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The Kanji Learning Website for Economic Partnership Agreements (EPA) Care Worker Candidates, "Kaigo-no-Kanji Supporter" (Learning Support for Kanji Vocabulary in the Caregiving Field)

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ABSTRACT

Care worker candidates under the Economic Partnership Agreements (EPA) must pass the Japanese State Examination for Certified Care Workers within four years to continue working in Japan. The Japanese language, especially kanji (Chinese characters), used in the examinations is a significant barrier for the candidates and there is a need for Japanese language learning support designed specifically to focus on kanji used in the examinations. The Authors developed "Kaigo-no-Kanji Supporter" (Learning Support Website for Kanji Vocabulary in the Caregiving Field) and "Kaigo-no-Kotoba Search" – Online Search Tool for Specialized Vocabulary in the Caregiving Field. "Kaigo-no-Kanji Supporter" is a website to learn kanji, two-kanji morphemes and technical terms used in the caregiving field interrelatedly. This website is a useful study tool for learning the technical terms that are likely to appear in the State Examination for Care Workers. This site consists of information in three main parts:1) Tan-kanji (single kanji) that frequently come up in the exam, 2) Two-kanji morphemes that include single

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kanji terms, and 3) Technical terms that include two-kanji words. English and Indonesian translations for each single kanji and two-kanji words, as well as technical terms, are provided. The other learning website, "Kaigo-no-Kotoba Search" has been designed so that candidates can look up words using kanji, hiragana, katakana, English and Indonesian. This means that if a candidates come across a word they do not understand, there are multiple ways for them to look up the word and higher possibility they will find the meaning. We have evaluated the actual usage of this website from two perspectives – through access data analysis and through interviews with website users. According to these resources, we found that the website is used in various ways both online and offline.

1.0 ACCEPTANCE OF CERTIFIED CARE WORKER CANDIDATES UNDER ECONOMIC PARTNERSHIP AGREEMENTS

Traditionally the Japanese Government has not permitted entry by foreign residents into Japan specifically for the purpose of working in the field of nursing care services. However, under the 2008 Japan-Indonesia Economic Partnership Agreement (hereinafter "EPA"), the acceptance of foreign residents as Certified Care Worker Candidates (hereinafter "candidates") began. Under a designated scheme, candidates who passed the Japanese State Examination for Certified Care Workers (hereinafter "State Examination") became eligible to work in Japan. Since then, Japan has increased the countries to which this scheme applies with the Philippines joining in 2009 and Vietnam joining in 2014. The acceptance conditions vary between each country. For example, in Indonesia and the Philippines, the candidates must study Japanese for six months before coming to Japan and also an additional six months after arriving in Japan, and these candidates are assigned to care facilities they contracted with before arriving in Japan. Candidates will take the State Examination once they have completed the required 3 years' practical experience.

2.0 SPECIALIZED VOCABULARY AND TECHNICAL TERMS THAT CANDIDATES MUST LEARN

In order to pass the State Examination, it is believed that specialized knowledge in the caregiving field is essential and that the acquisition of specialized vocabulary and technical terms related to nursing care is the key to success or failure. The State Examination covers a wide range of topics and is made up of the following twelve individual subjects: (1) Human dignity and independence, (2) Human relationships and communication, (3) Community understanding, (4) Understanding of development and ageing, (5) Understanding of dementia, (6) Understanding of disabilities, (7) The connection between the heart and the body, (8) Fundamentals of nursing care, (9) Communication techniques, (10) Lifestyle support techniques, (11) Nursing care processes, and (12) General questions. Because the State Examination is conducted in Japanese, candidates are required to learn and understand a diverse range of specialized vocabulary concerning (i) Equipment, machinery and tools (eg. "Patient lifting device"), (ii) Disorders (eg. "Asperger syndrome"), (iii) Moods, emotions and

personalities (eg. "attachment"), (iv) Bodily functions (eg. "diarrhea"), (v) Body parts and organs (eg. "pharynx"), (vi) Mental health (eg. "Hospitalization for medical care and protection"), (vii) Government system terminology (eg. "Basic pension of the bereaved"), (viii) People's names (eg. "Maslow"), (ix) diseases (eg. "Type I diabetes"), and so on. In addition, there are some very advanced words included in the specialized vocabulary. Approximately 80% of the kanji (Chinese characters) used in the State Examination are classed as intermediate to advanced level or higher in the Japanese education system, supporting the assertion that an advanced knowledge of kanji is expected of candidates [1].

3.0 JAPANESE LANGUAGE VOCABULARY ACQUISITION IN PREPARATION FOR THE STATE EXAMINATION

As Beglar and Hunt (2005) point out, vocabulary acquisition is extremely important when it comes to learning a foreign language, and this applies to candidates' study of the Japanese language in preparation for the State Examination, for which purpose we developed our learning websites. According to Ohba (2016), who analysed the characteristics of the grammar and vocabulary used in the State Examination, while there is an extremely limited amount of grammar at the intermediate level and above, over half of the examination's vocabulary is at an advanced level or above. It is therefore 'efficient to study a limited number of grammar topics and introduce specialised vocabulary in a planned fashion'. In this way, in Japanese-language learning for the State Examination, the acquisition of specialised vocabulary from the field of caregiving – in other words, caregiving terminology – is more important than that of grammar.

Additionally, according to Jing Wan *et al*. (2008), creating and developing a list of specialised terms to be remembered could not only be useful for curriculum development in specialised fields (such as when designing reference books), but also for learners in setting realistic learning goals. In actual situations in which such specialised language acquisition is necessary, learners are often faced with difficult time constraints (Ishii *et al*., 2004; Araki and Kanai, 2005). This is the case for candidates who must study for the State Examination while working in Japan.

From the 1970s onwards, various vocabulary acquisition theories have been advocated, such as the depth/level processing theory, the involvement load hypothesis, the bilingual dual coding theory, and the psychological model of EL vocabulary acquisition. Nakamura (2011), after providing an overview of these theories, states, 'Common to the background of diverse vocabulary acquisition theories is the importance of the motivation (autonomy) of learners'. Mizumoto and Ikeda (2006) also reported that online teaching materials are more effective for learning than printed ones are, and that they heighten the desire to learn. As described below, we designed our two learning websites ('Kaigo-no-Kanji Supporter' and 'Kaigo-no-Kotoba Search') while taking into account the motivation of learners (see 4.1, 4.2).

4.0 DEVELOPMENT OF LEARNING SUPPORT WEBSITES FOR STUDYING SPECIALIZED VOCABULARY IN THE CAREGIVING FIELD

We developed and launched the following two websites as described below for the purpose of providing learning support to candidates:

4.1 "Kaigo-no-Kanji Supporter" - Learning Support Website for Kanji Vocabulary in the Caregiving Field

As stated above, candidates are expected to have an advanced knowledge of kanji as part of learning specialized vocabulary in the caregiving field. The Authors developed and launched "Kaigo-no-Kanji Supporter" (Fig. 1). There are 2139 kanji characters on the website and it is designed so that students can look up kanji and view interrelated single kanji, two-kanji morphemes and technical terms that appear in the twelve subjects of the State Examination.

For example, in Figure 1, the kanji for "to swallow" is also shown in a two-kanji morpheme, "accidental swallowing," as well as in a technical term, "aspiration pneumonia." In addition, each single kanji, two-kanji morpheme and technical term includes the reading and translation. Two-kanji morphemes refer to two-character idioms such as "accidental swallowing" and "pneumonia" that fit together to make up "aspiration pneumonia." By learning these interrelated terms, candidates will have an increased awareness of and opportunity to learn specialized vocabulary in the caregiving field. The website has also been translated into English and Indonesian.

Figure 1 Kaigo-no-Kanji Supporter   **Figure 2** Kaigo-no-Kotoba Search

In 'Kaigo-no-Kanji Supporter', there is a 'Got it!' (*wakatta*) checkbox on the individual pages for each kanji covered, which the user can click when they have mastered the kanji in question. On the upper right-hand side of the top page, users are shown the percentage of individual kanji they have learned. This enables them to monitor their own learning progress.

4.2 "Kaigo-no-Kotoba Search" – Online Search Tool for Specialized Vocabulary in the Caregiving Field

When learning from textbooks, workbooks and other materials, candidates need to be able to look up the meaning of specialized vocabulary and technical terms in the caregiving field. Currently, there are no print or online dictionaries or tools aimed specifically at non-Japanese candidates that are sufficiently specialist in nature. The Authors developed and later launched the "Kaigo-no-Kotoba Search" tool website (Fig. 2) that has been specially designed to allow candidates to look up words using kanji, hiragana, katakana, English and Indonesian. This means that if candidates come across a word they do not understand, there are multiple ways for them to look up the word and higher possibility they will find the meaning. Figure 2 shows a screenshot of 36 related search results that appear after conducting a search for the three kanji word "dementia." In addition to the search function there is also a memo function to record words searched for and a quiz function to test knowledge. The various tools on the website make it easy to study vocabulary.

Furthermore, as long as the user is connected to the Internet, both of these websites are available for use free of charge. They are also smart phone compatible so that specialized vocabulary in the caregiving field can be accessed anytime and anywhere (Figures 1 and 2 are both smart phone screenshots).

In 'Kaigo-no-Kotoba Search', candidates can take a quiz that covers the words they searched for on the website as well as the terms listed for each of State Examination's topics/subjects. This enables them to easily check their level of understanding.

4.3 An Actual Example of Learning Support Site Use

Hashimoto *et al.* (2016) reported on a case of candidates at an actual caregiving facility using the above-described websites in their learning. As discussed above, it is necessary for candidates to focus on learning highly specialised kanji for the State Examination. Since the terms included in the Supporter website have been chosen specifically for this purpose, it was used in the case that appears in the paper. The candidates used it five days a week. Each day, around ten terms from the Supporter website were chosen, and a quiz was created on their reading and meaning. There was a person in charge of the quiz, outside of the caregiving facility, who would send in the quiz via email and score it upon completion. The candidates answered (using an MS Word file) the quiz questions sent by the person in charge, returned it via email, and communicated with the person in charge in the main text of their emails. This communication is meant to provide motivation for them to continue taking the daily quiz.

On the Supporter website, there is a term index organised by the State Examination topic, and sometimes the same word appears in multiple categories. Furthermore, the same two-kanji and single kanji words repeatedly appear. Therefore, when the candidates studied the subject (by going through

the index from beginning to end), they naturally studied important words/kanji multiple times. In 5.3 we will discuss the results from our interviews of candidates who studied using this method.

5.0 USAGE OF THE LEARNING SUPPORT WEBSITES

The report of the actual usage of the two learning support websites described above is based on 1) Analysis of access statistics and 2) Interviews with website users.

5.1 "Kaigo-no-Kanji Supporter" Website Access Data Analysis

The "Kaigo-no-Kanji Supporter" (hereinafter "Supporter") website was launched on 1 August 2012. From the launch date up until 31 May 2016 access log data was collected via Google Analytics and the Access Data Analysis overview is as shown in Table 1 below.

Table 1 Access Data Analysis from 1 August 2012 to 31 May 2016

	Sessions				Bounce Rate	Pages / Session	Avg. Session Duration
	Total	Desktop	Mobile	Tablet			
New visitor	12624	7520	4287	817	50.60%	6.06	3mins
Returning visitor	11736	3641	5910	2185	43.32%	9.09	5mins 45secs
Total	24360	11161	10197	3002	47.09%	7.52	4mins 19secs

The data shows that sessions by returning visitors make up almost half of the total sessions overall. The number of sessions by users on desktop and mobile devices is almost equal whereas not as many visitors access the website on tablets. As shown by the bounce rate, more than half of the visitors view multiple pages per session and the average session duration is relatively long.
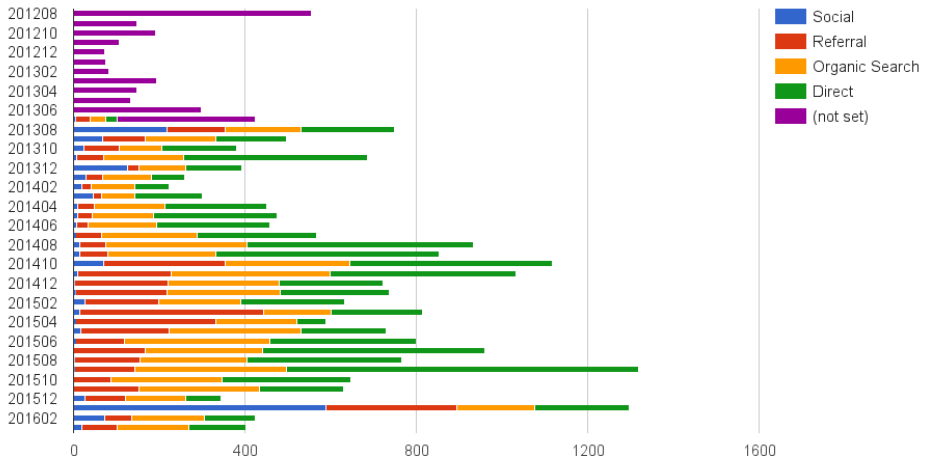
Figure 3 Sessions Grouped by Social, Referral, Organic Search, Direct and (not set)

Based on Figure 3, the channels, the route by which users arrived at the website, on a monthly basis were analyzed. Up until July 2013, channel information in Google Analytics was "not set." From August 2013, channel information was divided into the following four groups: (1) 'Social'– representing traffic from Facebook, Twitter and the like, (2) 'Referral' – representing traffic from links on sites outside those in the Social group, (3) 'Organic Search' – representing traffic from search result hits achieved using search engines, and (4) 'Direct' – representing traffic from bookmarks or direct input of website addresses. Of these groups, of particular significance is the increase in sessions flowing from the Social group in January 2016. This increase was due to a Facebook article published in Vietnamese in January 2016 as many of the visitors arrived at the Supporter website via the article (see also Figure 4). The Supporter website does not yet support Vietnamese language, however, Vietnam is currently sending Certified Care Worker Candidates to Japan under an Economic Partnership Agreement. It is likely that candidates undertaking training courses in Vietnam prior to coming to Japan accessed the website. Further, it can be noted that with the exception of January 2016, the number of sessions tends to decrease in winter.
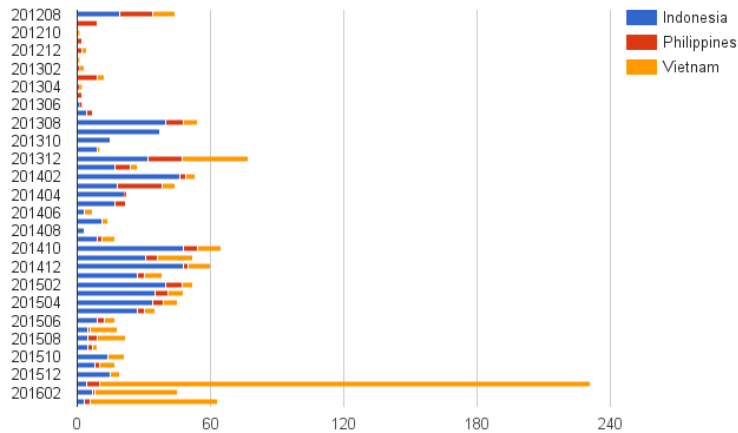
Figure 4 Sessions from Indonesia, Philippines and Vietnam (Kaigo-no-Kanji Supporter)

Next, Figure 4 shows access data figures from Indonesia, the Philippines and Vietnam, conducting Certified Care Worker training programs for foreign workers. In addition to the access data from Vietnam described above, there are two points that can be noted from Figure 4.

1)   Between August 2013 and May 2015, the access from Indonesia has remained relatively stable, however there has been a decrease since June 2015.
2)   Access from the Philippines has been low throughout the entire period.

5.2 "Kaigo-no-Kotoba Search" Website Access Analysis

The "Kaigo-no-Kotoba Search" (hereinafter "Search") website was launched on 19 March 2014. Access log data was collected via Google Analytics in the same way as for the Supporter website and the Access Data Analysis overview is as shown in Table 2 below.
The Search website's relatively recent launch date may be a factor, however, in comparison to the Supporter website, the ratio of returning visitors and low session numbers of new visitors from mobile devices on the Search website stands out. Further, although the new visitor bounce rate is high with a low number of pages visited per session and short session duration, the bounce rate of returning visitors is low and session duration is long. The higher percentage of returning visitors using mobile devices or tablets is also significant.

Table 2 Access Data Analysis from 19 March 2014 to 31 May 2016

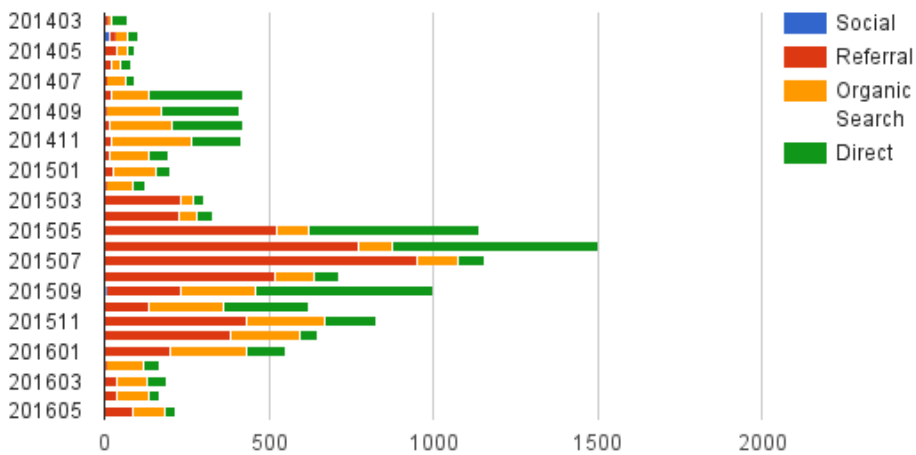|	Sessions				Bounce Rate	Pages / Session	Avg. Session Duration
	Total	Desktop	Mobile	Tablet			
New visitor	9450	7256	1870	324	80.44%	2.29	1min 1 sec
Returning visitor	2705	782	1071	852	52.61%	6.66	5mins
Total	12155	8038	2941	1176	74.25%	3.27	1min 54secs

Figure 5 Sessions Grouped by Social, Referral, Organic Search, Direct and (Kaigo-no-Kotoba search)

Based on Figure 5, the various channels will be analyzed on a monthly basis. Compared to the Supporter website, the number of visitors using direct input to access the Search website tends to decrease. Referrals from the Social group are also almost at zero.

5.3 Actual Examples of Website Use

Up to this point we have concentrated on the analysis of website access. Next we would like to shift the focus to the firsthand experience of candidates actually using the websites to study for the State Examination. The results of interviews conducted with candidates will be reported here. The interviews were directed towards five foreign residents studying as Certified Care Worker candidates under an EPA at a nursing care facility in an undisclosed prefecture of Japan. Of the five candidates interviewed, three were Filipino and two were Indonesian. Over five months from January to May 2016, each candidate was interviewed several times using an unstructured interview method.

First of all, one of the main issues raised by all of the candidates interviewed was the problem of accessibility and only being able to access the websites while connected to the Internet. During

classes they cannot look at their smart phones and in addition to having limited time to spend on computers, their home internet connections are not always stable. Because of this, we compiled part of the Supporter website content into a list, printed it and gave it to the candidates. The candidates responded positively saying that this made it easier to study.

Regarding the English language translation of the websites, some candidates voiced opinions that there were mistakes in the translation or that simple single word translations are not sufficient to understand the meaning of some words. In contrast, with regards to the Indonesian language translation, there are many technical terms related to nursing care that do not have an Indonesian language counterpart and cannot be translated directly. For this reason, the terms were translated using more explanatory sentences rather than single word translations and hence we did not receive feedback about any mistakes in the Indonesian translations.

All of the candidates interviewed had only used the Supporter website and none of them had used the Search website. The candidates explained that they already use online dictionaries to look up kanji and as such it may be difficult to convince users of the convenience of the Search website functions.

6.0 CHALLENGES AND OUTLOOK

Based on the above results, our challenges for the future are discussed below.

6.1 Challenges Concerning the "Kaigo-no-Kanji Supporter" Website

Based on the access analysis data results, we found that overall the average session duration was long with returning visitors spending almost 6 minutes per session. This suggests that a high percentage of people using the website are using it as a reference tool. In particular, the percentage of returning visitors accessing the site from mobile devices or tablets is high and we believe these results are a reflection of candidates, our target users, accessing the website from mobile devices or tablets. Further, despite the fact that the website does not support the Vietnamese language, there was a sudden increase in access from Vietnam. This shows that there is a strong need to translate the website content into Vietnamese as well.

As a result of the interviews it was found that in some cases printed materials are more useful study tools for Certified Care Worker candidates in Japan under an EPA who are studying for the State Examination. Therefore, we believe it would be beneficial to establish a system whereby the appropriate vocabulary lists can be printed and made easily accessible to candidates. Further, with regards to the Indonesian language version although there were no issues raised by candidates, there was feedback that some of the English translations were incorrect or required further explanation and so revision of the English version is an urgent task.

6.2 Challenges Concerning the "Kaigo-no-Kotoba Search" Website

Based on the access analysis data results, we found that the average session duration of returning visitors was 5 minutes (five times that of new visitors) and this indicates that the website is being used as a reference tool. Further, the ratio of returning visitors accessing the website from desktop computers is lower than new visitors and this is a reflection of the candidates' limited opportunity to access the Internet. However, the percentage of returning visitors is low and this means that with regards to the Search website it is necessary to improve the already existing memo tool and quiz tool functions which are only available on the Search website. By doing this the Search website will become an independently beneficial tool that can play a more active role in supporting academic studies.

6.3 Challenges Concerning Both Websites

It can be said that both websites need more advertising to increase awareness. The Facebook article in Vietnam is a good example showing the significant influence that SNS such as Facebook can have. The key to increasing visitors and returning visitors to the website is by appearing on such SNS multiple times and being specifically mentioned by users who already have a strong following and influence. In order for this to happen, it is a basic premise that the websites are recognized as actually being beneficial and are included as tools in users' study plans. The most important step in achieving this is to create an environment in which users can actually use the websites and find the best way to increase awareness of the websites amongst those who need to use it most.

For the purposes of this study we conducted interviews with website users, however, it is necessary to conduct further research to examine the actual method used to use the websites. In particular, the average session duration on the Supporter website is long while on the Search website it is short. Each website has different characteristics and so the time needed to gather the information needed may differ. This requires further confirmation.

6.4 Future Outlook

With regards to the promotion and expansion of the websites from here, one option that arises is to combine and further develop the functions of both websites and establish a comprehensive learning support system. As can be seen from the Access Data Analysis, by establishing and running a website it enables us to provide users with an environment in which users can access learning support no matter where they live. The aim of the websites is not only to serve as an online dictionary but to play a role in monitoring studies by allowing users to test their understanding, to make studying more visually accessible and to be a common learning tool for users. This will allow users to create an appropriate study plan depending on their situation and needs. The Authors' research group has received a research grant from the Ministry of Education, Culture, Sports, Science and Technology in Japan and is currently developing a website aimed at monitoring studies in this way.

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