

AN ONLINE ARCHIVE OF DIGITAL KEYWORD METHOD IMAGES

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ABSTRACT

This paper begins by introducing a mnemonic technique for remembering vocabulary called the Keyword Method (Atkinson, 1975). It then explains how modern technology was used to extend the method in a digital classroom. Finally, the reader is guided through a free online archive of 675 Digital-Keyword-Method images for 350 English words that can either be incorporated into classes to create an environment of linguistic play or recommended to students as a unique self-study tool.

INTRODUCTION

Acquiring vocabulary is a major component of the language-learning process. Without the necessary words at one's disposal, grammar or pronunciation become close to irrelevant (Tight, 2010). A common method taught in the Japanese education system for studying vocabulary is rote learning (Fewell, 2010). This technique entails writing words over and over again in the hope that they will be consolidated into long-term memory. Despite the popularity of rote learning in Japan, more than 50 studies have shown that the Keyword Method (Atkinson, 1975) is a more effective way to remember vocabulary (Sagarra & Alba, 2006).

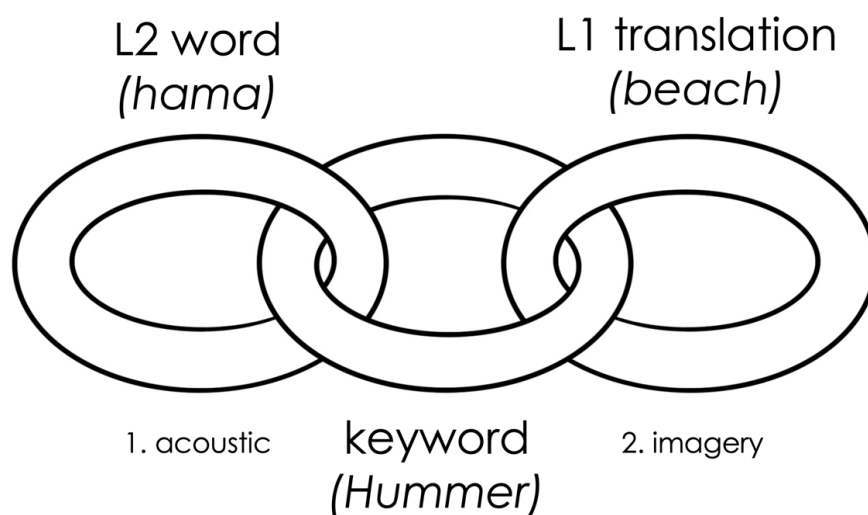
THE KEYWORD METHOD

The Keyword Method is a mnemonic technique developed to help remember L2 vocabulary. First, the student must think of a word (or words) in their own language (L1) that sounds like the L2 word. This is known as the keyword. In the second step, the keyword is connected to the L1 meaning by creating a sentence that includes the keyword interacting with a translation. A good way to imagine this is to think of a chain of three links. The link at one end is the L2 word, and the link at the other end is the L1 translation.

The middle link, which connects the two outer links, is the keyword (see Figure 1).

The link between the L2 word and the keyword is known as the “acoustic link”, because it is based purely on the sounds of the words. There does not need to be any semantic relationship between the words in this link. An example for an English-speaking learner of Japanese might be to use the word *Hummer* (the all-terrain vehicle) as a keyword for the Japanese word 浜 (*hama*), which means *beach*.

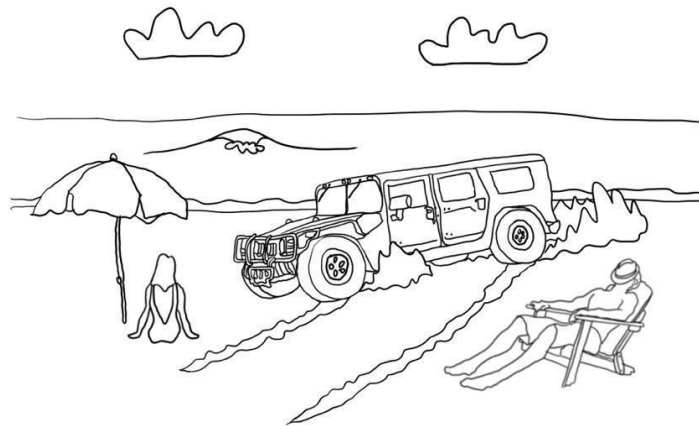
Figure 1. The Keyword Method



The connection between the keyword and the L1 translation is known as the “imagery link”. This time, the words are linked not by sound, but by a sentence that creates an image in the mind’s eye of the two words interacting with each other. To connect *Hummer* to *beach* in a memorable way, you could imagine a person driving a Hummer in between people relaxing on a beach (Sustenance, 2022). This is shown in Figure 2.

I have used this technique to remember Japanese vocabulary for many years, and I thought it could be adapted to be an effective and engaging way for Japanese students to study English vocabulary, so when I began working at Kanda University of International Studies (KUIS), a private university specializing in languages, in 2014, I started to experiment with using the Keyword Method in the classroom.

Figure 2. A Hummer on a Beach



THE DIGITAL KEYWORD METHOD

Coincidentally, 2014 was also the first year that all Freshman students at KUIS were required to purchase iPads. This, combined with classrooms that all had reliable wi-fi, allowed me the freedom to extend the original Keyword Method, and inspired me to create what I call the Digital Keyword Method (Sustenance, 2018).

The Digital Keyword Method combined Google Docs, an image-manipulation application called Pic Collage and Instagram (which in 2016 was a relatively unknown social media application in Japan). In this updated version of the Keyword Method, after creating the inherently multimodal keyword sentences, students then transformed them into “modal ensembles” (Bezemer & Kress, 2008) that explicitly show the interaction between sound, text, and image.

In the original iteration of The Digital Keyword Method, students then posted their creations to Instagram to create a virtual learning community. This worked well in the week-to-week flow of a classroom where students could search a unique hashtag to view all of the images for that week’s word list, but there was no way for a student to search for all images that had been posted for a certain word. Moreover, in 2019, presumably due to the increased popularity of Instagram, problems such as having images randomly deleted or being unavailable when searching the hashtags started to occur. This resulted in a less-than satisfactory experience, so I decided to create a different type of online archive.

AN ONLINE ARCHIVE

The Images

My first task was to sort through all of the images that had been created by my students over the years. The archive currently has images for 350 English words (see Appendix A for a complete list). Of these words, 215 are directly taken from the TOEIC Service List (Browne & Culligan, 2016), and a further 37 words, indicated by an asterisk, are variants of words found on that list (for example, *Comprehend* instead of *Comprehension*). The TOEIC Service List features heavily because students in the International Communication department needed to score at least 650 on the TOEIC test to graduate.

As I had used the Digital Keyword Method in the classroom for several years, many of the words on the list had multiple images to choose from. In total, there are 675 images on the website, meaning that, on average, there are just under two images for each word. As can be seen in Table 1, the majority of words have either one image (155 words) or two images (111 words). For the remaining 84 words, there are three or more images to choose from. More than two images were only included for a word when the keyword sentences used were unique and the pictures were of high quality.

Table 1. The Number of Images for Each Word

Number of Images per Word	% of the Words in the Archive
1	44.3
2	31.7
3	13.7
4	7.4
5	2.9

The minimum requirement for inclusion in the archive was that the images include an English word, a Japanese keyword sentence, and a picture (see Appendix B). Even when those conditions were satisfied, several factors influenced which images were chosen.

1. All of the sounds of the English word needed to be included in the Japanese keyword.

Despite the fact that Atkinson (1975) felt it was not necessary to have all the sounds of the L2 word in the keyword, my experience, and the work of Beaton, Gruneberg, Hyde, Shufflebottom, and Sykes (2005) lead me to believe otherwise. Atkinson felt that *eye* would be an appropriate keyword for *caballo* (the Spanish word for *horse*, which sounds like “cob-eye-yo”), but I have noticed that students often have trouble producing the word if the keyword does not completely overlap the sounds of the L2 word. Therefore, while a student might remember Atkinson’s image of “a *horse* kicking a giant *eye*” (p. 822), it is doubtful that the beginning and ending of the L2 word, the “cob” and the “yo” would also be remembered. This could be remedied by adding a corn-on-the-cob and a yo-yo to the image.

2. There are no extra sounds in the Japanese keyword.

Another impediment to the effective use of the Keyword Method is the inclusion of sounds in the keyword that are not part of the L2 word. Any extraneous sounds in the keyword tend to interfere with effective recall. For example, when trying to think of a way to remember *anonymous*, 匿名の (*tokumei no*) in Japanese, one student came up with the following sentence;

匿名の人が穴に入ります。 (*tokumei no hito ga ana ni hairimasu*)

This sentence, which evokes an image of an anonymous person going into a hole, includes all of the sounds of the L2 word (*ana ni masu*), highlighted, but there are extra sounds (*hairi*) in between. Therefore, this is not an ideal keyword sentence. By changing the sentence to one that has an anonymous person placing a measuring box (presumably full of Japanese rice wine) into the hole instead, these extraneous sounds disappear, and all of the sounds of the English word (*ana ni masu*) are now together.

匿名の人が穴に升を入れた。 (*tokumei no hito ga ana ni masu wo ireta*)

3. The keyword sentence contains three elements.

A keyword sentence consists of three different elements. In the case of a Japanese sentence for remembering an English word, the sentence must include the Japanese meaning of the English word, a Japanese keyword, and any remaining Japanese text. In the example above, 匿名の is the meaning of the English word, 穴に升 (*ana ni masu*) is the Japanese keyword, and 人が (*hito ga*) as well as を入れた (*wo ireta*) make up the remaining text. In all of the images on the website, these three elements are in different colors to help students distinguish the different parts of the sentence (see Appendix B).

4. The picture helps to explain the sentence.

The sentences in isolation are often hard for anyone but the creator to understand, so students were encouraged to create pictures that help to explain the sentence. In cases where several images were created for the same sentence, the image that included the most informative picture was chosen.

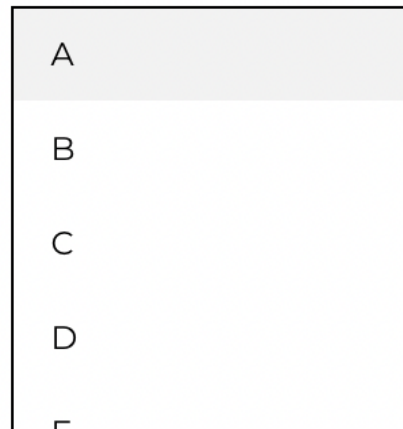
The Website

After organizing all of the images, I decided that a website I could be in charge of was the best way to archive the images. I had previously used weebly.com to create free websites for use in my classes and had found it extremely easy to use, so I decided to experiment with using the Weebly platform to create an online archive of keyword images. The website that I made can be found at: kwmjpn.weebly.com

The site, of course, can be viewed on either a computer, tablet or smart phone, but there are slight navigational differences. The following explanation is for the computer version. In the top right-hand corner, there are four clickable page links. The first one, "HOME", is the landing page. It has the title, The Digital Keyword Method, and a short explanation in Japanese. The next tab (キーワード法とは) gives a more in-depth explanation of the Keyword Method. There is an explanation of the Keyword Method and the Digital Keyword Method in Japanese. The next two tabs ("英単語 A-M" and "英単語 N-Z") contain all of the images, which are arranged in alphabetical order. Each letter has its own page that can be accessed via a drop-down list. For example, as Figure 3 shows, if a student hovers the cursor over the 英単語 A-M tab, all of the letters from A to M will be accessible.

Figure 3. The Images Are Arranged Alphabetically

ド法とは 英単語 A - M



Then, if the student clicks on the link to the “A” page, a list of words that begin with “A”, arranged in alphabetical order, will appear, as shown in Figure 4. If the student is searching for a particular word, the first thing to do is to check if the desired word is in this list.

Figure 4. Words That Begin With “A”

A

Abide

Absorb

Absurd

Acclaim

Accuracy

Activate

If, for example, the student was looking for an image to remember the word “Absurd”, finding the word on the list would encourage a move down the

page to the Gallery (ギャラリー). The Gallery (see Figure 5) is located directly under the list of words and includes thumbnails of all of the images for the words on that page. Clicking on a thumbnail opens up a bigger, complete version of the image. To view the images one-by-one, students can navigate forwards or backwards by either using the left and right cursor keys or clicking on the little arrow that appears when the cursor is hovering over the left or right border of the image.

Figure 5. The Gallery



DISCUSSION

Although it was designed for self-study by Japanese students (which is why all of the information on the site is in Japanese), it is possible to incorporate the Keyword Method, and the images contained in this online archive into a classroom. The development and implementation of the Digital Keyword Method was the product of a teaching environment where I had six hours of contact time per cohort, per week, and every student possessed equivalent technology. However, this situation is no doubt the exception rather than the rule in most Japanese universities. Regardless of the technology involved, the ultimate aim of the technique is to allow the teacher to move from being the “sage on the stage” to a position of “guide on the side” (King, 1993, p.30) as students work collaboratively to take control of their own learning.

A Traditional Classroom

Since April 2021, I have been teaching at a university in Japan where, unlike KUIS, students do not have iPads and there is no reliable wi-fi. I have developed two ways of using the Keyword Method in my classes for two different courses. The first course is a one-semester long sophomore-level English communication class of non-English majors that only meets once a week.

At the start of the semester, students are introduced to the Keyword Method, and at the end of the third class, they are given a list of the vocabulary words for the next class. This list includes eight English words, a Japanese translation for each one, and an approximation of the pronunciation written in *katakana*. At the beginning of the next class, students are given time to discuss their ideas in pairs or small groups, and then encouraged to share their sentences with the class by writing them on the blackboard. The classrooms include a projector, so the students are also shown example images from the website for each word. This only takes about ten minutes of class time. In total, 40 words are studied during the 15-week semester (Sustenance, 2022). I have also been teaching a Freshman English course where class cohorts rotate between five teachers over one semester, meaning that each teacher has each cohort for three weeks.

In the first week, students are introduced to the Keyword Method and shown how the Keyword Method can be used to remember English words by using examples from the online archive. In the second week, students have a chance to create their own sentences for 16 English words. They are given a worksheet that has four English words, a Japanese meaning for each word and a *katakana* approximation of the pronunciation. Students are then given time to work in pairs to make their own keyword sentences. An average of one minute per word has proven to be a suitable amount of time. Therefore, after four minutes, students pass the worksheet to the next pair and receive four new words. After four rounds, they have seen all of the 16 words, but not all of the sentences created by their classmates, so the four-minute rounds are reduced to 30 seconds in duration, and students are given a chance to read all of the sentences created in the class. Then, they are given time to add any good ideas to their original sheet. For homework, I have students input their favourite sentence into a Google Form, and then I collate them into a list that is used in the next class to analyse and rank the sentences.

Both of these group-oriented learning and experiential learning strategies fall into the social constructivism approach to teaching. This student-centered teaching style, developed by Vygotsky, is concerned with language and the influence of the social group on learning (Barry & King, 2004). Vygotsky believed that understanding is developed through interaction and advocated the use of group work in a cooperative approach (Fetherston, 2006). The activities described above came about as an attempt to replicate the real-time collaborative function of Google Docs in an analog classroom.

A Digital Classroom

As mentioned previously, a Digital Classroom environment (iPads and wi-fi) was the inspiration for extending the original Keyword Method into the Digital Keyword Method (Sustenance, 2018). Rather than using a blackboard or paper, students were able to work together in real time to create keyword sentences using Google Docs. Students were split into small groups and were responsible for different words. They were required to find a suitable Japanese translation, and then create a keyword sentence. If students completed their task quickly, they were asked to help create keyword sentences for the other words. Although the students are still ostensibly in control of the creative process, due to the omnipresent nature of Google Docs, the teacher, depending on their Japanese ability, can engage in real-time scaffolding.

An Online Classroom

Teaching online using software such as Zoom is, in many ways, similar to a Digital Classroom environment. Once again, Google Docs can be employed to allow students to work collaboratively to create keyword sentences. To simulate the interaction between small groups in a Face-to-Face class, I have used Breakout Rooms, and have found that the class as a whole tends to produce more sentences than when I do not employ Breakout Rooms. Perhaps students are more confident to share their ideas after discussing them with their peers first.

At the end of the class, or the end of the semester, students can then be introduced to the online archive and shown how to use it for their own self-study.

CONCLUSION

This paper introduced an online archive of 675 Digital Keyword Method images for 350 English words, and provided the teacher with some ideas of

how to incorporate the Keyword Method into various types of classroom environments. My experience using the Keyword Method in the classroom has been an overwhelmingly positive one. The majority of students appear to be attracted by the novelty of the process and seem to really enjoy the process of working together to think of the mnemonic sentences, reading the ideas that their classmates create, and then looking at the images that I present. Also, results of a pilot study using the Keyword Method in an analog classroom yielded a statistically significant result (Sustenance, 2022) suggesting that it may be an effective way to remember vocabulary.

Any negative feedback from students tends to fall into one or two categories, both of which can be addressed by the online archive presented in this paper. Even though, in the long term, using the Keyword Method can be less time consuming than rote learning (Piribabadi & Rahmany, 2014), students sometimes report that they feel like they don't have the necessary time to think of keyword sentences for every word they encounter. The online archive contains images for 350 English words, which should help considerably reduce any time-related negativity. Students also sometimes complain that, even though they might like the using Keyword Method, they don't have the necessary imagination to create memorable sentences. In a classroom, this can be overcome by the collaborative nature of the activities, but the same does not apply in a self-study situation. However, the online archive has 675 keyword sentences for the students to choose from, which should help compensate for any perceived lack of imagination.

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APPENDIX A

An Alphabetical List of the English Words on the Website

Abide	Biography	Crane	Enclose	Hideous
Absorb	Boast	Create *	Enroll	Hindrance
Absurd	Broad *	Criteria	Entrepreneur	Honey
Acclaim	Brochure	Crow	Envy	Horoscope
Accuracy	Browse	Culinary	Equation	Humid *
Activate	Bullet	Cultivate	Erase	Hunger *
Adhere	Bury	Deduct	Ethical *	Hydrangea
Adjacent	Cabinet	Defect	Evacuate	Hygiene
Agriculture	Calculate *	Definite	Evidence *	Immense
Aisle	Cargo	Delicate	Exclude *	Immigrant *
Allocate	Catharsis	Demolish	Excursion	Imperative
Ambitious	Caution	Deny	Exempt *	Include *
Amenity	Ceiling	Desire *	Expire	Inconsolable
Ample	Cheat	Desperate	Export	Incur
Analyze	Chronic	Detach	Facilitate	Indicate *
Angry	Circulate	Deteriorate	Fare	Infect
Annoy	Clap	Devastate	Fasten	Infer
Anonymous	Classify	Development *	Fatigue	Inference
Apology	Coffin	Diagnose	Faulty	Inflate
Appendix	Combine	Diagram	Fiscal	Insert
Appliance	Commitment	Diploma	Fixture	Integral
Appreciate *	Commute	Discard	Flaw	Intently
Apprentice	Compact	Dispose	Fluctuate	Interfere
Approach	Compatible	Distinguish	Fluent	Interpret *
Architecture *	Compile	Distribution	Forbid	Interrupt
Archive	Compliment	Dove	Forum	Invoice
Area	Comprehend *	Drought	Franchise	Involve
Aspect	Conform	Duplicate	Freight	Irrelevant
Atom	Consequence	Durable	Frustrate	Irritate
Attain	Considerate	Dynamic	Function	Itinerary
Auditor	Constitution	Eager	Furnish	Jockey
Authority	Consumer	Economy *	Garment	Kneel
Awesome	Contaminated	Efficient *	Generous	Lamentable
Bankrupt	Contradict	Elegant	Genre	Lawn
Banquet	Contrary	Eligible	Gobble	Legal
Behalf	Convey	Eliminate	Gravity	Lily
Benefit *	Countless	Embed	Gullible	Lobby
Betray	Courtesy	Emphasis	Habitual	
Beverage	Cower		Hesitant	

Lure	Participate	Recipient	Significant	Temporarily
Mandatory	Partition	Recruit *	Signify	Temp
Mechanic	Patent	Referral	Silent *	Tenant
Mentor	Pedestrian	Refine *	Similar *	Terrible
Merge	Penalize	Reflex *	Simultaneous	Terrific
Messy	Period *	Refund	Sincerely	Territory
Method	Permanent *	Rehearse	Smuggle	Thud
Minimize	Petition	Reimburse	Solve	Tragic
Miserable	Phenomenon	Reinforce	Splurge	Trail
Mislead	Physician	Relieve	Spouse	Transform
Modify *	Pillow	Remove *	Squirrel	Transmit
Monument	Pledge	Renovate	Statistic *	Tremendous
Morale	Plural	Repetition	Statue	Unload
Nap	Polish	Resemble	Steer	Unreliable
Nominate	Pollute	Residence	Stimulus	Urgent
Nook	Potential	Response *	Strategic	Vacancy
Notify	Pottery	Resume	Stunning	Vacuum
Nutrition	Predict *	Retreat	Subsidize	Valid
Obtain	Prescribe	Retrieve	Substance	Vase
Obvious	Prestigious	Reunion	Suburb	Vendor
Occasion	Principle	Robust	Sue	Venue
Occupant	Probable	Rubber	Superb	Verbal
Occur *	Proficient *	Rumor	Surgeon	Verdict
Official *	Profit *	Saga	Survey	Verify
Omit	Prohibit	Scholarship	Suspicious	Vertical
Optimistic	Publish	Sculpture	Sway	Vigilance
Optional	Punctual	Seize	Syllable	Voucher
Overdue	Punishment	Seldom	Symmetry	Vowel
Overlap	Query	Sew	Syndrome	Wail
Overview	Rebate	Shortage	Tactic	Waive
Paradigm	Recession	Sigh	Tailor	Warranty
Partial			Technician	Wrinkle

APPENDIX B

The Elements of a Digital Keyword Method Image

