach, we can gain insights into how students experience the PPM depending on the way in which they form their understanding of the characters which they are learning to read. For this study, we therefore work within the individual psychological perspective, using a phenomenographical theoretical approach to gain initial knowledge about students’ experiences of using the PPM to learn Chinese characters.

Within earlier studies, multiple theories exist on how different learning techniques will affect individual learning (presented in the research overview), and which hints of how students may use them to experience phenomena. Many of these techniques share similarities to the People Placing Methodology. Within KMT, Goldman (1972) has presented the theory that associative memory assists the individual in later knowledge retention. For the Imagery technique, a theory about Cognitive load and the Multimedia Effect are presented as explanations by Leutner et al. (2009). The theory about cognitive load has been presented above. The multimedia effect states that we learn better when both pictorial and verbal information are available. Thus, when imagining with a text that has no images, we help ourselves learn. Pyc (2009) and Carpenter (2009) both discuss a theory behind practice testing (testing effect) referred to as Retrieval Effort Hypothesis, which states that it is the effort involved in the retrieval which is crucial to the beneficial results of practice testing. The more strenuous the effort is, ergo the more we need to work to remember something, the more deeply encoded the information becomes and thereby this facilitates future recall. Allegedly, this is because difficult retrieval might activate more related information to the target item since it requires a more elaborate memory search. Dunlosky et al. (2013) discuss the theory behind distributed practice, which have had multiple theories presented. One in particular is the consolidation theory, which claims that memories retrieved times after the first consolidation re-consolidates later with a stronger trace, making the memory easier to retrieve at a later time. Distributed practice is expected to work due to multiple factors, and thus many theories of why it works are suspected to coexist. We take no special starting point from these latter theories for learning techniques, but rather return to later look at them in the light of the study's results.

Within the research area of decision making, people have earlier been claimed to make decisions by estimating the expected utility of an action. They weigh the possible benefits in terms of utility against probabilities of positive effects occurring and use the combined estimation as a basis for decision. This has in part been refuted, as people have been shown to make decisions somewhat inconsistently, for example we can prefer alternative A to B, B to C and C to A⁵ (Newell, Lagnado, Shanks, 2007, p. 103-114). We use this utility theory framework to help categorize and give perspective on the students’ different explanations and motivations for

⁵ If we were consistent in our preferences we would instead prefer alternative A to both B and C.

choosing to use different learning techniques above others. For this study, we interpret the probability of occurrence as a combination of cost of learning the technique with the estimated possible benefits in terms of learning results.

Main Purpose and Research Questions

The purpose of this study is to deepen the understanding of how students relate to the People Placing Method in relation to learning to read Chinese characters, and how training in this method can be experienced in relation to the students other known or used learning techniques.

This purpose has been concretized into four different research questions which form the base of this study;

1. What are the students' motivation for studying Chinese Language and what differences in motivation can be found among individual students?
2. When do the students perceive themselves as competent with PPM and why do individual students differ in their time needed to master the PPM?
3. How do the students perceive costs and benefits of using the PPM and how does this estimate affect their choice of which learning techniques to use?
4. How do the students perceive their own learning process in relation to the study techniques available to them?

All research questions have been used in both studies.

Method

In the section below we present the research methods, participants, procedure, different materials and method of analysis used in this study. We conduct an initial reasoning concerning the size of sample group, choice of research methods and we also describe the training in the PPM that the students received.

Choice of Research Methods

The study uses three methods for gathering its empirical data. These three are surveys, diagnostic test and a series of research interviews.

The surveys are meant to work as both a status survey and survey research, to describe the characteristics of the population (the group of students) and also to help explore relationships among variables (Graziano & Raulin, 2010, p. 288), such as between the students perceived benefits of using the PPM and results on the diagnostic test. The crude picture of the group characteristics create a frame and wider meaning to the later results of interviews. The diagnostic test was created to help nuance the picture of how the students perceive costs and benefits of using PPM, by making it possible to compare answers to students' amount of Chinese characters learned.

The qualitative research interview is unprecedented in the previous research presented above. It considered an effective way of reaching into the subjective experience of a respondent, and thus more easily grasping experienced motivation, perceptions of study techniques, weighted costs and benefits, and description of the own learning process (Esaiaasson etc. 2012). Because of this, it was deemed a suitable research method for deepening the understanding of the subjects' experience of the PPM. The subjects were interviewed to see how they actually perform their studies, and how they perceived the training they received along with their overall reasons and thoughts about learning to read Chinese. Other methods might have been utilized to study how the students work with the PPM, such as observing the students while they work, or using focus-groups, but these would not fully capture the individual's own perspective, which is the main aim of the interview part of this study.

Training in the PPM

Differences between PPM and other learning techniques

Although methods such as KMT, imagery, practice testing and distributed practice are similar to the PPM, there are some important differences between the techniques. We mention these

differences to show possible changes in pre-conditions that arise when students get taught PPM rather than the learning techniques above. Basically, the PPM can be seen as an adapted version of the KMT or imagery technique, but with three distinctive differences;

First, the KMT method is not directly applicable when learning Chinese characters, since only pinyin (Chinese written in the Latin alphabet) have letters that can be used for keyword imagery representation. KMT is also not directly applicable to work with the tones of a Chinese word. For example, let us say a student wants to learn the character and word 好 (hǎo; good, fine, excellent). The student can use KMT with 'hao' to come up with a mental representation, such as "I see a happy cowboy approaching me waving, expressing 'hao-dy [howdy], all is well?'"'. But how can a tone, such as the tone in 'hǎo' be represented visually? And how do you visualize a character; such as 好, which holds no keywords? The KMT description offers no direct answer to these questions, though students might find their own creative solution to the problem. The PPM handles one of these problems by letting the student create a mental image which contains necessary information for learning the tones in Chinese word. The PPM combines persons, places and direction in order to encapsulate the words pronunciation and meaning. To include the character in the mental image, students are encouraged to look at the semantic components and incorporate them in an exaggerated way (such as with Terminator and an enormous ear).

The second difference is the relation between the PPM method and the problem with the KMT described by Fritz et al. (2007) and (Dunlosky et al., 2013), namely the need for creative effort. Since the representations in PPM are created using a schema (person, place and direction), students are provided with a setting for each word and do not need to make one up. But, just like the KMT method, in PPM students still need to find a creative way of bringing a part of the learned material into the mental representation (in this case the character meaning).

The third difference is the PPM set schedule for practice testing and repetition. KMT has no fixed guidelines for repetition - this is instead seen as other learning techniques such as practice testing and distributed practice. In PPM, the student first encodes a collection of characters using the technique described above, and then train and repeats these characters using a practice schedule. Thus, instead of being seen as a set of learning techniques, PPM is seen as a coherent learning technique.

Contents of the PPM Training Sessions

The students who choose to participate in the study were offered PPM-training seminars explaining how to use the PPM and the thinking behind it. These sessions took place next to the student's regular schedule during one and a half week. These seminars were realized as lectures combined with some student activity. The lectures were all recorded and posted on the company's web page to allow absent students to participate in the seminars contents, or if particularly interested students wanted to review them again.

The first seminar was centered on basic memory facts and how one can work with visualization in order to enhance retention, and the students tried a few simple memory techniques. The second seminar was centered on the people placing segment of the method, and this was presented with examples. The lecturer let the students start to make their lists during this seminar, as well as gave many suggestions on criteria to use when choosing their places (such as having an emotional connection to the place, or having a distinct mental image of the place). The third seminar concerned the mechanics of forgetting - and how these can be used to maximize memory retention. This seminar discussed the value of repetition and practice testing, and how these two memory techniques work and how one can use them while studying. In the “Training results” survey handed out about three weeks after the third seminar, many students stated that they required more supervised training with PPM, and thus an extra session was held a few days later.

At the end of the original three sessions the students were asked to learn as many Chinese characters as possible from the appointed chapters in their course books in eight weeks, at the end of which they were to take a test to measure how many characters they had learned in this time.

Materials

After the first three training sessions, the students completed a survey about ‘Training results’ (see Appendix A). The survey consisted of 7 items and no biographical questions. Statement items were such as; “I can visualize the necessary *person* when practicing” (person chosen for the initial sound when using PPM) or “I need more teacher-led practice with... [six alternatives]”. On the first six items, students evaluated themselves on statements on a five-point rating scale (1: completely disagree, 5: completely agree). On the last item, students could instead mark the parts of PPM that they felt they needed more training with.

Those who elected to participate in The Chinese Character Test were encouraged to study a total of 11 chapters containing 590 Chinese characters (chapter 12-17 in T’ung & Pollard, 1982; chapter 1-5 in Li & Liu, 2010), which were all tested. All of the test questions consisted of a Chinese character, and the students could receive three points; one point for writing correct pinyin to the character, one point for writing the correct tone and one point for writing one correct Swedish translation of the character⁶. Students could thus score a maximum of 1770 points on the test. The test time was set to two hours, but students could extend the time if they felt that they needed more time to finish.

The Chinese Character test was followed up with a survey about ‘Learning Techniques, Attitude and PPM Skill’ (see Appendix B) on subsequent lectures, until all willing students had

⁶ Often a character can have multiple meanings. In this case, students could score a point by correctly recite just one out of these possible meanings.

participated. The survey consisted of some biographical questions and 30 items. Statement items were such as; “I always study together with others in my study group”, “I feel motivated to learn to read/write Chinese characters” or “The People Placing Method is a good method for me when I am to learn Chinese characters”. To increase the possible variance the students evaluated themselves on statements on a seven-point rating scale (1: completely disagree, 7: completely agree)⁷.

Two separate interview-guides were used as starting points for both interviews. One was made for those who use PPM actively, and one for those who do not use PPM (see Appendix C and D). These interview guides were formed to cover both the students’ attitudes toward the PPM, how they perceived their PPM training, and also in what manner they realized the method in their studies.

All interviews were recorded using two recording instruments, an android tablet using the android application “Smart Voice Recorder” and computer microphone connected to the freeware recording program “Audacity”. As a backup, the windows utility program “sound recorder” was also engaged to provide an additional recording should one of the other programs fail.

Participants

The willing participants of the study were 19 undergraduate students enrolled in a Chinese language class at Uppsala University, studying their second semester of Chinese language (68% female; Mean age = 23.4, SD = 5.1; Mean number of semesters at university = 4.6, SD 3.4). Two students were enrolled in the class and choose not to participate in this study. There were five parts of the study that the student could participate in, presented chronologically; 4 PPM Training Sessions, a Training Results Survey, a Chinese Character Test, a ‘Learning Techniques, Attitude and PPM Skill’ survey and an interview about ‘Learning Techniques, Attitude and PPM’. All willing students participated in at least one part of the study. Participants were selected using an Ad hoc sample, this was because there already existed cooperation between Björn Liljeqvist (the inventor of the People Placing Method) and one of the teachers of Chinese language at Uppsala University. Participating in the study was not required to earn course credits, but if the students elected to participate in the Chinese Character Test, it would count as equal to another mandatory assignment (non-related to the study). The training sessions were offered to the students as a way to help them improve their learning of Chinese characters.

A total of 14 students participated in the ‘Training results’ survey. Demographics were not required and are thus not presented. A total of 13 of the students chose to participate in the Chinese Character Test (54% female; Mean age = 21.9, SD = 2.6; Mean number of semesters at

⁷ With the exception of biographical questions, this was done on 24 out of 30 items. The other six items asked the student to explain their typical way of studying when learning a character, to answer if they thought they needed more training and if so how much time and in which parts of the PPM technique.

university = 3.9, SD 2.6), and all 19 students participated in a survey of their learning techniques, attitudes and skill with PPM. Thus, for the Chinese Character Test there were some differences, such as a relatively higher number of male students and a lower mean age for those participating.

The interview study's sample consisted of eight respondents (37.5% female; Mean age = 24.8, SD = 6.1; Mean number of semesters at university = 5.4, SD 3.9). The main criteria for selection was that the subject had been present at least two of the PPM training sessions and then consciously decided either to use or not to use the method. Four of the respondents had chosen to use the PPM, and four had chosen not to use the PPM. All eight volunteered to participate in the study, and were not compensated.

Reflections Concerning the Sample Group

Using a small Ad hoc sample is problematic: the sample size has low power for statistical analysis and may be hard to generalize to students with a slower rate of study or with a different level of knowledge in Chinese language. The student group had learned about 500 characters during the previous semester (From Tung & Pollard, chapter 1-11). At the time for the study, it was not possible to use students who had spent less time studying the Chinese language. We also chose not to use students who had studied Chinese language longer, as they can be expected to have built a bigger base of already known characters and have more established learning techniques related to learning characters. Because of the possible effect a single professor/teacher might have on the student's attitude and approach of the technique, the reliability of the study is also somewhat in question. Similar studies elsewhere are therefore necessary to ensure reliability of the study's results.

This study can be seen as an explorative critical case of PPM. The participants are close to ideal for the method, as they already have some knowledge of the Chinese language, but yet have left to approach many characters. They also study full time, which opens up for opportunities to try out and use the technique as a part of regular studying. The number of students with learning disabilities that the students themselves do not know of or have not learned to cope with should also be lesser at university level compared to at secondary upper school, suggesting that they students should be more able to use new learning techniques as a resource in their learning process.

Procedure and analysis

Survey study

The survey study consist of three types of data material; the ‘Training results’ and ‘Learning Techniques, Attitude and PPM Skill’ surveys and the Chinese Character Test. Most questions were created with ratio scales to ease later analysis.

After the three first three training sessions (21/1, 24/1 & 31/1), the students completed a survey about ‘Training results’ on the 21/2. In response to the results of the survey, an extra session was held at the 25/2. The Chinese Character Test was held at the 26/3 and the ‘Learning Techniques, Attitude and PPM Skill’ survey took place continuously over the following weeks.

The use of research questions were used as a model for deciding on which tests to be used on beforehand. The survey material was analyzed using three different approaches, depending on the type of data and relation to the research questions; descriptive comparison, Pearson r , unrelated t-test.

Descriptive comparison: to find possible overall differences on many variables at the same time, descriptive comparison was used. This was used to find possible patterns in the data, trying to cluster changes in variables in a similar way to how factors are grouped. Due to the small sample compared to the number of variables, factor analysis was deemed unsuitable for the study. Another reason for using descriptive comparison in this way is to avoid the possibility of mass significance⁸ among the data.

On one occasion, when comparing time spend studying each week among the students, descriptive comparison is used rather than a Chi square test. This is because distribution of studying hours was deemed more interesting than differences between categories among hours of study. For example: we are interested in how the student groups study overall, not just if PPM users more often study 1-2 hours than non-users. Due to data being ordinal, a descriptive comparison was deemed more suitable.

Pearson r : some of our research questions were best answered by looking at the strength of a relationship between two variables, not only if there was a difference between the groups. For example, we were more interested in how strong the relationship between having mastered and using PPM is, not only if students who have mastered PPM more often use PPM.

⁸ When there is 5% or less chance that a difference can be attributed to chance, a result is referred to as being statistical significant. If you do a massive list of testing, one of your tests are sooner or later going to achieve significance due to the possible <5% possibility of achieving significance by chance. This occurrence is referred to as mass significance. How to relate to this as a researcher is somewhat disputed, as some researchers refer to how studies are going to show the same effect even when studies are distributed over several studies rather than collected in just one study. In this study, we try to avoid chance of mass significance as to give a possibly more reliable interpretation of the data.

Unrelated t-test was used when research questions were best answered by looking at differences between groups in one specific aspect. For example, when trying to answer if PPM users got more right answers on the Chinese Character Test, to put that in relation to how they experienced their help with the technique. Since the 'Training Results' survey was not coded in the same way as 'Learning Techniques, Attitude and PPM Skill', it was not possible to use related t-tests for the study.

All analyses use common applications with two-tailed testing and an alpha level of .05 for testing significance.

Interview study

The interviews were conducted using the online communication software Skype in all instances but two. These two deviated from the rest since the respondents explicitly requested that they wanted to either meet in person, or do the interview by phone. The rest of the interviews proceeded as planned⁹. To use Skype to conduct the interview had the advantage that neither the respondents nor the interviewer had to leave their home, and thus the respondents could remain in a comfortable environment. The eight interviews ranged from approximately 20 to 35 minutes in length.

Prior to being transcribed, the interviews were listened to a number of times, four times per interview on average. The interviews were then transcribed. This study seeks to investigate how respondents think, feel and reasons concerning a delimited phenomenon, and therefore the transcriptions excluded many conversational details, such backchanneling sounds, comments and sidetracks that were deemed irrelevant (not related to motivation or learning of Chinese characters). Due to time-constrictions, only five of the interviews were transcribed to full transcriptions, and three were instead transcribed to adjusted transcripts. The resulting material range from six to 13 pages per transcription, this resulted in a material consisting of circa 50 pages.

The gathered interview material was subjected to a thorough overview. This overview was conducted with an open approach. The reason for doing this is that this is a pilot study of how the students experience PPM in relation to learning to read Chinese characters. Because of this, it was judged unwise to group the material until it had been investigated in a general sense. By approaching the material with a general delimitation based on the study's purpose (method presented by Esiasson et al. 2013, p. 211-226, 269-276), looking at students stated experiences, the material could be categorized in light of the research questions of this study.

After the general overview had been completed, segments that addressed content relating to the research questions were highlighted for further analysis. Segments were then sorted into categories based on common denominators that could help to represent the material. These

⁹ all interviews were conducted during 12/4, 15-17/4, 2013

categories were used as headlines in the results and analysis section. Segments representative of the categories were then presented along with the analysis of the interview material.

In the analysis of the interview material, the students' replies were interpreted with regards to the phenomenographical approach to help understand student's experience of using the PPM to learn to read characters. The categories in the cost and benefit segment were created using an adaption of the utility theory framework as presented in the theory chapter. The underlying categories were also analyzed with regards to the theory concerning cognitive load (Leutner et al., 2009), where the experienced cognitive load is regarded as what the respondent perceives as the cost or difficulty of using the technique.

In the results and analysis section, a number of quotes from the interviews are presented. These translations try to be as faithful to the source material as possible; they are, however, translated from idiomatic Swedish to idiomatic English, which means that the quotes presented sometimes differ in appearance. All quotes can be found in their original Swedish form in Appendix E.

Ethical Considerations

This study was conducted in line with the requirements of the ethical guidelines set by the Swedish council of Science. These state that it is the scientists' and researchers' obligation to have no interest in their work except and contribute to the progression of knowledge through sharing their results after the scientific worth of these has been determined (Vetenskaprådet, 2013 p. 16-18).

To help maintain anonymity for the students concerning biographical information and test results, both the Chinese Character Test and the 'Learning Techniques, Attitude and PPM Skill' survey were coded by the Chinese language teacher. Thus, test results were anonymous when they reached the authors and during further analysis.

All participants were informed that the interview they participated in would be recorded, and that all references to their person would be eliminated in the account of the study's results. Additionally, the participants were given the assurance that they were free to terminate the interview and withdraw their participation in the study at any given time.

Results and analysis

Here we present the findings of the survey and interview studies. The material is categorized in accordance with the research questions. The material is presented as such: first the survey study presents general tendencies with the sample group, and then interview study's results provide a deeper perspective. Every section is finished with a concluding remark which summarizes the findings of this part of the study.

What are the student's motivations for studying Chinese language and what differences in motivation can be found among individual students?

Survey results and analysis

This result paragraph is built upon the 'Learning Techniques, Attitude and PPM Skill' survey. The students were overall motivated to learn Chinese characters ($M = 5.3$, $SD = 1.3$). Most students appreciated their total non-class related hours of study to 6-10 hours per week. Students were split into PPM users (Rating 1-3, $n = 9$) and non-users (Rating 4-7, $n = 10$) depending on their score on question 16¹⁰. Looking at peak levels, non-users seems to peak somewhere about 11-15 hours, while users seems to peak somewhere about 5-7 hours, which suggests that in this student group PPM users spend less time studying Chinese characters (See Table 1). Using the cost/benefit theory, the cost in amount of necessary hours of studytime might thus be a factor that affects the student's choice to use or not use the PPM.

Table 1. *Distribution of study time for all the students, PPM users and non-users.*

Group of students	Hours of study time						
	<1	1-2	2-3	4-5	6-10	11-15	16+
All students	0%	11%	5%	16%	26%	21%	16%
Students using PPM	0%	11%	0%	33%	33%	11%	11%
Students not using PPM	0%	11%	11%	0%	22%	33%	22%

To see if PPM users in general seem to be more motivated to learn Chinese characters, an unrelated T-test was calculated. Results were not significantly higher, $t(17) = .28$, $p = .78$., for non-users ($M = 5.4$) than for PPM users ($M = 5.2$), to the contrary that at least in this student group non-users were slightly more motivated than PPM users to learn Chinese characters. Thus,

¹⁰ "I use the People Placing Method when I'm learning new characters"

since there is no clear difference in motivation, it appears that motivation is not what drives PPM non-users to study more, but rather their different approach to how they learn characters. Using the cost/benefit theory, students do not seem to be willing to spend a bigger cost in for benefits for their studying, rather this result suggest that they perceive the benefits of different techniques differently.

Interview results and analysis

Four different categories of motivation for studying the Chinese language were discovered when processing the material gathered through the interview study, and the results below correspond to the interview questions about why the students study Chinese and whether or not they are especially interested in learning Chinese characters.

The first of these are relational reasons by which is meant that the respondent is motivated to learn Chinese because of his or her personal relationships requires this of him or her. The second type of motivation is profession related reasons, which entails that the respondent is partially or wholly motivated to learn Chinese to further his or her own career. The third type is learning Chinese for cultural reasons, by which is meant that the respondent is driven by a desire to partake in Chinese culture. The fourth and last motivational factor identified in the interview material is learning Chinese for recreational reasons. These categories do not perfectly encapsulate all of the respondents, and some of the respondents have more than one motivational factor, and may thereby overlap more than one category despite having been placed in one of the presented four categories.

Relational Reasons

This category includes a single respondent, Freke, who states that his main motivation for studying Chinese is for personal reasons, since a sudden change in his close relationships has prompted a need to know Chinese. He considers spoken Chinese to be the most important, since it facilitates colloquial communication, but he also has a considerable interest in learning Chinese characters. This is because he enjoys tracing the characters pictographic etymology, and how these etymological correspondences show different cultural attitudes, which in turn facilitate cultural understanding and communication. In Excerpt 1, Freke explains his motivations for studying Chinese and highlights his interest for the cultural and societal implications form how characters are constructed.

Excerpt 1. *Sequence drawn from the interview with Freke.*

1. Freke /.../ but then I have a fairly great interest in learning characters overall, I
2. think it is – weirdly enough – very interesting.
3. Interv. Ehm, interesting as in?
4. Freke It's fun! It's fun to learn.

5. Interv. Okey, is it the deciphering of the character which is the fun part or?
6. Freke Well, that's fun too, but then there is – it is a very different way of writing,
7. firstly, and then there is a lot of culture and such hidden behind the character,
8. or what do you say, there's a lot to see, you can see the culture through the
9. through the characters in a very different way compared to, for instance, the
10. the alphabet.
11. Interv. Well, I can imagine that, I have to confess that I don't really know much about
12. it, although I have heard that you can see different attitudes and things like
13. that?
14. Freke Yes, absolutely, sure, and this is one of these examples, there's a character
15. which means disturbance [姦], and this is one of those examples which are brought
16. up when you are learning characters, and it consists of three parts which all
17. mean woman [女], consequently if you have three women, you get a disturbance.
18. and things like that, those are fun to discover.
19. Interv. Eh, yeah, that was quite funny actually.
20. Freke and you see parts of the culture
21. Interv. Yes, indeed
22. Freke and how it reflects the society like that. So such things are fun to know, it is it
23. fun in itself and because there is a cultural background to what you say.

As this excerpt shows, this is because he enjoys tracing the characters pictographic etymology, and how these etymological correspondences show different cultural attitudes, which in turn facilitate cultural understanding and communication.

Profession Related Reasons

Two of the respondents report that their studying of Chinese is connected to their professional life. Katla means that her interest in learning Chinese related to her future profession. She has previously studied Chinese in China for a year, and during that time she concentrated on developing her spoken Chinese. Her current Chinese studies run parallel to her main studies, which are full time within another academic discipline. Her studying of Chinese is therefore mostly directed at learning characters and written Chinese, and she is especially interested in typing characters using Pinyin. The respondent specifies that this is different from writing by hand, since it requires solid knowledge of pinyin and less knowledge about Chinese characters. This is because of how computer programs for writing Chinese works (these require the typist to write a sentence in Pinyin, and then the writing software gives a suggestion of the same sentence written with Chinese characters). Because of this Katla do not find it necessary to learn the characters in detail, she merely needs to be able to recognize them.

Gunn states that her interest in Chinese stems from the fact that Chinese is a language which is of growing importance, and that it will be a useful skill to possess. She clearly states that it is her goal to become a teacher of the Chinese language, which she thinks will be a wise career move since she thinks there will an increased demand for teachers can teach, Chinese.

Cultural Reasons

Sigrun says that her motivation for studying Chinese is a great personal interest in Guangxi poetry, and one her driving ambitions is to be able to read this in original Chinese writing, instead of the Vietnamese translations which she has read earlier in her life. She says that there is much Chinese literature and culture which is directly connected to her native country, which she is interested in exploring more closely in its original form of expression. Another factor is that her native language is Vietnamese, and she wants to expand her linguistic repertoire to include Chinese characters and words as well as the pinyin, which is commonly used by Vietnamese speakers. In Excerpt 2, Sigrun explains her motivation for studying Chinese characters, and her desire to partake in the cultural heritage of China.

Excerpt 2. Sequence drawn from the interview with Sigrun.

- | | |
|------------|---|
| 1. Interv. | How interested are you to learn Chinese characters? I mean, like, in |
| 2. | relation to learning to speak chin/Mandarin |
| 3. Sigrun | It is very interested, because it is poems that I have read in Vietnamese |
| 4. | Translated directly to Chinese characters, Guanxi and so, that I read |
| 5. | Since I was younger, like translation in Pinyin? Yes, exactly, in |
| 6. | Pinyin, Chinese, and you would like to read it in characters to |

The second respondent's main intention with learning the Chinese language is to pass time during days, since he works full time in the evening. Because of this, he experience that he has limited time for his studies. Prior to his current studies, Siegfried studied Japanese for a year and thinks that Chinese is a fun alternative. He says that he thinks it sounds fun to speak Chinese, but he considers the written language to be more important and more fun since he experiences it to be less effortful. In Excerpt 3, Siegfried explains his motivation for studying characters, which is to understand written Chinese.

Excerpt 3. Quote from the interview with Siegfried.

"I mean, I think, in fact, that it is the written language that is what is nice with Chinese /.../. Since I already know a lot of Japanese characters, it is the writing which I find found, and guess have it a bit easier with. /.../ It is the writing which is the main [thing], and I want to learn to read Chinese books in their original language.

As the excerpt shows, Siegfried wants to be able to read Chinese books in the original language and thereby partake more directly of Chinese culture. His general attitude toward learning Chinese is also recreational in nature, meaning that he also fits into the next category.

For recreational reasons

Two respondents state that they are studying Chinese because they consider it to be a challenge;

Bragi states that Chinese is not similar to any other language that you come in with contact with in the Swedish school system, and this otherness is what motivated him attempt to learn the language. Bragi considers studying Chinese to be a fun challenge. He claims that he has facility for languages and that he wants to administer this gift to the best of his capacity. Another contributing factor to why he chooses to study Chinese is that he thinks that Chinese is a language which will be very important to know in the future. He considers learning characters and learning to speak Chinese to be of equal importance since the two sides support each other.

Tyr states that he has a background of linguistic studies and that he considers Chinese to be a challenge to learn, and that it is likely to be of use in the future. He doesn't consider learning characters too important or entertaining, although he certainly finds it rewarding when he reads texts and understands it. Tyr reflects that he probably spends more time with learning characters and words, and finds this to be more interesting –contrasted to speaking.

The last respondent in this group does not study Chinese mainly as a challenge, but rather because he finds language studies in general fun. This respondent, Rolf, states that his Chinese studies are a replacement for studying Japanese, which is unavailable to him since Uppsala University does not offer courses in Japanese – and he does not want to commute to Stockholm. He chooses to study Chinese because the two languages are similar, and he identifies as a “language person”. Rolf spends approximately thirty minutes per day on studying characters, not including the initial repetition. He thinks Chinese is an interesting language, and he considers it of utmost importance to learn Chinese characters, although he would rather be a fluent speaker than a fluent reader.

Concluding remarks

Concerning the students' motivation to study Chinese, there seems to be no strong difference between PPM users and non-users in the student group. From the interview group, it was possible to cluster the answers into four common themes in motivation, ranging from recreational to professional. Many of the interview students considers Chinese to be an important language, although the reasons for this vary somewhat.

Students most commonly studied about six to ten hours a week, with PPM users having a peak level somewhat lower than PPM non-users. The interview study gives no direct answer to the reason for this difference. Among those interviewed, more of the PPM-users studied Chinese for recreational reason. This might indicate that they feel less stressed to learn Chinese, and thus spend less time studying.

When do the students perceive themselves as competent with PPM and why do individual students differ in their time needed to master the PPM?

Survey results and analysis

After the third session, students rated their competence with PPM on the ‘Training results’ survey. Roughly half the participants rated themselves low with mastery of PPM (43%, rating 1-2), and the most common hard part of PPM for these students seems to be visualizing places (36%, rating 1-2) and directions (42%, rating 1-2) (see Table 2). After the 3rd session, half of the students, 50%, requested more sessions concerning one or more parts of the technique ($n = 13$). After the 4th session, 28% did likewise ($n = 18$)

Table 2. *Distribution of the students’ self-evaluation for PPM after the 3rd session.*

Part of PPM mastered	Students rating				
	1	2	3	4	5
The whole method	14%	29%	14%	43%	0%
Visualize meaning	7%	0%	43%	36%	14%
Visualize place	0%	36%	7%	36%	21%
Visualize person	0%	14%	14%	43%	29%
Visualize direction	17%	25%	17%	8%	33%
Repetition scheme	8%	8%	8%	15%	62%

To ease comparison between the surveys, ratings on ‘testing results’ was multiplied by 1.4, transferring the scale from 1-5 to 1-7. An unrelated T-test was calculated to see if additional training helped the students markedly. From after the 3rd to after the 4th session Feelings of proficiency were not significantly higher, $t(31) = .6, p = 0.55$, after the 3rd session ($M = 4, SD = 1.6$) than after the 4th session ($M = 3.6, SD = 2.2$) held about three weeks after. Participating students thus rated themselves lower in competence with PPM after more training.

How can this be? This result likely has to do with the increasing numbers of participants on the ‘Learning Techniques, Attitude and PPM Skill’ ($N = 19$) survey, than after the ‘Training results’ ($n = 13$) survey. If more non-proficient students participated in the second test this would explain the seemingly decreasing proficiency. It may also be that participants who were still exploring the technique had a longer time to form an opinion about the technique, thus perhaps realizing that the technique was harder to use than first anticipated. To summarize, even after four teacher-led sessions, the students overall rated themselves low on proficiency with the PPM technique.

Interview results and analysis

To better understand the students' experiences of competence with PPM, the following categories have been created, mainly based on the fourth theme of the interview guide¹¹, but some of the information below is taken from other parts of the interviews as well. The first theme is: *Time to establish the method*, which pertains to the seemingly unanimous consensus that the PPM requires a student to spend time to learn the method before he or she can expect to benefit from it. In this category the students' views on how long it took for them to either become successful PPM users, or how long it took for them to lose interest in the method are presented. The second category is *Problems with the Technique*, which connects to the students thoughts on the different aspects of the PPM as a study technique. Connected to the first category is the *Process of Learning the PPM*, a category created to encapsulate the how the students perceive their work with assimilating with the PPM.

Time to Establish the Method

According to Rolf's own estimation, it took him two to three weeks to develop his skill with the PPM to a level where he could then work with it unhindered. Siegfried and Bragi, similarly, had a period of around ten days until they felt they could use the method freely¹². Katla diverges from the PPM-positives with regards to how long it took her to establish the method, and she claims that she could use it instantly upon finishing her list of people and places. Katla points out that she has always had a facility for visualizing, which might have helped her with the work with the PPM.

Gunn reports that she lost interest in the method during the second seminar when the core technique of the PPM was introduced, and this was because she found it too difficult to implement the different parts of the technique in her own studies. Freke had decided beforehand that he would not use the method, since he already had fully functional method of studying characters which he had been using for years before coming into contact with the PPM. Sigrun also lost her interest in the method when the core components were introduced during the second seminar. Tyr decided to not use the method during the first seminar when the group was told that those who chose to use the method would be given a diagnostic test.

Problems with the Technique

Rolf considers the greatest problem with the PPM to be this establishment of the mental framework of places and people, which takes some time and might be a bit demoralizing to some. Rolf did not, however, get deterred by this.

¹¹ Generic questions about choice of method

¹² This is based on Siegfrieds statement that he encodes 20 characters/day, and that it took him some 200 characters until he had a solid grip of the technique, and assuming that he study in a 5 day work week. $200/(20*5) = 2$ work weeks or 10 days.

The only thing Katla experienced as a problem was how one was to apply the different direction to understand which tone the character's pronunciation had. Initially, she failed to grasp that it is up to the subject herself to decide which direction that is the "first" direction representing the first tone.

Siegfried states that the most difficult part of establishing the method was carrying his cheat sheet with him, even though it was a transitory problem. He also had an initial problem with the tone/direction part of the method, but he solved this by substituting the direction with times of day, ergo the direction east became dawn, north became noon and so forth. This is similar to a technique used by another student, who explained on the 'training results' survey that he or she had replaced the directions with different seasons.

Bragi states that the directions was a bit problematic during the initial establishing as well, since there was no set way of deciding which direction at a place that was the point of origin, but he solved this problem easily. The directions of his places remain as a source of some discomfort, but this is mostly connected to the places which he rarely uses.

The core components of the method, the places, people and directions, are a common problematic denominator for PPM-non-users. The extent to which this was problematic varies within the group. Freke, for instance, thinks of the integration of these components to be complex but manageable, while Gunn find this deeply problematic – to the degree that she would rather give up than persist in mastering the method. Sigrun found the method to be very complex and confusing, but her main problem with using the method was that it requires a period of time when you establish it, which is something she states that she simply does not have.

Process of learning the PPM

Rolf thinks that others might have problem with overcoming the threshold of not actually learning much during the initial period. He reflects on this with regards to the repetition schedule, which he means leads to the subject not learning much until he or she has built up a base of characters for steady repetition. Once a PPM-learner has built up this base of characters, then he or she learns characters at a more rapid pace.

Siegfried used what he refers to as a cheat sheet for a period of time, and that it was only after a few hundreds of characters that he was felt that he no longer needed its support when encoding characters with the most common pronunciation patterns. Siegfried says that it quickly becomes obvious if you have encoded a character properly if you are using Anki, since if you consistently fail at remembering a character, then you simply need to go back and re-encode the character with a more vivid and memorable story.

Bragi says that persistence is essential when starting to use the PPM; you need to put some faith in the method – since it does not become efficient until you have your places distinctly visualized. He still has some problems with using places connected to final sounds that are rarely used, and with these he needs to think for a few seconds, or refer to his list of places. He finds most places accessible within a second, and he has very clear images visualized for these places.

When he thinks back on establishing the method he realizes that the mental workload got progressively smaller since he got more familiar with his places and persons. Eventually he arrived at a point which he refers to as convenient.

While Katla is not part of the PPM-negative group, she is the only one in the PPM-positive group who emphasizes the benefits of the spaced repetitions and considers these to be of great value, and that they have augmented her learning of characters greatly.

Although all of participants in the PPM-negative group abstained from internalizing the method fully, all of them have started to make use of some kind of spaced repetition. Gunn and Freke both use Anki-droid, and Sigrun and Tyr have started to use their own variants of spaced repetition practice in their studies.

Concluding remarks

The survey study shows that most students rated themselves low with proficiency in PPM after the 4th training session. This is echoed in the results of the interview study. The User group do, with one exception, report that they needed circa two weeks of self-training to establish the method. Two of the non-users lost their interest for the method at the second seminar, while the other two did not feel much interest in the method to begin with.

The second category in the interview study replicates the findings of the survey study. Both PPM-user and non-user interview respondents have trouble with different parts of the PPM, and the non-users seem to have problem with the same part of the technique, the visualizing segment (visualizing meaning, place, person and direction). The repetition schedule-segment of the technique seems to have had a great impact on the study group as a whole, since all students in the interview sample use this study technique in some extent.

How do the students perceive the costs and benefits of using the PPM technique and how does this estimate affect their choice of which learning techniques to use?

Survey results and analysis

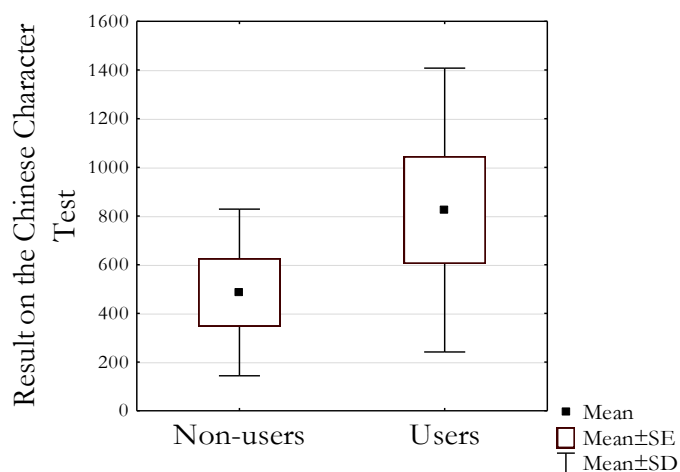
The fact that some students use PPM and some do not suggests that there are some costs and benefits to using PPM - if there were no costs and infinite benefits, all students would use it. To try and answer this, some of the results from the 'Learning Techniques, Attitude and PPM Skill' test will be used to gain the broadest possible picture of the overall class experience. First, we can see if the students seem to experience a benefit from using the technique, by looking at the relation between knowing the technique and using the technique. Second, we can also see if an experience of benefit might be related to actual benefits in terms of test results, by looking at

differences between test results among users and non-users of PPM. Perspectives on this general picture are given by the interview results below.

To see whether those who rated themselves as competent with PPM also tended to use the technique in the short run, a Pearson r was calculated. By doing this, we get a value of how strong the relation is, rather than just knowing if there is a difference between the groups. Rating of competence with PPM was significantly related to using the technique, $r(17) = .89, p < .05$. This suggests that students who master PPM often use it to learn characters in the short run.

To see if results on the ‘Chinese Character Test’ differed by proficiency with or using the PPM method, data was first lifted out for contestants who had answers both related questions (15-16)¹³ in the ‘Learning Techniques, Attitude and PPM Skill’ survey and done the ‘Chinese Character Test’, resulting in 12 valid contestants. Data from these were subsequently split into two, PPM proficient “Rating 4-7, $n = 7$ ” and PPM non-proficient “Rating 1-3, $n = 5$ ”, and PPM users “Rating 4-7, $n = 6$ ” and PPM non-users “Rating 1-3, $n = 6$ ”. To see if there was any difference between the groups on test result, unrelated t -tests were calculated (see Figure 1).

Figure 1. Results on the Chinese Character Test for PPM users and non-users.



Results on the Chinese character test was not significantly higher, $t(10) = 2., p = 0.07$, for PPM proficient students ($M = 928$) than for non-proficient students ($M = 401$). Results on the test was also not significantly higher, $t(10) = 1.7., p = 0.13$, for PPM users ($M = 931$) than for PPM non-users ($M = 486$). This still suggests that at least for these students, using PPM might have been an effective strategy, as the mean for users were almost twice as high as for non-users.

How then, do the students choose between using and not using PPM, if there might be a benefit in terms of test results of using it? Two possible reasons are first the difficulty of using PPM, and second the knowledge and usage of other learning techniques. The first option will be

¹³ 15. “I have mastered the People Placing Method” and 16. “I use the People Placing Method when I’m learning new characters”.

discussed here and the second under the next research question. First, we looked at this by seeing if PPM non-users found the technique harder to use overall and for different time intervals. Second, we looked at if the students possibly can change the cost of using the technique by using only some chosen parts of it.

To see if non-users found PPM harder to use than users, an unrelated t-test was calculated. There is a significant difference between the experience of how easy it is to use the PPM technique for PPM users ($M = 5.7$, $SD = 1.2$) and non-users ($M = 1.6$, $SD = 0.8$), suggesting that non-users do think that PPM is hard or at least harder to use than the other learning techniques they use. The students who don't use PPM also find the technique more strenuous to use both in short time periods ($M = 5.5$) and long time periods ($M = 5.5$) compared to the PPM users (M for short periods = 2.8, M for long periods = 2.7) (See Table 3).

Table 3. *Experience of using PPM among the students.*

Statement (Question 18-20)	PPM Users		PPM Non-users	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
PPM is easier than the other way I usually learn characters with	5.7	1.2	1.6	0.8
PPM is strenuous for me to use during a short period of time	2.8	1.6	5.5	2.
PPM is strenuous for me to use during a long period of time	2.7	1.6	5.3	2.

So even though the technique might be rewarding for those who successfully utilize it, non-users report the technique to be both harder to use than the learning techniques they usually use, as well as strenuous to use both in a short and long period of time, even after hours of instruction and training.

Is it possible to reduce the costs then by using perhaps parts of the PPM? On statement 21¹⁴ the students expressed not using parts of PPM to learn characters, both among PPM users ($M = 2.6$, $SD = 2.4$) and non-users ($M = 2.7$, $SD = 1.6$). This suggests, that at least not consciously, these students do not use even parts of the PPM training as a support for learning new characters, or they do not perceive the parts as different techniques. They either use the package or they don't.

This is somewhat confirmed by the students ratings of how they use different parts of PPM. In Table 4 below, the students' ratings for how they use different parts of PPM depending on if they are users or non-users are presented.

¹⁴ "I use my own variant with parts of the PPM to learn characters".

Table 4. *Use of PPM components among the students.*

Statement (Question 25-30)	PPM Users		PPM Non-users	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
When learning a new character...				
I try to visualize the characters meaning	5.6	1.9	3.8	2.5
I try to visualize the characters direction	4.8	2.4	3.3	2.6
I try to visualize the characters person (initial sound)	5.1	2.5	3.6	2.8
I try to visualize the characters place (final sound)	5.1	2.5	3.2	2.7
I mostly use the “ten minutes rule”, that is to take a short break after learning some characters and then test myself again	6.7	0.5	5.4	1.6
I try to use the repetition schema (spaced repetition)	5.2	2.	3.4	2.6

As can be expected, PPM users rate themselves higher on using different parts of the technique. One interesting exception is the “ten minutes rule” included in PPM, which is often applied both by users ($M = 6.7$, $SD = 0.5$) and non-users ($M = 5.4$, $SD = 1.6$). Still, there is surprisingly much variance, suggesting that some PPM users sometimes may use some parts of the technique less and some non-users sometimes might employ parts of PPM when studying.

Interview results and analysis

The following analysis strive to illustrate how the respondents see the PPM with regard to the relation between their own expenditure of resources (such as time and efforts) to the benefits they do or do not procure. These four categories has been formed from respondent answers that is interspersed throughout the material from separate interviews, and trace the respondents perception of the relationship between the different costs and benefits of using the PPM. As mentioned in the method section, the cost is interpreted as the amount of cognitive load the student experiences when using the method, and the benefit is the advantage the respondents perceive that the methods gives them.

High benefit/High cost

Two of the respondents experience the method as having both a high cost and giving large benefits to those who use it. These two are Siegfried and Gunn, and while they fall within the same category, their experiences with the PPM are widely different.

Siegfried feels that the method works, and he continues to use the method because of this. He thinks that his pronunciation has improved and that it has become easier to learn characters. He says that he can encode fifty new characters in an evening without much effort, provided that he has time to execute the first ten-minute repetition interval. He thinks that the PPM is a very basic technique and he has especially benefitted from the PPM when it comes to pronunciation. Siegfried states that at first he felt skeptic to the PPM, since the method requires the learner to first establish a number of people and places. However, he found it to be remarkably easy to use

once he tried to use it. Siegfried summarizes the PPM as a smart method, which might require more effort than his usual method, but it comes with a considerable payoff, ergo a large benefit.

Gunn refrains from using the PPM because it confuses her when she tries to use it. She says that there are too many components to remember during the encoding process, and that this overwhelmed her when she tried to use the PPM (indicating an experience of cognitive overload when she attempted to use the technique). She states that the PPM helped her remember the pronunciation and meaning of a character, but she consistently lost the actual pictogram when attempting to recall it. Gunn perceived the technique to have a high threshold, and since she had trouble overcoming it, she was gripped by a great fear that she would never be able to learn Chinese characters. This fear of possibly being shut out from learning Chinese because of her failure to use the method suggests that she thinks highly of the possible benefits which could be gained from mastering the technique.

High benefit/Low cost

The respondents in this category found the PPM to give great benefits in relation to the effort and time they had to commit to learn and use the method.

Katla considers learning techniques for Chinese characters easier a privilege, but not necessarily essential. She thinks that the PPM is a good method that works, and she will keep using it because she thinks it works. She qualifies this by saying that she thinks that she remembers characters better, and that she does not have to spend as much time on repetition. Three days of repetition with the PPM is enough, she says, although she admits that she would probably benefit from following the suggested repetition schedule fully. Katla did not experience that the method had a period of establishment. This point to her learning of the PPM had a low cost in relation to the benefits she receives.

Bragi had a positive initial response to the method, because it was distinctly reminiscent of his usual method of working with characters. Initially, he regarded the PPM as a more conscious or developed version of his own model for encoding characters, and that the PPM added more dimensions to the model. He thought that it would work in theory, and when he attempted to use the method it worked.

Bragi states that the PPM has made him realize that it is possible to learn a large number of characters at a faster pace than he previously thought thinkable. His early experiences with the method gave him a noticeable boost to his will to learn characters, and he thinks that learning to use the PPM has given him “A potent weapon in his arsenal”. This in turn makes him more motivated to learn more characters. Since he easily overcame the method’s threshold and derive additional motivation from using it the method was classified with a low cost for Bragi, and his statements suggests that he gains large benefits from using the method.

As mentioned above, Rolf established the method over a period of two to three weeks, but he does not express that this caused him much stress during this time, and that he did not have

much problem with finding his places nor people. This ought to be judged as the PPM had a low cost to this particular respondent.

Rolf states that it is obvious that the PPM works and that he will go on using the method for this reason. He says that he experience great benefits from the method, and since he plans to study Chinese for an indefinite period of time, he will keep using the PPM. He thinks that the time he had to invest to establish the method in his head has given large dividends. . Rolf describes the benefits he experiences from working with the method as such: ”/.../ efficiency on all levels, energy, I put in less energy, I put in less time, it’s there, and it is easier to retrieve when I need it”. This quote points to his experience is that working with the PPM has given him large benefits.

Low benefit/High cost

In this category, the subject judge the method to have a low utility in relation to the effort and time the respondent would have to spend in order to start using the method efficiently. Typically, these respondents do not use the method.

Sigrun states that the PPM has little to offer her since she is fluent in Vietnamese and that using the PPM would be a detour in her learning since she already have much cultural and linguistic knowledge which help her learn Chinese characters. Sigrun also says that she usually has great difficulty visualizing, which contributes to make using the PPM a taxing and superfluous experience. Although she does not benefit much from the method herself, Sigrun is still positive to the PPM. She says that she thinks that the method as such is probably useful if you were born and raised in the west, and has time to establish it properly.

Tyr chooses not to use the PPM because he thinks that he lacks the necessary creativity and drive that he feels that the method requires. Tyr admits that he has not really spent much time reflecting on the PPM and why he does not use it. He expresses on several occasions that he does not have enough patience work with the method, and that he feels that he does not have the time to establish the methods framework. Furthermore, he thinks that he is satisfied with the method he was using before encountering the PPM. Tyr’s reply implies that he does not consider the PPM to bring enough benefits in relation to what he would have to invest to learn to use the method, which suggests that the cost is too high for him.

Low benefit/Low cost

In this category, the respondent feels that there is little to gain from learning the method, and that the method would be easy to learn, if he or she should choose to do so.

Freke does not use the PPM because he does not feel that he has any need for the method as such, because he thinks that his established method of working with learning characters is sufficient. He admits that he has an advantage since he has extensive knowledge of Japanese characters and words. Freke says that it is rare for him to encounter characters with which he is completely unfamiliar since many Japanese and Chinese characters are essentially similar, and he

usually only needs to learn the Chinese pronunciation of the character. Freke mentions that the PPM does not satisfy his interest in character radicals and neglects their etymological backgrounds, which are additional reasons to why he abstains from using the PPM. As mentioned above, Freke claims to understand the PPM and that he could probably use it if he felt that he would have a need for it – but he does not. Additionally, he reasons that it would take him at least a week to establish the PPM's framework in his head, and that is a week he feels that he does not have. Thus he does not consider the PPM to be a costly method with which to grow familiar, but he deems the benefits for doing so inadequate.

Concluding remarks

Both the survey study and the interview study gave different insights into how students experience the cost of using PPM in relation to other study techniques. The survey results showed that there was a strong relation between having mastered PPM and using PPM in one's studies. It showed no significant results for test results, but in this student group the PPM users had a higher mean for test score. PPM users in this group reported to experience the technique as easier than previously used methods, and not strenuous to use in the short or long run. The opposite was experienced by the non-users, who found the technique more difficult than previously used methods and more strenuous to use in the short and long run. The student's reported not using only parts of the technique, but results showed that many of the non-users used the 10-minute rule, and there was a difference on how much different parts of the technique was used by PPM users. This suggests that they don't perceive parts of the technique as the technique, such as repetition schemas.

In the interview study, it was possible to show how students fit into different categories depending on how they experience the costs and benefits of using the technique. PPM-users all answer that they receive benefits of using the PPM, and one of the PPM-users stated that there had been an initial high cost of using the method – which had disappeared once he started using the method. The reasons for non-users are somewhat split, with one respondents wishing to use the method but finding it too hard to use the visualizing part. Another respondent experienced the technique to be of little value due to how it downplays certain aspects of learning a character, such as the radicals or the characters cultural etymology.

How do the students perceive their own learning process in relation to the study techniques available to them?

Survey results and analysis

One of the possible explanations for some students not using PPM is that the method might be easier or harder to use depending on the studying habits and background of learning techniques available to the students. If they are already proficient with different techniques, learning and using another one might be less strenuous. Again, to gain an overall picture of the class, results from the 'Learning Techniques, Attitude and PPM Skill' test will be used. Shen (2005) has showed that students accumulate and use more learning techniques as they have studied longer. First, we therefore look to see if there is a relation between use of PPM and how long the students have studied at University level. Second, we see if there are any differences in studying habits among PPM users and non-users. Third, we go on to the use of learning techniques among the students. We later deepen these results, using the interview results.

To see whether those who use PPM tended to have studied longer at university, a Pearson r was calculated. The calculus showed, that number of semesters was not significantly related to using PPM, $r(16) = -.23$. This still suggests, at least in this group of students, that there was a small relation between using PPM and having studied at university for a shorter period of time. Using the cost/benefit theory, students who have studied for a shorter period of time thus might find it less costly to learn and apply a new learning technique. Using the phenomenographical approach, for some reasons, students with fewer semesters behind them might find it easier to acquire the knowledge or understanding necessary to find the PPM rewarding.

In Table 5 below, the students' ratings for how PPM users and non-users differentiates in their use of studying habits.

Table 5. *Studying habits among the students.*

Statement (Question 1-3, 5-6)	PPM Users		PPM Non-users	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
I always create a schema for how to set up my studies	2.9	1.5	3.3	2.1
I follow my studying schema strictly	2.3	1.7	3.3	1.8
I often study regularly on the same times	2.	1.4	3.1	1.4
I often study together with others in my study group	3.3	1.3	2.4	1.
I often find out how an exam/test will look beforehand and adapt my studies to it	4.2	1.7	4.1	1.2

Overall, the students were close in their use of different learning techniques among both groups. The students who used the PPM rated themselves lower on studying habits that included creating a schema and following it, suggesting that they don't perceive the repetition schema as a

part of PPM (even though they may follow it), or that they refer to not creating an additional schema apart from the PPM.

Two differences in the students study habits are shown. First, Table 5 above shows that the students who used the PPM seems to more often study in groups, which is supported by a statement made on the 4th seminar by a student; “By studying in groups, you can help each other to visualize tricky characters”.

Second, Table 6 below shows the students rating on how they use learning techniques, divided on PPM users and non-users.

Table 6. *Learning techniques used by the students when learning new characters.*

Statement (Question 8-13)	PPM Users		PPM Non-users	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
When learning a new character...				
I often try to understand why the character looks like it does	5.	2.1	4.9	1.7
I reason with myself about the character and the process of learning it	4.9	1.9	4.2	1.9
I try to use it, for example by writing it in a sentence	2.3	1.4	3.7	1.6
I try to use it in different exercises	2.1	1.2	3.7	1.6
I try to read it often and at different times	3.1	1.5	4.9	1.4
I create my own tests after I've practiced to see if I know the character	5.1	1.7	3.9	2.3

Table 6 shows that PPM non-users in this group seems to use a more contextualized approach to learning characters, more often using them in sentences, trying to read them often and use them in exercises.

Remember that the ‘Chinese Character Test’ was built upon testing characters one by one, which resembles the way students learn characters in PPM. The learning techniques used by PPM non-users suggests that they might get a higher result if tested with characters in a more natural setting, such as in context with each other, because that might work as a better memory cue for retrieving the character.

Interview results and analysis

In this segment, the respondents’ reports have been divided into different groups, depending on how those in the interview sample relate to the different study techniques with which they are familiar, and how the training in PPM has changed the way they study. These categories represent an interpretation of the entire interview material as a whole, as it became clear that there were few respondents who had internalized the PPM entirely, as well as there were non-users who had taken up some part of the method as well.

The first group is users, those who claim to use the PPM in any larger extent. Then there are mixed users, who do not use the PPM in its entirety but has adapted segments of the method

into their own study routines in some way. The final group is non-users, who have completely foregone using the PPM in their studies and use other techniques to learn Chinese characters.

Users

Rolf states that he works exclusively with Pinyin Pantheon, which he finds to be an expedient method of learning characters. At first he had some reservations towards the technique, but he had a positive expectation that the technique would work. He says the technique is similar to the method of study he utilized before hearing of the PPM, although he did employ this method of encoding passively. Prior to using the PPM, he analyzed the characters and tried to elicit a “feeling” or “sense of meaning” which he then connected to the word, and this technique is reminiscent in his use of the PPM, since the PPM segments of place and person merges and becomes a sense of a person and a place – with their associated pronunciation cues, rather than remaining separate pieces of information. He states that he has encountered different methods of learning characters during an extended visit in Japan, but that he is not familiar with any other study techniques except the PPM. Rolf uses a variant of the repetition interval component. He waits for thirty or forty minutes before he does his initial repetition, but he otherwise follow the set repetition schedule.

This suggests that, at least for Rolf, the cognitive load of visualizing lessened the more he used the technique and that he consider study techniques to be something apart from the PPM. There is also indication that an assimilation of sorts occurred since Rolf’s usage of the PPM progressively became similar to his old study technique.

Katla states initially that she uses the PPM in her studies, and that it is her most prominent study technique, but then proceeds to relate that she does not, in fact, follow the set repetition intervals and sometimes she skip the visualizing part as well. She comments that she does only repeat the characters she encodes to the second interval, ergo three days after the initial encoding – and then she repeats them again when an exam approaches. She thinks that she would probably benefit from following the set schedule fully, but she thinks that she does not have the time. She describes the initial three days to be the most essential to encoding the characters successfully and that if one fails to rehearse a set of characters correctly in the three-day-period then it becomes difficult to recall them later, even if they were properly encoded initially.

Additionally, Katla substituted the self-testing segment of the method with a technique imported from the rote-learning of earlier courses. She uses a three column system. The columns consist of the Swedish meaning (column 1), the pinyin translation of the character (column 2), and the character itself (column 3). If Katla is practicing the meaning of a character, she leaves column 1 blank, looks at the character or pinyin and then fills in the Swedish meaning in column 1. This principle of self-testing can be used for any of the columns. Note the identical format between this technique and the Chinese character test. Her rehearsals thus consist of a PPM-supported three-paragraph test. Here, too, there is a suggestion that the subject tend to assimilate the PPM into their existent method of learning characters.

Siegfried has a rather fluent style of conducting his studies, which is due to his studying being a second occupation since he also works full time in the service sector. He knows that he has got a limited amount of time for studying each week, and he has adapted to this by using modern study tools such as the Anki-droid app and the IOS program Macjournal both of which he has synchronized to his Smartphone. During his earlier Japanese studies he learned to visualize characters appearance and how this often is connected to their meaning, and through working with Anki he was also familiar with repetition intervals. He emphasizes that visualizing and coming up with memory rules is effortless to him. This shows that Sigfried has adapted the PPM to fit into his own studying situation, and that he has combined it with commonly available technology to maximize his own learning.

Previously to encountering the PPM, Bragi was already creating small stories around characters and visualizing meanings in order to remember them better. He states that he was doing this on a near instinctual level. In Excerpt 4, Bragi gives a description of how he used to work with character learning previous to encountering the PPM.

Excerpt 4. *Sequence drawn from the interview with Bragi.*

- | | |
|------------|---|
| 1. Bragi | [...] I have always made short stories in my head, even before I came into |
| 2. | contact with. [1.5 sec. pause] |
| 3. Interv. | Okay? |
| 4. Bragi | The character for “cup”, “Béi” [杯], it consists of the first like the character |
| 5. | for tree [木] and then the character for “no” [不], and then you |
| 6. | create a small stupid memory trick there the point of which is.. A cup |
| 7. | isn’t like a tree, like. Then you have a small story there, it is super trivial |
| 8. | of course, very rudimentary, |
| 9. | but it is, in any case, something to that you can connect the character to. |
| 10. | I’ve always done this. |

Earlier in his Chinese studies, he states that he tried to learn characters by writing them multiple times, but as he discovered that this had little effect, he progressed to trying to be more imaginative in his learning of characters. Now, Bragi uses the PPM with support from the flash-card program Anki-droid. He differs from the earlier respondents in his studies because he actively goes beyond the study literature to find the characters he wants to learn. Typically, he studies the characters presented in the course materials in advance, but he also goes online and searches the web for characters that are of interest to him personally. The characters which he finds online he then programs into his Anki-deck along with those he has taken from the course books. Once he has programmed the new characters into his Anki-deck, he then encodes them in his memory using the PPM. In Excerpt 5, Bragi explains how he works with the ten-minute rule.

Excerpt 5. *Quote from the interview with Bragi.*

And then I go back to the start of those characters, of the, to the beginning of the pile of the day and learn the meanings with help from the people-placing method, create small stories and like, that whole part. Then, when I done that, I run that ten-minute-rule, I follow, I follow those rules pretty precisely, like this.

Bragi thinks that he follows the rules set up by the PPM, although after the initial encoding, he uses the repetition intervals which are pre-programmed in Anki-droid. The technique which Bragi used before the encountering the PPM is markedly similar to the methods people-placing part. It quickly becomes obvious that Bragi was used to working with his imagination even before encountering the PPM, and this might have helped him absorb the method easier than other students, and it would also explain why he found the technique attractive it was presented to the group.

Mixed Users

Gunn informs that she has a number of different strategies in her learning of Chinese characters and Chinese in general. For learning words and characters, she uses the teaching program Anki-droid, and considers this program a great aid since it takes care of the repetition-intervals for her. The respondent puts the Anki-droid repetition interval-function on equal footing as the PPM repetition technique. In order to encode characters she uses something she describes as “silly memory rules”. She says that in order to learn how to use characters, you need to actually apply them. Typically she studies a text for an upcoming seminar along with its words/characters, and then she tests her knowledge of how well she knows these characters against the different tasks in the course books.

Sigrun relates that she is not familiar many learning techniques, but she claim that she has a method of learning characters that works and that she will keep using this method. When she is studying characters, Sigrun use the same system as Katla (three-column-repetition without PPM-support), described above. She refers to this as the traditional way, and says that this system is effective since the information is quickly encoded, but it has the drawback that it fades quickly. Sigrun’s description of her method of method of studying is described in the following interview excerpt (6):

Excerpt 6. *Sequence from the interview with Sigrun.*

1. Sigrun I mean, I usually go with the traditional [method], you write down words, or
2. characters, in a column, then you write the contents, or the translation,
3. on Swedish, and then Pinyin, so there is three columns, and then just
4. read of it and write it and, if I have Swedish sentences in front of me I
5. try to like write characters next to it, and then yes, you hide the
6. characters and just look at, and write Pinyin. It takes time and it sticks
7. right away, but you also forget it quite quickly. So his three days
8. characters which we got from. [...] It is a great method and I think

9. you have for it, but it probably is a question of how you organize your
10. time as well. But it is good. I think.
11. Intervj. The repetition schedule?
12. [1 sec. pause]
13. Sigrun Yes, precisely!
14. Intervj. Is this something you have taken up in your own studies?
15. Sigrun Yes it is, it is something have used since it yes
16. [0.3 sec. pause]
17. I got to know about this. So yes. I have used it and passed all test and such,

Here, Sigrun state, the PPM training has helped her through teaching her about the ten-minute rule and spaced repetition. Additionally, not shown in the excerpt overhead, she describe that she uses a method of deconstructing characters to their component radicals, and because she knows what kind of meaning certain radicals infer to their characters. Through decoding these radical structures she is able to create more memorable connections to the character in question – as opposed to simply reading the character.

Tyr's method of studying characters is similar to Sigrun's. He also uses a three column system, although he normally encodes these columns in groups of five at a time, as shown in Excerpt 7.

Excerpt 7. *Sequence from the interview with Tyr.*

1. Tyr: If it characters for instance, we have a list of words. Then if I only have one
2. word I write it once, I make a word list of my own, I write all characters,
3. the characters once, pinyin once, and the meaning, and if you then have twenty
4. characters, I usually divide them up into groups of five, and then just, cram those
5. five, then go to the next five and then repeat. Like that, not so exciting.
6. Intervj. this three column system seems to be recurrent among you respondents, is this
7. something you have gone through during the sessions or what?
8. Tyr it is mostly that the word quizzes themselves usually look like that there is three
9. columns, and so it is that one of the columns is erased, and you are either to fill
10. in the Swedish explanation, the characters or Pinyin.
11. Intervj. Ah, precisely, do you remember if the was something in particular that you
12. appreciated with this session?
13. Tyr Eeehuu, I have, actually, used, maybe not exactly ten minutes, but ehh, that I take
14. when I have crammed my words that I actually take a small break, and come back
15. and repeat them, to make them stick. So just that, I've used, but otherwise with
16. the Forgetting thing, no, I suppose I have forgotten.
17. Intervj. But you have thereby worked with some sort of repetition schedule?
18. Tyr Yeah, I suppose so?

In this excerpt, Tyr explains that he has taken this format from how the character quizzes in class are designed. Tyr also uses a modified version of the repetition schedule of the PPM, although he says that he does not use it as stringent or structured manner that is prescribed in the PPM spaced repetition schedule. Tyr is not familiar with other methods of studying Chinese or other languages.

Non-users

Freke has knowledge of a number of different study techniques, excluding the PPM, and he has tried some of them. He presents shadowing which he defines as when you listens for a recording

and then try to reproduce what is said as accurately as possible; immersion, by which he means spending time in an environment where the target language is ubiquitous; and finally he suggests that conversations with native speakers passive listening to native speakers talk might also be good ways to develop language skills. Freke states that he thinks that variation is needed to keep studying interesting.

Concluding remarks

In the survey, we could see that in this student group, there was a small relation between having studied for a shorter period of time at university and using the PPM. Overall, there were few differences in the studying habits between the users and non-users, with one interesting exception of a small difference of studying in groups which was more common among PPM users in this sample. In relation to learning techniques, non-users in the sample also reported to more often using a contextualized approach to their studying of characters, such as by writing the characters and trying to use them in sentences.

Throughout the material, we see adaptability when it comes to how the students use learning techniques. All of the students in the interviewed sample do in some way take parts of the PPM and merge these with their existing study methods. The survey study suggested that students have mixed perceptions of how important different PPM parts are and the interview study support this statement. Some PPM users use variants of the repetition schedule consciously, and some non-users use the built-in repetition function of the Anki-droid mobile application. A possible conclusion from this is that some students don't find all parts of PPM to belong to the method. Rather, they only see the visualizing part as the core of the PPM, and this is perhaps the hardest part to use.

Discussion

Our discussion follows the same overarching structure as the results and analysis section, and we discuss each of our research questions in turn. We also conduct a reasoning concerning the strength and weaknesses of the study along with recommendations for future research.

Research Questions

What are the student's motivations for studying Chinese Language and what differences in motivation can be found among individual students?

It is easy to assume, that since the PPM has a quite high threshold of usage (taking considerable time to learn and establish for most users), more motivated students would go through the process of learning such a costly method. In our results and analysis, we found no relation between overall motivation and using the PPM, as well as no relation between different types of background motivation and use of PPM. This suggests, at least for this student group, that motivation to learn Chinese, or the reason thereof, is not what helped the student to choose between using and not using PPM. This is in line with the earlier research presented above, such as summarized by Dunlosky et al. (2013), which has not pointed out motivation as an important factor for students success in using different learning techniques.

The survey study showed that the PPM users on average studied less time per week than non-users. The interviews could give no direct explanation to this. More students among those interviewed that used PPM studied for recreational reasons. This might mean that they choose to study fewer hours per day, as they prioritize other aspects of their lives. Still, seems rather unlikely, since there is no motivational difference between PPM users and non-users. This would be expected if learning Chinese were a lower priority for most PPM users.

What are the reasons then? Another possibility might be found in the types of learning that the two groups participate in. PPM has a fixed procedure; the student test themselves on a set of characters from earlier days, they visualize a set of new characters, they take a break, they repeat the characters again and after that they are done with the character learning. PPM non-users work more contextualized with the characters than PPM users, which might indicate that these students rather sit and work with the characters for a non-fixed duration of time, in the end resulting in more studying time per session. This could possibly explain why PPM users spend less time per day studying.

We can further this line of reasoning by discussing a result in a study by Kuo & Hooper (2004). The researchers found that students who self-generate when learning characters, such as by drawing pictures or inventing stories, took four times longer to study the same set of

characters as other group. As mentioned above, PPM differs from KMT by using a fixed set of places (the directions is counted as an extension from the places) and a fixed set roster of characters, which may result in lesser need for creative effort by the user. Because of this, even though both methods are self-generating in nature, PPM might take less time to use due to the structure of the method.

When do the students perceive themselves as competent with PPM and why do individual students differ in their time needed to master the PPM?

Both result and analyses have concluded that many students experience PPM to have a high user threshold. Even after four sessions of training, many students rated themselves unexpectedly low on their proficiency with the technique. As showed in the interviews, some students gave up already before or during the training sessions, and those who became PPM users often needed more time after the sessions to establish and learn to use the technique.

Earlier research gives possible explanations to why students have problems with mastering this technique, related to its origin in mnemonics. Dunlosky et al. (2013), Fritz et al. (2007) and Goldman (1972) have discussed the possible limitations of mnemonic techniques due to it relying on student creative effort. Some people just might not be adept at forming mental images and thus have troubles using mnemonic techniques. Goldman (1972) related this to possible differences in how good people are at associative memory, as mnemonic techniques were shown in his study to work better for students who were good at associative memory. This would suggest that there are individual differences accounting for the possibility to learn with a specific learning technique, suggesting for more necessary research within the individual psychology perspective.

The phenomenographical approach can be used to understand these results in another light. Some students in this group report having troubles simultaneously using multiple cues from the PPM to help learning to read new characters. This is similar to the example by Marton (1997), where people know of Newton's laws of motion but still have trouble using them to understand how an perceived object in motion are kept in motion. The problem for some students in this study might thus not be a lack of knowledge, but rather too little training in the ability to use this knowledge to help understand characters in another way.

The nature of these problems is something needed to explore in further research. Do the problems for the students lie in 'seeing' the image (their *understanding*), or does it lie in coming up with what to imagine (their *knowledge*)? In the survey study, we could see a difference in tendency to study in group among the PPM users. Though this might be a result of random difference, this might also be a coping mechanism for the PPM users to help with problems of visualizing. By sitting in group, students can help each other to find out what to visualize when connecting the meaning to the image is difficult. More studies within the sociocultural and sociocognitive perspective could help shed some light on this question. No answers in the interview studies

suggested that studying in group was a common activity for any one of the students. Those answers which were given pointed towards character learning being a solitary activity.

Many students have started to use the 10-minute rule in some regard, even though they may claim not to use the PPM. There are multiple accounts in the interview study which support that both non-users are trying to keep the importance of repetition in mind, to following a strict protocol with the Anki-droid application. Most of the PPM-user interviews say that the directions part was more difficult to learn and apply than the people and place visualizing parts of the method, and two of the users came up with innovative solutions to this problem, such as changing the season or time of the day. This suggests that it is possible to progress differently in different parts of PPM, ergo that it is possible to first establish the places and persons roster, and then implement the directions at a later stage.

The prevalence of the spaced repetition shows that some parts of the method are easier to master than others. The fact that many of the respondents, both PPM-users and non-users, report that they experience a positive effect on their studies by implementing a variation of repetition, replicates earlier support for spaced repetition found by Bahrick & Hall (2005). It is also in line with the theory that retrieval increases storage and retrieval strength (Bjork & Bjork, 1992). However, it is possible that these positive effects which the students experience might be more due to the testing effect described by Roedigger & Karpicke (2006a, 2006b) and Roedigger & Butler (2010), since the spaced repetition is often conducted through activities which are different kinds of practice testing and the research point out that longer intervals between tests also seem to give additional benefits. More likely, the two learning techniques complement each other.

How do the students perceive costs and benefits of using the PPM technique and how does this estimate affect their choice of which learning techniques to use?

The survey analysis showed that there is a strong relation for these students to use PPM once they've mastered the technique. This suggests that the biggest problem for using PPM, is getting over the threshold of mastering it. As shown in the interview study, most of the students perceive the PPM to come with a cost of some sort and not everyone is prepared or able to expend their resources in order to acquire the possible benefits of this method.

The results can be interpreted in light of the utility theory framework (Newell et al. 2007, p. 103-114). There are some results suggesting that the costs and benefits of using PPM change according to how well students rate their proficiency. Non-users of the PPM rates the method low in utility compared to other methods, and expresses it to be strenuous to use both during short and long periods of time. The opposite is the case for the PPM users, who rates the method high in utility and expresses fewer problems with using the method for short and long periods of time. This is supported by the results of the interview study, where PPM users described some initial problem with using the technique and how it got easier to use with time. One of the most

salient results was found among those interview respondents who considered the PPM to be of high cost and high benefit. The pair of respondents in this group illustrates the problem that can arise when the PPM framework is being established, as one respondent was unable to attain a functioning level of mastery and the other did so at after initial work with establishing components of the method. This shows that users and non-users do not always have different first experiences of learning PPM, albeit different ending results. The other PPM-users found in the low-cost category described either a facility for visualizing or had worked with a similar method beforehand that made the transition to the PPM framework easier. Those who consider the PPM to be of low benefit are found among the non-users. Most of the respondents in the non-user group state that they understand the basics of the PPM, but abstain from using it because they either felt no need for it, or they did not have time to invest in learning the method. One student quote being unwilling to spend time to establish the method, another student quote having no need for the method and the third had neither time nor need for the method as such. This shows that the fact that it takes time to establish the method is a deterrent to potential users. Another reason lifted by one of the respondents was how the technique was inadequate for specific needs, such as learning the different character components (e.g. the radicals)

Both studies suggests that when students appreciate the costs of learning PPM too high, they look at what parts they can use from the technique and try to adapt it into their regular studies. Likewise, tentatively suggested by both studies, is that when the cost for using a part of the technique is too high for a PPM user, they reduce or slightly modify that part of the technique. An example is the 10-minute rule of repetition. As we have shown, it is common for the non-users of PPM to have implemented the 10-minute repetition rule or trying to be aware of accounting for future repetition. But just as some find the cost of using the technique low, some find it impractical. One respondent explains that he waited about 40 minutes before repeating, showing that he broke down the technique into something he could more easily apply. This suggest, that students perceive different components of PPM easier to use or adapt, which would imply, that in the future it is possible to teach PPM in just different components - students will still find something to use that can help them in their studies. This also suggests that PPM sessions could be shortened to include fewer components when less time is available to the students.

These results can be interpreted in the light of Leutner's (2009) reasoning about cognitive load and resources. Following this theory, using the PPM seems to require a different amount of cognitive resources depending on the user's proficiency with the technique. One respondent reported experiencing great difficulties using the technique, suggesting that the technique increased rather than decreased the cognitive load during learning of characters. Three respondents reported some initial difficulties when used the technique which decreased over time, which suggests that cognitive load lessened for these individuals as the proficiency rose. In the survey study, PPM users reported fewer difficulties when using the technique for short and

long time periods than non-users, which may indicate that the initial experience of cognitive load is one of the main factors that predict acquisition of PPM.

The results can also be interpreted in light of the phenomenographical approach. Some students report that they understand the PPM and how to learn Chinese characters using it, but that they also perceived the resulting understanding to be flawed (such as the missing connection with radicals) or impractical (using all the PPM-related knowledge is impractical in relation to using earlier acquired cultural knowledge). Students thus sometimes find the PPM-knowledge hard to apply in order to gain suggested understanding, but sometimes also find the resulting understanding unwanted for other reasons.

None of the students reported experiencing help specifically from the extra processing allowed by the visualization in relation to practice testing. This suggests that, at least not consciously, the students do not experience positive benefits from the possibilities of using extra effort to retrieve character information. Since working with PPM gives more cues for the users to work with when testing themselves (such as trying to remember the person in the mental image). Thus, we find no material which is related to the retrieval effort hypothesis discussed by Pyc (2009) and Carpenter (2009).

When results from the survey was compared to the results from the Chinese Character Test, students who used PPM showed to have a higher result, albeit non-significant, than non-users. This suggested that, at least for these users, PPM was an effective method. This was in line with the experience of most PPM users, who claim to learn more characters faster than before. It is here necessary to nuance the result found by this comparison, with reference to the research design used by this study and concerns raised by earlier studies.

The research design of this study was to explore the students experiences of using the PPM as a critical case with close to ideal prerequisites; using a full-time studying sample, giving multiple training sessions, using a test which measured 'Chinese character → Pinyin → Swedish translations' (note the direction of translation) and testing the translations out of context. Changing the type of test, amount of study time available to students or the amount of training could have meant different results for these students. Fritz et al. (2007) have lifted the existing critique of KMT as being supportive of *receptive learning* (where students learn native equivalents to foreign words) rather than *productive learning* (where students learn foreign language words to the native words). When using PPM, students are encouraged to understand characters to improve their ability to read Chinese. The method does not involve learning of radicals or number of strokes, possibly meaning that PPM users in the end get less training in and possibly have a harder time producing Chinese characters, such as by translating words from Swedish to Chinese. Finally, the survey results showed that when starting to use PPM, students seem to leave a more context-based set of learning techniques in favor of PPM. Since the Chinese Character Test did not test characters in context, such as asking the students to translate a blocks of text or complete

words (consisting of multiple characters) from Chinese to Swedish or in reverse, we do not know if this transition comes at an unseen cost for the PPM users.

Dunlosky et al. (2013) who created a meta-study of many different learning techniques, showed that KMT and Imagery have a doubtful effect or effect only in certain contexts, while practice testing and distributed practice has shown general and strong results. Since the PPM use all these in some sense, possible learning effects might be due to only one of these techniques, such as the practice testing, rather than the combination of all techniques. Much research is necessary to replicate and understand the student experiences of this technique, even though it shows some promising results both in test mean and the PPM user evaluations.

How do the students perceive their own learning process in relation to the study techniques available to them?

What has become evident through the survey and the interview study is that the students in the sample tend to internalize study strategies depending on their appreciated cost and benefit. It is also common for the students to adapt the techniques available to lower the cost of usage. In the survey the students report not using different parts of PPM or an adapted version of PPM, suggesting that they view the method as a subset of techniques rather than a package. This is shown in the interview study by how widespread the repetition, or variations of repetition, have become for the respondents. The PPM-users report on using the PPM in different ways, for instance, one uses it as a complement for her traditional method, and another uses it in full but with slightly modified repetition schemas. Many of the interview respondents already used digital complements in their study, such as the mobile application Anki-droid - created to help students with practice testing whenever they have time. PPM using respondents who used Anki kept using the program, but included it as a part of the PPM and used the practice testing on the presented interval.

In the study by Shen (2005), the most commonly used learning techniques used by Chinese language students were to look at graphic structures in characters (orthographic approach), preview-review and making mental linkages to a character and linking it to context. The orthographic approach was shown to be more commonly used by students the longer they had studied Chinese. This finding was replicated in this study, students who had Vietnamese or Japanese as previously known languages referred to how this helped them understand new characters. Still, among our interview respondents, this did not predict whether or not they would use PPM. The technique could either be seen as excessive (the student had already established a working approach), or transitioning into using the PPM could result in studying becoming simpler - where PPM could support learning of pronunciation and tone for characters where the meaning was already somewhat known.

When looking at the differences between PPM users and non-users in the survey sample group, they were similar both in motivation (noted above), studying background, studying habits

and use learning techniques. However, there were some notable differences. Among PPM users, studying in group was more common, discussed above. It also showed that the non-users more often study characters by writing them in sentences, using them in different exercises or reading it often and at different times. Why is this the case? Few answers were given by the interview respondents not using PPM. Other methods for practice testing than using Anki was described, such as using a sheet similar to the tests used in the course to test themselves on the characters.

One possible reason might be a necessity for the self-generation presented by Kuo and Hooper (2004). The students might experience that self-generation, even though it is time-consuming, helps them to better remember characters. As shown by Shen (2005), the other commonly used techniques, orthographic and testing-retesting are both techniques that is increasingly used the more students learn Chinese characters. Using the characters in sentences, trying to read and use them often, might be one way for students to self-generate material that can help them to remember characters better. When learning the PPM, the visualized images might instead work as a substitute for this self-generation, making the other context-creating techniques feel excessive. Using the phenomenographical approach, these differently used techniques might be a result of how students appreciate the benefits of different understanding of characters.

Weaknesses and Strengths

In retrospect, viewed through the lens of the results of this study, it would have been an alternative to omit students with pre-knowledge about Chinese or Japanese from the sample group, since this knowledge fosters a familiarity with characters which affects the experience of techniques such as PPM (as shown in the interview study). Because of our focus on students' experiences of this method, we chose to include these students as we believe they represent a part of the natural diversity among students with interest in Chinese language. Still, in future studies, it might be an important perspective to understand in relation to different experiences of learning techniques for learning Chinese character.

A problem with this study is the size of the Chinese character test, since it is possible that the size of the test might have deterred more than one participant from trying to use the PPM method, since a large test generally indicates that one has to divert substantial amounts of time to succeed. Since the test was intended as a tool with which to measure the amount of characters the students had learned and not as a test with a possible level of failure, this point ought to have been stressed more when the Chinese character test was presented.

Another problem with the Chinese character test are the possible benefits of not using the PPM at the cost of previously used learning techniques. As seen in the results, the non-users tend to study characters by learning them in context and by applying them in writing, while the PPM-users learn characters one at a time. Since the text quizzes the students through a sequence of

single characters, this could easily have favored the PPM-users and non-users who studies characters in a similar one character manner.

A third problem with the Chinese Character Test is that persons with learning disabilities might have a harder time to assimilate new study techniques in general, and especially techniques as complex as the PPM. They may also find it very difficult to sit through such a lengthy test as the Chinese character test. But the fact that many students elected to remain and keep writing after the set time had run out suggest that this might not have been a problem. Still, it is something which is worth considering, especially with regards to future studies of the PPM.

In many ways, this was an ideal case for testing the technique, since this was done with a group of students at an intermediate level of competence in Chinese, who were studying full time at university level. This can be seen as a strength of the study, as the results of this study can be interpreted to be indicative of what happens under the most promising conditions to date. In this study, this have raised the question of what would possibly could be expected if the PPM were to be implemented in less ideal contexts, for instance, in a Swedish high school class or at senior high school level. As the study has shown, a weakness with the PPM is that the method can be a demanding to internalize in full, and due to the much more constrained conditions in the Swedish school system, students would probably have less time to be trained in the method. This study shows that many students in the larger sample did not use the technique after much training, thus it is questionable if high school students would be able to assimilate and use the method – perhaps an object for further research.

Despite the possible weaknesses of the study, it has become clear that a combination of scientific approaches can be used to give an expanded image of a studied phenomenon. The survey contributes by showing how the responses in the entire sample group are distributed, along with some differences between the two categories which can be identified through statistical analysis. The qualitative research interview gives a deepened understanding of how the study's subjects experience the studied phenomenon. Together these two methods give a picture that raises the complexity of how subjects perceive how it is to work with this type of method, as well as giving a general view of how these experiences might be spread throughout the sample.

Future Research and Recommendations

Some recommendations for future research have been mentioned earlier in the discussion; nature of visualizing, group interaction and PPM, background factors for choosing learning techniques, benefits and weaknesses of a PPM approach, replication and need for bigger sample. A possible other area is the possible cost change by using digital supplements.

As we have seen, some students refer to difficulty using PPM or KMT. Still, the nature of problems with visualizing used in mnemonic techniques is unclear. When students claim to have problems with visualizing, we do not know if they refer to problems with 'seeing' an image, or coming up with the material to 'see'. Depending on the nature of these problems, possible

recommendations in relation to learning techniques differ, such as possible training methods that can improve preconditions for students (e.g. in associative memory).

Among our sample of students, there was a difference between PPM users and non-users tendency to study in group. This could possibly be a way for PPM users to support each other while developing or using the learning technique. This could in turn suggest that success with PPM is related to interactive phenomena. If this difference between PPM users and non-users proves to be a non-random occurrence, the area of research could benefit from studies with an interactive perspective.

Within this study, we found no special difference in motivation or motivational background among the students that could explain or predict students' choice of learning techniques. This area can be explored further by looking into other factors such as; studying techniques used in other subjects and/or at earlier age, prevalence of learning disabilities, peer pressure for using certain techniques, memory and language abilities. Such variables, and possibly others, could give new insights into how learning techniques are experienced and adopted. This is also the case for choosing to use some parts of PPM but not others, which was common among the non-users.

Within this sample of students, PPM users had a non-significant higher mean at the Chinese character test. This shows that for this small group of students ($N = 12$), PPM was a successful learning technique. We have discussed the possible benefits and possible unseen weaknesses of the technique above, such as the possible benefit of lower amount of time needed to study and the possible problem with direction of translation on the tests. We do not know how PPM fare in the long run, as research on distributed practice suggests it might result in long time encoding compared to students possibly using massed practice. We also don't know how the different parts of PPM contribute to its possible effects, such as if some parts of the technique are excessive or where possible interaction effects between the parts of PPM lie.

Probably the biggest weakness with this study is related to the used sample. Statistically, this study has low power to find possible correlations and differences between the groups, making both replication and validation problematic. This also spill over to the results of the qualitative part of the study. Along with the other recommendations of future research, finding some way of enlarging the sample (such as by combining it with the data of this study) or combining samples over a longer period of time is necessary to further establish or refute the results found here.

A final encouraging area of research is the relationship between digital supplements for PPM or other learning techniques. In this study, we can see that some students adapted their use of PPM (or their other learning techniques) to the use of the mobile application Anki. This suggests, that possible other mobile applications or encouraged/trained use of such could help students to lower costs further for PPM or other learning techniques - which in turn could lower the necessary preconditions of using the PPM. An example could be if a mobile application already held a person/place/direction-schema, and gave suggestions of implemented meaning when the student is learning a character - something that could help minimize the need for creative effort.

Conclusions

In this study we have found that students to different degrees merge new learning techniques into their existing set of techniques, although the study has not been able to find any background criteria for which they do so. Those who use the PPM experience that the method work and the statistical data support this claim for this group of students. The students who elect not to use the PPM find the method to be too costly to establish with regards to the time and effort required, but questions remains to how adaptable the technique is and if it's possible to ease the use of the technique for these students. The strengths and benefits of this technique are also so far unexplored, although components of it have been studied in other contexts.

Andersson stresses that it might be valuable to explore different memory techniques to enhance and improve language learning and that this is not limited to learning Chinese but could also be explored in the context of other languages and other subjects. If students, and pupils, could be instructed in memory techniques and then be able to use them to improve their learning, the benefits to education would be obvious.

Jonecrantz believes that this study show some of the possible benefits overall with learning techniques. Some students seems to incorporate small and easy to apply rules (such as the 10-minute rule) almost directly, suggesting that there is much possible work that teachers can do to possibly improve their students approach to studying – and at the same time do it time-efficiently.

Overall, this initial study points out many possible areas of future study, both to better understand students' experiences of learning techniques, but it also points towards some exciting areas and possibilities of using learning techniques within education.

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Appendix A – Enkät om träningsresultat

Ta ställning till följande påståenden

1. Jag känner att jag behärskar Pinyin Pantheon-metoden

☐ ☐ ☐ ☐ ☐

Instämmer
Inte alls

Instämmer
helt

2. Jag kan visualisera *betydelsen* av ett tecken när jag övar

☐ ☐ ☐ ☐ ☐

Instämmer
Inte alls

Instämmer
helt

3. Jag kan visualisera *platsen* som behövs när jag övar

☐ ☐ ☐ ☐ ☐

Instämmer
Inte alls

Instämmer
helt

4. Jag kan visualisera *personen* som behövs när jag övar

☐ ☐ ☐ ☐ ☐

Instämmer
Inte alls

Instämmer
helt

5. Jag kan visualisera den *riktning* som behövs när jag övar

☐ ☐ ☐ ☐ ☐

Instämmer
Inte alls

Instämmer
helt

6. Jag har förstått det repetitionsschema som används till Pinyin Pantheon

☐☐☐☐☐

Instämmer
Inte alls

Instämmer
helt

7. Jag behöver mer lärarledd träning på följande;

☐ Visualisera betydelse ☐ Visualisera plats

☐ Visualisera riktning ☐ Att använda repetitionsschemat

☐ Visualisera personer ☐ Inget av alternativen

Appendix B – Enkät om studenters studievanor i kinesiska

Försök att svara så sanningsenligt du kan på enkäten. Svaren är anonyma och kommer att användas så att de i examensarbetet inte är möjliga att spåra till dig. Det finns inget rätt och fel svar, utan målet med studien är att så nära som möjligt fånga dina tankar kring senaste tidens studier av teckeninlärning.

Om dig

Kod: _____

Kön: ☐ Man ☐ Kvinna

Ålder: _____

Antal terminer på universitet/högskola: _____

Jag läser kinesiska på:

☐ Helfart ☐ Halvfart

Ta ställning till följande påståenden om dina studievanor

1. Jag skapar alltid ett schema för hur jag ska lägga upp mina studier. *(ringa in ditt svar)*

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

2. Jag följer strikt mitt studieschema. *(ringa in ditt svar)*

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

3. Jag studerar alltid tillsammans med andra i min studiegrupp *(ringa in ditt svar)*

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

4. Jag lägger följande antal timmar i veckan på mina studier, ej räknat föreläsningar/seminarier. *(ringa in ditt svar)*

<1 1-2 2-3 4-5 6-10 11-15 16+

5. Jag studerar regelbundet på samma tider. *(ringa in ditt svar)*

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

6. Jag tar alltid reda på hur en tenta/ett test kommer att se ut och anpassa mina studier efter det. *(ringa in ditt svar)*

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

7. Jag känner mig motiverad att lära mig läsa/skriva kinesiska tecken. *(ringa in ditt svar)*

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

8. När jag ska lära mig ett nytt tecken, så försöker jag att förstå varför tecknet ser ut som det gör. *(ringa in ditt svar)*

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

9. När jag ska lära mig ett nytt tecken så resonerar jag med mig själv om tecknet och om processen att lära sig det. *(ringa in ditt svar)*

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

- 10.** När jag ska lära mig ett nytt tecken försöker jag använda det, exempelvis genom att testa
Att skriva det i en mening. (*ringa in ditt svar*)

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

- 11.** När jag ska lära mig ett nytt tecken försöker jag att använda det i olika övningar (*ringa in
ditt svar*)

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

- 12.** När jag ska lära mig ett nytt tecken försöker jag att läsa det ofta och vid flera olika
tillfällen (*ringa in ditt svar*)

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

- 13.** När jag ska lära mig ett nytt tecken skapar jag egna test efter att jag övat för att se om jag
kan tecknet (*ringa in ditt svar*)

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

- 14.** Försök att i korthet beskriva hur du går till väga när du försöker lära dig nya kinesiska
tecken:

Ta ställning till följande frågor om People Placing-metoden

15. Jag behärskar People Placing-metoden. (*ringa in ditt svar*)

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

16. Jag använder People Placing-metoden för att lära mig tecken. (*ringa in ditt svar*)

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

17. People Placing-metoden är en bra metod för mig när jag ska lära mig nya tecken. (*ringa in ditt svar*)

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

18. People Placing-metoden är lättare än det sätt jag annars brukar lära mig tecken med. (*ringa in ditt svar*)

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

19. People Placing-metoden är ansträngande för mig att använda under kort tid. (*ringa in ditt svar*)

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

20. People Placing-metoden är ansträngande för mig att använda under lång tid. (*ringa in ditt svar*)

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

- 21.** Jag använder en egen variant med delar av People Placing-metoden för att lära mig tecken. *(ringa in ditt svar)*

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

- 22.** Mer träning (undervisning) i People Placing-metoden skulle hjälpa mig i min teckeninläring.

☐☐

Ja

Nej

- 23.** (Om ja på Fråga 22). Så här mycket träning tror jag att jag skulle behöva:

☐☐☐☐☐

<1 timme

1-2 timmar

3-4 timmar

5-6 timmar

Mer

- 24.** (Om ja på Fråga 22). Jag skulle behöva öva på dessa delar av tekniken:

☐

Visualisera betydelse

☐

Visualisera plats

☐

Visualisera riktning

☐

Att använda repetitionsschemat

☐

Visualisera personer

- 25.** När jag ska lära mig ett nytt tecken försöker jag att visualisera tecknets betydelse. *(ringa in ditt svar)*

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

- 26.** När jag ska lära mig ett nytt tecken försöker jag att visualisera tecknets riktning (ton). *(ringa in ditt svar)*

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

- 27.** När jag ska lära mig ett nytt tecken försöker jag att visualisera tecknets person (initialljud). *(ringa in ditt svar)*

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

- 28.** När jag ska lära mig ett nytt tecken försöker jag att visualisera tecknets plats (finalljud). *(ringa in ditt svar)*

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

- 29.** Jag brukar använda ”tiominutersregeln”, dvs. att göra en kort paus efter att jag lärt mig några tecken och därefter förhöra mig igen. *(ringa in ditt svar)*

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

- 30.** När jag ska lära mig ett nytt tecken försöker jag att använda repetitionsschemat (spaced repetition). *(ringa in ditt svar)*

Instämmer inte alls

Instämmer helt

1 2 3 4 5 6 7

Tack för din medverkan!

Appendix C – Intervjuguide riktad mot PPM-användande studenter

Etiska påpekanden

Bakgrundsfrågor

Hur gammal är du?

Hur länge har du studerat vid Universitetet?

Vilka akademiska meriter har du?

Varför läser du kinesiska?

Hur intresserad är du av att lära dig kinesiska tecken?

Hur brukar du göra när du studerar?

När brukar du känna att du behärskar ett tecken?

Har du någon/några strategier för att stämna av om du faktiskt behärskar ett tecken?

- Om ja, kan du beskriva denna/dessa?

Har du någon tidigare erfarenhet av minnesteknik?

Hur hördes du först talas om People-placing metoden?

- vad var din spontana reaktion när du hörde detta?

Huvudtema 1: ”Varför väljer en del studenter att använda metoden och andra inte?”

Inledande kommentar: Under kursen fick ni delta på tre seminarier.

Undertema 1: Under *det första seminariet* fick ni ta del av en del minnestekniska grunder:

- Var det här något du kände igen sedan tidigare?
 - Hade du till exempel hört talas om visualisering?
- Upplevde du seminariets innehåll som relevant för kursens syfte att lära sig kinesiska tecken?
- Var det något särskilt under detta seminarium som fick dig att bli intresserad av att använda minnestekniker?

Undertema 2: *Det andra seminariet* handlade om People Placing metoden (PPM):

- Hur upplevde du metoden initialt?
- Beskriv hur det gick att skapa platser till places-delen.
- Beskriv hur det gick att hitta personer till people-delen.
- Var det något särskilt under detta seminarium som fick dig att bli intresserad av att använda metoden?

Undertema 3: *Det tredje seminariet* handlade om glömska:

- Var det något särskilt du uppskattade med detta?
- Kan du beskriva hur du uppfattade att ni skulle arbeta med repetitionsscheman?
- Var detta något du sedan gjorde?
- Om ja, beskriv hur du gick tillväga.
- Var det något särskilt under detta seminarium som fick dig att bli intresserad av att använda PPM?

Undertema 4: *Generella frågor om val av metod:*

- Vilket är ditt generella intryck av PPM?
- Känner du att du behärskar metoden?
- Om ja, när började du känna att du behärskar metoden?
- Om ja, vilken del av metoden tog längst tid att etablera?
- Vad anser du kunde ha gjorts för att hjälpa dig förstå metoden bättre?
- Vad tycker du är svårast med PPM?

Huvudtema 2: Hur ser studenterna på sin egen lärandeprocess i relation till inlärningsteknikerna de har tillgängliga?

- Hur gjorde du för att lära dig främmande språk innan du kom i kontakt med PPM?
- Hur gör dina vänner/de andra i klassen när de lär sig kinesiska tecken?
- Har du hört talas om andra metoder för att lära sig kinesiska eller andra språk?
- Om ja, vilka?
- Upplever du att PPM har medfört positiva effekter för ditt lärande av kinesiska tecken?
- Om ja, upplever du att PPM har inneburit en lagom stor arbetsinsats i relation till dessa positiva effekter?
- Vad är det som får dig att fortsätta använda PPM?
- Hur gjorde du innan du kom i kontakt med PPM?

Appendix D – Intervjuguide riktad mot studenter som ej använder PPM

Intervjuguide riktad mot PPM-negativa studenter:

Bakgrundsfrågor

Hur gammal är du?

Hur länge har du läst vid Universitetet?

Vilka akademiska meriter har du?

Varför läser du kinesiska?

Hur intresserad är du av att lära dig kinesiska tecken?

Hur brukar du göra när du studerar?

När brukar du känna att du behärskar ett tecken?

Har du någon/några strategier för att stämna av om du faktiskt behärskar ett tecken?

- Om ja, kan du beskriva dessa?

Har du någon tidigare erfarenhet av minnesteknik?

Huvudtema 1: ”Varför väljer en del studenter att använda metoden och andra inte?”

Inledande kommentar: Under kursen fick ni delta på tre seminarier.

Tema 1: Under *det första seminariet* fick ni ta del av en del minnestekniska grunder, t.ex. visualisering:

- Var det här något du kände igen sedan tidigare?
- Upplevde du seminariets innehåll som relevant för kursens syfte att lära sig kinesiska tecken?
- Var det något särskilt under detta seminarium som fick dig att bli ointresserad av minnesteknik?

Tema 2: *Det andra seminariet* handlade om People Placing metoden (PPM):

- Hur upplevde du metoden initialt?
- Beskriv hur det gick att skapa platser till places-delen.
- Upplevde du det som ett problem att skapa platser till places-delen?
- Beskriv hur det gick att hitta personer till people-delen.
- Upplevde du det som ett problem att hitta tillräckligt många personer till people-delen?
- Var det något särskilt under detta seminarium som fick dig att bli ointresserad av metoden?

Tema 3: *Det tredje seminariet* handlade om glömska:

- Var det något särskilt du uppskattade med detta?
- Kan du beskriva hur du uppfattade att ni skulle arbeta med repetitionsscheman?
- Var detta något du sedan gjorde?
 - Om ja, beskriv hur du gick tillväga.
 - Om nej, varför inte?
- Var det något särskilt under detta seminarium som fick dig att bli ointresserad av PPM?

Tema 4: *Generella frågor om val av metod:*

- Vilket är ditt generella intryck av PPM?
- Känner du att du behärskar metoden, även om du inte använder den aktivt?

- Om ja, när började du känna att du behärskar metoden?
- Om ja, vilken del av metoden tog längst tid att etablera?
- Om nej, vilken del av metoden var det som du upplevde som mest problematisk?
- Om nej, vad anser du kunde ha gjorts för att hjälpa dig förstå metoden bättre?
- Vad tycker du är svårast med PPM?

Huvudtema 2: Hur ser studenterna på sin egen lärandeprocess i relation till inlärningsteknikerna de har tillgängliga?

- Hur gjorde du för att lära dig främmande språk innan du kom i kontakt med PPM?
- Har du hört talas om andra metoder för att lära sig kinesiska eller andra språk.
 - Om ja, vilka?
- Vilka specifika metoder förutom PPM känner du till för att studera t.ex. kinesiska eller andra språk?
- Vilka är de främsta anledningarna till att du inte använder PPM?
- Hur gör du när du lär dig kinesiska tecken (efter att du varit i kontakt med PPM men ej nyttjar metoden)?
- Är detta samma som du gjorde innan du kom i kontakt med PPM?

Appendix E – Translated Quotes

Bragi

1. Bragi /.../ Jag har ju alltid gjort små historier i mitt huvud, även innan jag kom i
 2. Med...
 3. Intervj. Okej....
 4. Bragi Säg tecknet för ”kopp” då ”Béi” [栢], det består av först liksom tecknet för
 5. träd [木] och sen tecknet för nej [不], och då skapar man ett dumt
 6. minnestrix där som
 7. går ut på, där, en kopp är liksom inte ett träd liksom. Så har man en liten
 8. historia där, den är ju superbanal såklart, superrudimentär, men det är i alla
 9. fall någonting att hänga upp det på. Det har jag alltid gjort, /.../.
-
1. Bragi Och sen går jag tillbaka till början av de tecknen, av själva, till början av
 2. dagens hög och så pluggar jag in betydelserna med hjälp av den här people-
 3. placing metoden, gör små historier och liksom, hela den biten. Sen när jag
 4. gjort det kör den där tiominutersregeln, jag följer – jag följer, dom reglerna
 5. ganska precis så här..

Rolf

1. Rolf /.../ Effektivitet på alla nivåer, energi, jag lägger ner mindre energi, jag
2. lägger ner mindre tid. Det sitter bättre, det kommer snabbare när jag
3. behöver det.”

Sigrun

1. Intervj. Hur intresserad är du av att lära dig kinesiska tecken? Alltså i typ
2. relation till att lära dig prata kinesisk.... Mandarin?
3. Sigrun Det är jättemycket intresserad, för det är dikter som jag läst på
4. vietnamesiska översatt direkt från kinesiska tecken, Guangxi och så,
5. Som jag läst sedan jag var lite yngre, som översättning på Pinyin? Ja
6. precis på Pinyin, kinesiska, och man vill gärna läsa den på tecken
7. också. Alltså jag brukar köra på det traditionella, att man skriver upp
8. glosor, eller tecken, i en spalt, sedan skriver man innehållet, eller

9. översättningen, i svenska, och sen pinyin, så det är tre spalter, och sen
10. bara läsa av den och skriva av och, om jag har svenska meningar
11. framför mig så försöker jag liksom skriva av tecken bredvid, och sen
12. ja, man följer tecken och bara tittar på, och skriver Pinyin. Det tar tid
13. och det sitter direkt, men man glömmer bort ganska snabbt också. Så
14. hans tredagars tecknen, minnesteknik som vi fick från.../.../. Det är
15. en jättebra metod och jag tror man har för det, men det är nog en
16. fråga om hur man organiserar sin tid också. Men den är bra. Tycker
17. jag.
18. Intervj. Det här repetitionsschemat?
19. [Paus]
20. Sigrun Ja precis.
21. Intervj. Är det här något som du tagit till dig i dina egna studier?
22. Sigrun Ja det är, det är något jag utnyttjat sen det ja.. jag fick veta om det här,
23. så ja. Jag har utnyttjat den och klarat alla test och så.

Sigfried

1. Siegfried ”Alltså jag tycker egentligen att skriftspråket är det som är det fina
2. med kinesiskan /.../ I och med att jag redan kan en hel del japanska
3. tecken är det skriften som jag tycker är kul och antar har lite lättare
4. för. /.../. Det är skriften som är det huvudsakliga, och att jag vill lära
5. mig att läsa kinesiska böcker på originalspråk.”

Tyr

1. Tyr Ehhh, om det är till exempel tecken, om vi har en gloslista. Då om,
2. jag bara har ett ord, då skriver jag det först en gång, jag gör som en
3. egen gloslista, jag skriver alla tecken, tecknet en gång, pinyin en gång,
4. och betydelsen, och om man då har tjugo tecken så brukar jag dela
5. upp dem fem och fem, och sen bara, traggla dem fem, sen gå vidare
6. till nästa fem och sen repetera... typ så.. inte så jättespännande.
7. Intervj. Det här trespaltsystemet verkar återkommande bland er
8. respondenter, är det något ni gått igenom på lektionerna eller?
9. Tyr Det är väl mest att själva glosförhören brukar se ut så att det är tre
10. spalter, och så är det en av spalterna som suddas ut, och då får

11. man antingen fylla i den svenska förklaringen, tecknet eller pinyin
12. Intervj. Jo precis, minns du om det var något särskilt du uppskattade med
13. det här seminariet?
14. Tyr Eeehu.. Jag har faktiskt använt mig av att, inte just tio minuter,
15. Men eeeh, att jag tar när jag pluggat mina glosor att jag faktiskt tar
16. en liten paus, och kommer tillbaka och repeterar dom, att få det att
17. fastna. Så just det har jag använt mig av, men annars det här med
18. glömska grejen, nej det har jag väl glömt.
19. Intervj. Men du har sålunda arbetat med någon form av repetitionschema?
20. Tyr Ja, det vill jag väl påstå?