Mnemonics and the Keyword Method

For those who are not all that familiar with this subject, there is an interesting (very) short account of memory and mnemonics (Robertson, 2010). For me, the most interesting part is that Nietzsche apparently came dangerously close to being accused of plagiarism. This instance is of significance in the academic world. It is not unknown that writers of academic papers copy almost word for word part of an article/book without being aware of it and are then rather indignant if somebody (colleague, tutor, or examiner) accuses them of plagiarism.

"No longer philosophers and pedagogues, but only psychologists are involved in mnemonic learning techniques. The focus is no longer on modelling, justification and practical implementation, but only on the examination of the efficiency of individual mnemonic techniques.

It is possible that they, as Baine (1986) does, recommend mnemo-techniques for learning purposes, but always only tentative and without ambition, that is to say, on a low level".

(Voigt, 2001)

This view is undoubtedly – and sadly – correct. The keyword method has been the subject to – mainly – laboratory research to an extent that some, myself included, are of the opinion that further research *of this kind* is superfluous. Sommer & Gruneberg (2002) reckon that there are more than 60 research papers "on the market". Nation (2001, p. 314) puts the figure at "well over one hundred. Obviously, others are of a different opinion, hence the many contributions below. Gruneberg et. al. have found a new field of inquiry, the quality of the keyword (A. Beaton, Gruneberg, Hyde, Shufflebottom, & Sykes, 2005; Gruneberg, Beaton, & Hyde, 2000). It would be highly advantageous if more research would be conducted along the line of what I did in the thesis. However, for this kind

of research one needs teachers as researchers, not psychologists. Since this kind of research is only of value if it is longitudinal, it needs exceptional dedication of the teacher/researcher since it involves hard work in addition to his/her job of teaching according to the curriculum. For this very reason it also needs the permission and cooperation of the educational authorities. The chances are slim/zero. It should be noted here that one of the most cited criticism is that the Keyword Method is taught in isolation. Takac (2008) writes that "It seems safe to assume that the majority of teachers and researchers would concur that this strategy does not aid (long-term) vocabulary acquisition, that is that learning words in context is far more effective than learning isolated items. However, evidence in support of this view is still in short supply." Indeed it is and the more surprising is the phrase "it is safe to assume". There is evidence for effective long term memory, e. g., various papers of Gruneberg and my thesis. The key phrase here is "isolated items". This would of course not be very beneficial, but this never happens in the classroom. The rational of a classroom is teaching in context. Add to this the Keyword Method as described in my thesis and it becomes the "integrated Keyword Method (iKWM)". I think, Takac had only laboratory results in mind, when she wrote this sentence. However, she writes herself (p. 63) "The combinations of strategies and their effect on vocabulary acquisition may be a far more important research topic than the effect of one individual vocabulary learning strategy" and cites Gu & Johnson (Gu & Johnson, 1996)

This touches on the question, as with all scientific research, what the effect of the research is. Research for its own sake can become easily a case of scientific omphaloskepsis. There are several websites of online language schools which use mnemonics, but in the context of private general education. These are isolated cases – and business. One example: Gruneberg's "Linkword" courses in print or electronically (Gruneberg, 1987/2004). I have no information whether these courses are commercially successful. I am sure however, that titles such as "French in a Day" are viewed with

suspicion by the prospective buyers. Admittedly, this is the title of an older issue.

The electronic versions are a different matter, especially so since Sommer & Gruneberg have tested one of these courses (French) in a school situation (Rugby School). Their paper is essential reading.

The use of Linkword Language Computer Courses in Classroom situation: a case study at Rugby School

"This paper presents a case study of the implementation of a Linkword Language Course - French to a class of 13-year old at Rugby School. The class was selected because they were the weakest at French, performed poorly in examinations, and had problems in terms of motivation and enjoyment of French. The result of introducing a computer version of Linkword French as a complimentary learning aid to the standard text and classroom work was that after seven months, following the end of year examinations, a quarter of the class was promoted to the class above, a move that could not have been expected otherwise. The results of a questionnaire revealed that the great majority of pupils found the course easier and faster than conventional methods of learning. Rugby School, as a result of the study, has continued to use the Linkword courses, partly at the request of the pupils" (Sommer & Gruneberg, 2002).

So there is hope. This is the only research I am aware of that was conducted over a longer period of time in the classroom – and the learners perceived this as a true learning situation, not a test situation that was moved to the classroom. The authors write hat "the extended application of the keyword method appears to have been somewhat limited in school situations". This is an understatement. Revealingly, they

mention only one instance – and this also uses a Linkword course (Gruneberg & Jacobs, 1991). Unfortunately, they report only the difference of whole class marks improvement. I assume that these class marks include other criteria than just vocabulary learning. Still, there is a marked improvement, not to mention the impact on motivation.

The authors write that "The Linkword aspect of the course was regarded as *complementary* (my italics) to the main course". The course was also taught in preparation classes and there was only self-teaching, apart from two or three pre-sessions under supervision in the classroom. This is a big step forward from the research methods in the past, but is still not a school situation in which the keyword method is an integral part of the teaching/learning. I know the difficulties (see above), but it can be done as my thesis shows. In defence of the authors here, Rugby School and the concerned authorities would have never allowed a full-blown syllabus with the integrated keyword method over a complete academic year. I was lucky that I could conduct the research for my thesis in an adult-education institution. There is more scope for freedom.

I would be very grateful if you let me know if you have come across some principled teaching with the keyword method, how it is used, where and by whom.

Nation (2001, p. 313) writes that the keyword method has been compared in experiments with

- rote learning
- use of pictures
- thinking of images or examples of the meaning-instantiation-
- context-the unknown word is placed in sentence context and the meaning of the word is provided

- added synonyms-the meaning is accompanied by other known synonyms
- guessing from context

He reports that not all experiments have shown that the keyword method is superior and suggests that "so such learning may need to be closely followed by some additional meeting with the word". This is a very strange statement. I am not aware of any learning method - and no matter what subject – that does not need additional meetings.

Some (4) of the experiments that have shown some limitations of the key-word method is were conducted by Campos (2003). In all 4experiments the rote learning method was more efficient than the key-word method.

This is by no means the only research project that found that rote learning can be better than learning with mnemonics. The controversy will go on and will be reflected here.

One of the most cited criticism is that the Keyword Method is taught in isolation. Takac (2008) writes that "It seems safe to assume that the majority of teachers and researchers would concur that this strategy does not aid (long-term) vocabulary acquisition, that is that learning words in context is far more effective than learning isolated items. However, evidence in support of this view is still in short supply." Indeed it is and the more surprising is the phrase "it is safe to assume". And what does she mean by long-term? Days, weeks, months, years? There is evidence for effective long- term memory, e.g., various papers of Gruneberg and my thesis. The key phrase here is "isolated items". This would of course not be very beneficial, but this never happens in the classroom. The rational of a classroom is teaching in context. Add to this the Keyword Method as described in my thesis and it becomes the

"integrated Keyword Method (iKWM)" and immediately highly effective. I think, Takac had only laboratory (or laboratory-like) results in mind, when she wrote this sentence. However, she writes herself (p. 63) "The combinations of strategies and their effect on vocabulary acquisition may be a far more important research topic than the effect of one individual vocabulary learning strategy" and cites Gu & Johnson (1996).

Carney& Levin (2008) are of the opinion, along with others recently, that the key-word method should be used in the classroom. Interestingly, this was stated in the Journal "Teaching of Psychology", not a publication that is concerned with language teaching in general. And the members of the research groups were college students, as usual. Findings of the psychologists for the psychologists. And then this. "On all measures, mnemonic students statistically outperformed control students. These findings provide further support for the use of classroom-based mnemonic techniques".

Vividness is one of the needed characteristics for a quality key-word (cf. thesis). Campos et al (2011) examined the influence of vividness on the immediate and long-term recall (one-day interval). As I have mentioned elsewhere, psychologists and teachers have obviously totally different perception of what long-term is. Be that as it may, they compare rote learning with the key-word method with adults from 55 to 70 years old. "Individuals using keyword mnemonics recalled more concrete than abstract words both immediately after learning and after a one-day time interval. In contrast, subjects using the repetition method recalled more abstract than concrete words immediately after learning; however, no difference in the number of recalled concrete and abstract words were found after the one-day interval." They then propose new lines of research.

Zhang and Schumm (2000) compaired the rehearsal method with the keyword method and found that the keyword-method groups outperformed the rehearsal groups in vocabulary - and sentence completion tests. This one of the not so many papers that asked the learners, for a change, what THEY thought of the Key-word method. "…the majority of students in the two keyword groups reported that they enjoyed using the keyword method and planned to use it in the future."

Amiryousefi &Ketabi (2011) also see mnemonics as a remedy for the frustration of students when they realise their slow process. They propose several mnemonic devices to improve vocabulary learning enhance memory and also creativity and at the same time alleviate the frustration of their students.

Shapiro & Waters (2005) investigate the cognitive processes that underlie the keyword method for L2 learning. Cognitive engagement and visual encoding were examined. The subjects were provided either keywords and interactions (the Given condition) or instructions to generate their own keywords and interactions (the Self-Generated condition). Results indicate that the KWM is effective because it provides a meaningful visual image upon which to base memory for a new word's meaning. The authors then suggest that there is some flexibility in how the KWM is used.

Beaton, Gruneberg &Ellis (1995) turn to the quality of the key-word. First, they cite a previous research project by Ellis & Beaton (1993) which found that the key-word method was better for remembering receptive learning, but not for productive learning. The first two experiments showed that the key-word method was better than rote-learning, receptive and productive, provided that the quality of the keyword image is "adequate". The third experiment used a subset of words from the previous experiment from 1993 which was contradicted. The key-word

method performed better. The authors put this down to the quality of the keyword and its image. "The quality of keyword images will vary from study to study and any generalisation regarding the efficacy of the keyword method must take this into account."

I do not want to spoil the fun, but the issue about the quality of the keyword image is a thorny one. Not for the psychologist in his/her laboratory, but for the teacher. As I described in my thesis, I taught vocabulary over a period of several semesters, and I am still using this method. This is a somewhat different from what one can do in the laboratory. As a consequence, I have a vocabulary bank with thousands of words with their concomitant keyword and image. It would be a gargantuan task to provide all these words with a top quality keyword and image. This does not even take into account that there are individual differences in the learners. What one sees as a quality image, the other might not. Here we have again the problem we face with some of the laboratory findings, that cannot be transferred one to one to the classroom. Still, I agree with the quality issue wholeheartedly and the quality properties that are needed are listed in my thesis (cf. ch. 6.5)

Rodríguez and Sadoski (2000) compare the effects of rote rehearsal, context, keyword, and context/keyword methods on immediate and long-term retention of EFL. It is claimed that this was done in natural classroom settings and 8 intact EFL classes were involved. The results of these experiments showed that the context/keyword method was superior to any of the other 3 methods after 1 week and suggest that this method has promising educational value.

However, they did what most researchers of this subject do – they moved the laboratory for the purpose of this experiment into the classroom. The learners were asked to memorise 15 nouns and were given these nouns at an interval of 2 min. There is not a lot that is further removed from the "natural classroom". Their references could be more up to date.

Glynn et al (2003) debate mnemonic methods in general to facilitate learning and introduce some of them and then suggest how students can be trained in using these methods.

Tabatabaei (Tabatabaei & Hejazi, 2011b) examined whether there are gender differences in vocabulary instruction using the keyword method. They found that female learners perform with the keyword method better than their male colleagues in several aspects.

1. Females achieved higher percentage scores than males in immediate vocabulary posttest.
2. They achieved significantly higher scores in retention than males in delayed posttest.
3. They also achieved significantly better results in within group tests.

They also found that the keyword method is beneficial for motivation.

From anecdotal evidence, I can confirm that women, in general, take to the keyword method better than men. They seem to be more prepared to try new things. Men seem to be more suspicious at first and have to get used to the idea that many of the keywords and their concomitant images can be far fetched.

Using Similarity in Form between L1-L2 Vocabulary Items (Keyword Method / Linguistic Mnemonics) in L2 Vocabulary Instruction

The present study aimed to investigate the effects of keyword method instruction on developing the vocabulary knowledge of Iranian EFL learners. To this end, 77 intermediate-level male and female students of English (in four groups, two experimental and two control groups) were selected using Oxford Placement Test (Allan, 2004). The duration of the instructional program was 3 sessions for all experimental and control groups. At first An L1 or L2 word that has acoustic

similarity to the target word is selected by the learner to play a role as the key word. In the second step the learner is demanded to make an association between the target word and the keyword. Finally he is asked to create a mental picture of the combination of the keyword and the target word. A vocabulary pretest was designed and administered to the participants one week prior to the study. Then, immediately after the teaching phase they received an equivalent version of the vocabulary pretest called "vocabulary immediate recall posttest". Finally, for measuring long-term vocabulary recall of words learned through keyword method, two weeks after the termination of the treatment, the immediate posttest was administered again. The results of paired and independent samples tests indicated that students in experimental groups who received keyword method instruction, obtained significantly higher scores on the two posttests (immediate and delayed recall posttests) than did the students in the control groups and females outperformed males in both cases. The results of the study bear pedagogical implications for EFL teachers and learners.

(Tabatabaei & Hejazi, 2011a)

Effects of Using Mnemonic Associations on Vocabulary Recall of Iranian EFL Learners over Time

Effects of using mnemonic associations on vocabulary recall of Iranian EFL learners were investigated in two separate experiments with adolescents and adults. In each experiment, the students were divided into two groups of experimental (mnemonic) and control (rote). Using a number of predesigned (the researcher-designed) associations as models, the students of the mnemonic groups were trained to generate mnemonic associations of their own for the new vocabulary words they had chosen to learn. Then, their use of the initial (previously student-designed) and the new self-designed associations was assessed by giving four recall tasks. The students of the rote groups, on the other hand, were instructed to learn the words through memorization and repetition. The data analyzed

revealed that using mnemonic associations led to significantly better performance of the adult students when comparison was made with an external control group (rote group) and better performance of both adult and adolescent groups when comparison was made with an internal control group (when students used no association in mnemonic group). Furthermore, the higher performance of mnemonic groups who frequently reported using initial associations revealed that these had a significant role at vocabulary recall of students. Finally, mnemonic method significantly affected the vocabulary recall of adult students for both receptive and productive learning. (Anjomafrouz & Tajalli, 2012)

The role of educational strategies in human development: An example of using keyword method in teaching Arabic as a second language in Malaysia.

Yaakub (2010) links the success of the keyword method with the self-consciousness and personal psyches of the learners. He (2007) suggests some adjustments, among them "proper preparation of adjustment of the keyword method" and "identification of student memorization power" (2007).

Mnemonics Technique versus Context Method in Teaching Vocabulary at Upper-Intermediate Level

The aim of this study is to investigate the comparison of the effects of using mnemonics technique providing some keywords to students and context method on the retention of the vocabulary items. For the purpose of this study, 84 students who were at the upper-intermediate level of English from Selcuk University, Electrical and Electronics Engineering Department took part in the experiments. The students were divided into two groups to form the experimental and the control groups. Twenty target vocabulary items were used in the study. Each group was given a pre-test before the presentation of the new words. The vocabulary items were taught with mnemonics technique to the experimental group, and the control group was introduced with

the context method. Immediate recall and recognition tests were applied to each group after the treatment. To measure long term retention, delayed recall and recognition tests were given to the groups five weeks after the immediate tests. To analyse the difference between mnemonics technique and context method, t-test calculations were used with the results of the pre-tests, immediate and delayed tests. According to the results, mnemonics technique is more effective than the context method in immediate and delayed recall and recognition of the vocabulary.
(SARIÇOBAN & BAŞIBEK, 2012)

Separate mnemonic effects of retrieval practice and elaborative encoding

Does retrieval practice produce learning because it is an especially effective way to induce elaborative encoding? Four experiments examined this question. Subjects learned word pairs across alternating study and recall periods, and once an item was recalled it was dropped from further practice, repeatedly studied, or repeatedly retrieved on repeated recall trials. In elaborative study conditions, subjects used an imagery-based keyword method (Experiments 1–2) or a verbal elaboration method (Experiment 3) to encode items during repeated study trials. On a criterial test 1 week after the initial learning phase, repeated retrieval produced better long-term retention than repeated study even under elaborative study conditions. Elaborative studying improved initial encoding when it occurred prior to the first correct recall of an item, but while repeated retrieval enhanced long-term retention, elaboration produced no measurable learning when it occurred after successful retrieval. Experiment 4 used identical item word pairs (e.g., castle–castle) to reduce or eliminate verbal elaboration, and robust effects of repeated retrieval were still observed with these materials. Retrieval practice likely

produces learning by virtue of mechanisms other than elaboration.
(Karpicke & Smith, 2012)

The Impact of Keyword Technique on the Students' Vocabulary Retention Ability in an EFL Class

This paper makes an effort to show the effectiveness of keyword technique as a vocabulary retention technique. The study was a one-group pretest-posttest experiment and aimed to investigate the effect of keyword technique on vocabularies retention ability of 40 Bangkok University students and explore their attitude towards the use of keyword technique. The instruments were the vocabulary tests, and the questionnaire exploring attitude towards keyword technique. The pretest and posttest scores of the experimental group were calculated by descriptive statistics and compared by using a dependent t-Test measure. It was found that students obtained higher scores for the posttest than the pretest scores at the 0.05 level of significance. In addition, their attitude towards using the keyword technique was at a high level. Moreover, the results from this study supported that using keyword technique helped the students store and retrieve a new bunch of vocabularies, motivated them to learn English language and expanded their imagination and creativity.
(Jenpattarakul, 2012)

Bizarreness
(cf. thesis: 65)

In the debate about the keyword method there is not one issue more contentious than the property of bizarreness. Most experimental results are inconclusive or show no advantage when bizarreness is added to the image. Practitioners, myself included, are anonymous in rejecting these findings, so it is a mystery.

Worthen & Deschamps (2008) add humour to the issue of bizarreness. They replicate a study by Delin (1968) which was not generally accepted at the time, but they confirmed his findings. "In keeping with Delin's findings, the results of the present study suggest that bizarre elaboration facilitates both free and cued recall after ac substantial delay. The results also suggest that the facilitative effects of bizarreness are mediated by humour".

Some time ago, Iaccino (1996) also found that bizarre imagery is an effective mnemonic device.

Riefer & Lamay (1998) approached the subject differently. They used a model that measures storage and retrieval (Rifer & Rouder (1992)) and presented their subjects with common (non-bizarre) and bizarre material. They found that the better recall for common sentences was due to storage and not retrieval processes. They arrive at a two-factor theory: that common items are stored better in memory, but that bizarre items are retrieved better from memory and are of the opinion that his would explain some of the findings associated with the bizarreness effect.

Bizarreness effects in verbal tasks and subject-performed tasks

Recognition and cued recall of ordinary action phrases (e.g. "open the **book")** and bizarre ones (e.g. "plant the hammer") were compared under **two** encoding conditions: in verbal tasks **(VTs),** subjects learned the phrases by simply listening to them; in subject-performed tasks (SPTs), subjects learned the phrases by performing the denoted actions (without real objects). Memory performance was better after SPTs than after **VTs** in recognition and cued recall. In addition to this already established finding, it was observed that recognition was better for bizarre phrases than for ordinary ones after **VTs** and that bizarreness was unrelated to recognition after SPTs.

Cued recall, on the other hand, depended on bizarreness after **VTs** as well as after **SPTs** and, in contrast to the recognition findings, ordinary phrases were recalled better than bizarre phrases. This pattern of findings was explained by the assumptions that lexical and conceptual information is encoded after **VTs** and motor information is additionally encoded after SPTs, and that different kinds *of* information are used in recognition and cued recall, and after **VTs** and SPTs. (Engelkamp, Zimmer, & Biegelmann, 1993)

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