

**WEB AS CORPUS:
A SOLUTION IN TRANSLATING JAMU AND JAVANESE TRADITIONAL HEALING
TERMINOLOGIES INTO ENGLISH**

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Abstract

During the Covid-19 pandemic, the need for health supplements products to boost body immune systems increases, including the needs of jamu, the traditional herbal medicines. This increasing need of the jamu products is also in line with the need of more practical information on jamu as well, both locally and globally. The practical articles on jamu are mostly in Bahasa Indonesia, therefore efforts to translate into an international language are needed for global jamu consumers. This research attempts to find solutions for translation problems that often encountered during translating articles on jamu, i.e. name of jamu ingredients, name of illness or health problems, and finding the suitable titles to keep up with the contemporary taste of the Net's readers. The data sources for this research are 250 jamu-related articles in Jamupedia.com. The source is in Bahasa Indonesia and the target language is English. The qualitative method is adopted as an approach of the present study. The findings show that by seeing the Web as a corpus and using its browsers as the corpus analyzers, a translator can deal with the problems.

Keywords: corpus, Covid-19, jamu, translation, web as corpus

Introduction

The Covid-19 outbreak that started in early 2020 caused massive changes to the lifestyle of most people in Indonesia. One of the most affected sides is their view on health. The outbreak had changed the habit of the archipelago's people, mainly in their way of protecting themselves from the Coronaviruses. For instance, the use of face mask which used to be part of mandatory policy in countering the virus has now become a daily habit of people when leaving their houses. Another more obvious example is the increasing awareness of Indonesian people about how to treat themselves with medicinal products deemed to be effective to protect them from Covid-19, as evidenced by the increasing demand for *jamu* (herbal medicinal) products during the pandemic.

As witnessed by several news sources [1] [2] [3], there is a significant increase demand of jamu during the pandemic. Along with the trend, there has also been an increase in the information gathering on jamu as well (E. J. Skripsiadi, personal communication, September 13, 2021). The craving for the information is not only limited to the local Indonesian people but also internationally, through various jamu sites in Indonesia. This presents problems, as the articles are mostly in Bahasa Indonesia. Actually, there have been automatic translation machines such as Google Translate, Microsoft Translator, Babylon Translator that can convert the Bahasa articles into English or any other international languages easily. Unfortunately, so far, jamu articles cannot be translated by machine translators properly and even

can give misleading insight for the readers new to jamu knowledge, as most jamu articles hve terms that still cannot be captured by the translation machines.

Those translation problems pertain to the jamu and Javanese traditional healing terminologies in the jamu-related articles. Therefore, it is necessary to translate these articles manually by a human translator who also has an adequate understanding on the problems and then can translate them fluently, validly, and naturally into the target languages. For translator, the problem is not only in dealing with the right words for jamu and Javanese traditional healing terminologies, but also in finding the proper translation for name of disease or health problems, and finding the suitable titles to keep up with the contemporary taste of the Internet's readers. The last task is also important, as the task of a translator for an internet sites intended for popular mass is also finding the right words for translating original titles into the equally suitable titles for people in the target languages.

Jamu

Jamu is a Javanese word for traditional herbal medicines. Etymologically, jamu is a contraction of two words, *jampi* (a pray or a medicine) and *usada* (health) [4]. The term jamu itself can be traced back to several centuries ago, as witnessed on temple reliefs or manuscripts such as *Gatotkacasraya* (Mpu panuluh) and *Serat Centhini* by Kanjeng Gusti Adipati Anom Mangkunegoro III [5]. Generally, a person drinks jamu from two basic reasons include to maintain health and fitness, and to deter, inhibit, and to cure illnesses [6] [7]. Besides, jamu is also used to maintain beauty [8].

The ingredients of jamu may vary, depending on the regions where the jamu originates, not only in Java but also in surrounding islands. For instance, there are jamu ingredients with typical Java ingredients, Madura ingredients, Banten ingredients, Bali ingredients, or Dayak Ingredients. Although varied, the ingredients are mostly sourced from local leaves, spices, fruits, flowers, and barks [6]. Regarding the preparation methods, traditional jamu can be served as raw jamu,

brewed jamu, boiled jamu, and rubbing jamu [9]. Nowadays, the modern jamu are also in pills, capsules, and tablets.

Jamu can often be compounded manually at home, but it can also be manufactured in industrial scale. In 2018, there are 1.247 jamu manufacturers in Indonesia [10]. Currently, jamu is not only consumed by the Javanese people, as it spread throughout the archipelago and other countries [11] [12] as alternative medicines. Traditionally, jamu is distributed in traditional markets, by traditional healers, or by jamu peddlers. whilst in this current era, Industrial jamu products are sold in modern ways and have utilized the use of the Internet, through their own sites or online markets, and disseminated by health or jamu sites (E. J. Skripsiadi, personal communication, September 13, 2021)

Corpus

A corpus is a selection of a large number of vocabularies in an electronic form [13]. In the more conservative meaning of corpus, the definition is still further elaborated with certain characteristics. McEnery and Wilson, for example, proposed four traits of a corpus, namely finite size, sampling and representativeness, a standard reference, and machine-readable form [14]. Another scholar, John Sinclair as cited in [15] mentioned the more specific crireria of a corpus as having texts that are selected according to external criteria, so that as far as possible it can represent a language or variety of languages as a data source for linguistic research.

The main uses of the corpus include as the repository of natural language data for linguistics research purposes and also as the training materials for computational systems, such as for training basis of machine translation software [14]. Corpus linguistics (a methodology to use a corpus) is also often used as an approach to solve the problems in language

teaching, terminology, lexicography, and translation [16]. To undertake a research with a corpus, researchers need a corpus analysis tool. The tool is software that can help researchers to have qualitative and quantitative results effectively. There are free or paid corpus analysis tools to use, such as the 11 tools that listed by [17]. The most common features of those tools are concordance, collocation, and word list. When corpus analysts inputted a keyword and use the concordance feature, they would be presented with a list of sentences related to the keyword and their respective locations in the corpus. A collocation feature helps to identify words that paired with the inputted keyword. Meanwhile, the word list feature helps to find the frequency of words in the analyzed corpus.

Web as Corpus

The concept web as corpus was brought by Adam Kilgarriff in 2001, when he outlined the corpus-web relationship and the potential of Web as a corpus language data in his proceedings, *Web as Corpus*, for Corpus Linguistics Conference held by Lancaster University, 29 March - 2 April 2001. He and Gregory Grefenstette further elaborated the idea in a 2003 article, *Introduction to the Special Issue on the Web as Corpus*.

They began the article with a comparative distinction between a traditional corpus and ending it with the bright potential of the Web as corpus that provided the linguistics researchers to overcome the problems regarding Web as corpus [18]. They provided the necessary theoretical background for the Web to be deemed possible for the source of linguistic corpus, such as tackling the basic questions: "What is corpus?", "Is the Web a corpus?" and "Is it representative enough for a corpus?" Reference [18] define corpus as "a collection of texts when considered as an object of language or literary study" (p. 334). On taking the second question, Kilgarriff and Grefenstette give the solid 'yes' answer on the basis of their definition. For the third question, about the representativeness of Web as a corpus, their answer is "no," but with an addition, "but nor are other corpora, in any well understood sense" (p. 2).

There are 5 benefits of Web as corpus, include benefit from its size, range, up-to-dateness, multimodality (sound, sight and text), and its availability [19]. Thereafter, there are attempts to use the Web as source for corpus materials. For instance, Kilgarriff et al. use Web to build monolingual and bilingual word list for language in Project Kelly [20]. Another project using web as corpus materials is The Leipzig Corpora Initiative, by the University of Leipzig, resulting more than 200 monolingual corpora, including a corpus of Bahasa Indonesia. Along its function as a corpus material source, the Web also begins to be used as the corpus itself. Based on the findings by Kilgarriff et.al, researchers began to use Web as a corpus and using the browsers as its corpus analysis tools, such as the study that carried out by [21] and [22].

Baroni and Bernardini as cited in [23] outline four motives in conceiving the Web as corpus, namely Web as a corpus surrogate, the Web as a corpus shop, the Web as corpus proper, and the mega-Corpus mini-Web. Translators often use the Web as a corpus surrogate, i.e. use it as a reference tool during their translation processes. They use commercial search engines or tools specially designed to extract the Web's texts and arrange them into a concordance list like in a usual corpus analysis tool. There have been several tools developed over the last decade [24]. Unfortunately, the authors were only able to freely access the WebCorp site during this research while other sites were in discontinued status, required registration, or no longer exist.

Instead of using a linguistic corpus or building one which serves their translation tasks, translators use the Web for practical reasons: the Web is free to access and it offers massive language data [23] [25]. Compared to the use of printed language or specialized conventional dictionaries, the Web also offers information that is always up-to-date and also fast enough to display

language information in various forms (words, phrases, sentences, concordances, or any other additional information).

Translation Problems

During a translation process, a translator often encounters translation problems and translation difficulties [26]. Translation difficulties refer to personal *barriers* related to the language's competence of the translators, specialized knowledge, culture, or other personal translation competencies. Translation difficulties are subjective and personal in nature. Meanwhile, translation problems are objective in their nature. Nord as cited in [27] divides the problems into 4 categories, namely: (1) pragmatic translation problems, (2) cultural translation problems, (3) linguistic translation problems, and (4) textual translation problems. Pragmatic translation problems are problems regarding the texts, the receivers, and the texts' functions. Cultural translation problems involve the translator's understanding of the cultural translation problems that arise from cultural differences between the source language and the target language. Linguistics translation problems include lexical problems, semantic, stylistic, and terminological problems. Whilst textual translation problems concern about the translators understanding on the source texts as compared to extra-textual and intra-textual characteristics and references (ibid, pp. 53-55).

Ref. [28] offered options, called translation techniques, to break down barriers or problems arising during the translation process. To overcome the translation problems, they make categorization between methods, strategies, and translation techniques. The methods are the global option for translators in their approach to text to be translated. This leads to finding the proper strategies and then, finally, finding the right translation techniques. There are 18 translation techniques were offered [28], for the excerpts and examples in Bahasa Indonesia and English can be viewed in [29].

Method

The data for this research is taken from jamupedia.com, a jamu and herbal website based in Surakarta, Central Java, Indonesia. There are 250 Bahasa Indonesia articles on

jamu and herbal medicines from the website that to be used for this study. From the preliminary observation of the articles, we found three main translation problems, include in finding the proper name of jamu ingredients in English, name of illness or health problems, and finding the suitable English titles to keep up with the contemporary taste of the Net's readers, so that the related articles are easy to find by the Web browsers.

Along with the Web, the main tool to use in this research is a commercial web browser, Google Chrome. The reason for picking the browser is that it has the most users in Indonesia about 81.93% and the worldwide is about 64.92% [30]. As the control, the result of the browser also compared to a specialized browser for corpus purposes, WebCorp, which can be accessed in <https://www.webcorp.org.uk/live/>. Corpus linguistics is then used as an approach and to solve the translation problems.

To overcome the translation problems, each term is pasted into web browser for the search results. The browser is previously set into advanced setting to narrow down the search term. In this case, the advanced setting is only changed in its language choice, which is set to English.

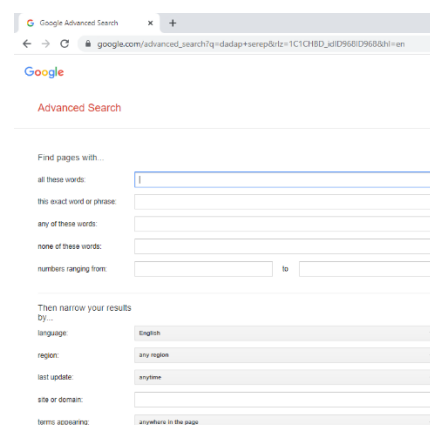


Figure 1. Google Chrome advanced search settings

The English language is chosen as the default language of browser because it is

the target language of translation. By narrowing down the search field into English, it is expected that the search results of the inputted search terms show results from English language sites only. Thus, it leaves the other search results (for example, sites in Bahasa Indonesia) that filtered out, and makes it easier for translators to sort out and find the right words for translation. Further, the results are already in crude concordance list, complete with other additional information for translation purposes.

Results and Discussion

Of all the 250 articles, there are 58 terminologies to be translated which consist of 7 Javanese traditional healing terminologies and 51 jamu terminologies. Those 51 jamu terminologies consist of 37 jamu ingredients, and 14 terms related to the jamu products. There are also resulted 250 titles translations of the source articles. All of the Javanese jamu terminologies found in the source articles as well as their translations can be seen in the Tables 1 and 2. All the ingredients listed in each table are noun and compound noun. This make the queries of some translated word easier; the task is only inputting then term into the search bar and find the most likely counterpart in English.

Some of the words are immediately found their English counterparts, for examples *kemiri*, *tempuyung*, *krokot*, *sambiloto*, *kelembak*, *kencur*, *temu kunci*, *kelor*, *pegagan*, *remujung*, and *pandan* (see figure 2).

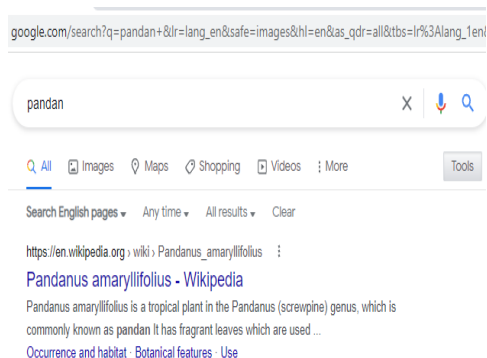


Figure 2. Search results of the term *pandan*

The terms and their English pairs are easy to find visually from the search lists. But there are cases when the English words cannot be found

directly, such as words *srigading*, *lempuyang*, *dadap serep*, *kayu secang*, *suket teki*, and *suji*.

Table 1. Jamu ingredients

<i>alang-alang</i> - cogon grass (Imperata cylindrica)	<i>Kecubung</i> (Indian Thornapple, <i>Datura metel</i>)	<i>Meniran</i> (chamber bitter, <i>Phyllanthus urinaria</i>)	<i>tapak liman</i> (elephant's foot, <i>Elephantopus scaber</i>)
<i>belimbing wuluh</i> - Bilimbi (<i>Averrhoa bilimbi</i>)	<i>kelembak</i> chinese rhubarb, <i>Rheum officinale</i>)	<i>pandan</i> (screwpine, <i>Pandanus amaryllifolius</i>)	<i>Tempuyung</i> (sow thistles, <i>Sonchus oleraceus</i>)
<i>beluntas</i> -Indian camphorweed (<i>Pluchea indica</i>)	<i>kelor</i> (moringa, <i>Moringa oleifera</i>)	<i>pegagan</i> (gotu kola, <i>Centella Asiatica</i>)	<i>temu giring</i> (<i>Curcuma heyneana</i>)
<i>Bengle</i> (<i>bonglai</i> , <i>Zingiber montanum</i>)	<i>kemiri</i> (candle nuts, <i>Aleurites moluccanus</i>)	<i>Remujung</i> (cat whisker, <i>Orthosiphon grandiflora</i> L.)	<i>temu ireng</i> (pink and blue ginger, <i>Curcuma aeruginosa</i> Roxb)
<i>dadap serep</i> (dadap, <i>Erythrina subumbrans</i>)	<i>Kemuning</i> (China box, <i>Murraya paniculata</i>)	<i>Sambiloto</i> (bitter leaves, <i>Andrographis paniculata</i>)	<i>temu kunci</i> (fingerroot, <i>Boesenbergia rotunda</i>)
<i>daun jeruk purut</i> (leaves of kaffir lime, <i>Citrus hystrix</i>)	<i>Kencur</i> (sromstic ginger, <i>Kaempferia galangal</i>)	<i>Sembang</i> (sambong, <i>Blumea balsamifera</i>)	<i>temulawak</i> (Java ginger, <i>Curcuma zanthorrhiza</i>)
<i>daun salam</i> (Indonesian bay leaves, <i>Syzygium polyanthum</i>)	<i>kenikir</i> (wild cosmos, <i>Cosmos caudatus</i>)	<i>serai</i> (lemongrass, <i>Cymbopogon citratus</i>)	<i>Turi</i> (West Indian pea, <i>Sesbania grandiflora</i>)
<i>katuk</i> (sweet leaves, <i>Sauropus androgynus</i>)	<i>Kepel</i> (kepel fruit, <i>Stelechocarpus burahol</i>)	<i>Srigading</i> (night jasmine, <i>Nyctanthes arbor-tristis</i>)	
<i>kayu secang</i> (sappanwood, <i>Biancaea sappan</i>)	<i>krokot</i> (purslane, <i>Portulaca Oleracea</i>)	<i>suji</i> (<i>Dracaena angustifolia</i>)	
<i>kecipir</i> (winged bean,	<i>lempuyang</i> (bitter	<i>suket teki</i> (Java grass,	

<i>Psophocarpus tetragonolobus</i>)	ginger, Zingiber zerumbet)	<i>Cyperus rotundus</i>)	
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Table 2. Terms related to jamu products

<i>boreh</i> (balinese style scrub)	Tapel (mask paste wore on stomach areas)
<i>jamu galian putri</i> (young ladies' herbs)	Wedang (a hot drink)
<i>jamu galian singset</i> (slimming herbs)	wedang jahe (ginger tea)
<i>jamu cekok</i> (appetite booster jamu for kids)	wedang uwuh (uwuh tea, uwuh mean rubbish as the ingredients are various dry leaves resembling to rubbish)
<i>jamu gendong</i> (woman jamu peddlers)	
<i>jamu sinom</i> (jamu made of young tamarind leaves)	
Pilis (paste mask wore on forehead)	
racikan (concoction, compound)	
ramuan (concoction, compound)	

To handle the problem, there is translation strategy to play, i.e. adding keyword onto the search term. This move helps the browser to understand the context of word that has been searched. For example, when searching the word *srigading*, the first page result to display is all the information about certain places, without hinting any clues about *srigading* as a jamu ingredient. Therefore, it then added with a certain additional search term. In this case, the search term is *daun* (leaves), because the related article gives the clue that *daun srigading* is the main ingredient of a certain jamu (see <https://jamupedia.com/ramuan-srigading-atasi-cacingan/>). The result is shown immediately, where the term presented with its binomial or scientific name (Latin name).

To control the validity of the terms in the target texts, there is also a measure to take which is to find the binomial name of each jamu ingredients. In this way, in case there are no direct clues about the pair term in the target language, the translators may find the English

words by pasting the binomial name as the new keyword in the browser. In the event that the further attempt still cannot find the target word, a technique of translation (borrowing technique) then is applied, such as in the case of word *srigading*, coupled with its binomial name. In the practice, not only terms with no English name, but all of the English jamu ingredients are presented with each of its binomial name. A measure of validity is also taken with the assistance of WebCorp (see Figure 3), where the results of Chrome is compared to the WebCorp search results.



Figure 3. An example of WebCorp search for term *jamu* (resulting 1245 concordance, compared to approximately 25,600,000 by Google Chrome).

A WebCorp result is generated from a web search engine and displays them into a list of classical concordance software. The results are far more focused. The results are also linguistically and statistically valid from the perspective of a corpus linguistics researcher, as it always presents a dependable number of concordances (Chrome also shows the numbers, but only in approximation and only on its general search mode, not in its advanced search mode). Unfortunately, at present, WebCorp only offers search result from Bing, a web search engine from Microsoft, so that we cannot find generated WebCorp concordance from

Chrome data. As a control, WebCorp works where the translators can compare the results of Chrome's and that of WebCorp's. From the perspective of a translator, the resulted concordance of is much more streamlined and easier to understand. Even so, they lacks of additional information and visual aids that often is helpful for a translator in finding and comparing the right English terms. It also records far less concordance number compared to Chrome (see, for an example, fig. 1) to analyze for translation purposes. In the end, the WebCorp would only serves as a complementary tool of Chrome.

There are also other ingredients in the 250 articles, but they are omitted from this translation attempt. The reason is that they are already having solid English pairs. Therefore, such words as *jahe*, *kunyit*, *pala*, *bunga melati*, *jeruk nipis*, *lengkuas* or *minyak zaitun* excluded from this study and their terms are translated directly into English with their respective English words without looking on their concordance analyzes on Chrome or WebCorp. Unlike the jamu ingredients' translation, the translation processes of jamu products and Javanese traditional healing terminologies present translation difficulties, because they are all thick with local Javanese cultural terms, that they need detailed background information, such as their definitions and characters, before the translators. In this case, WebCorp concordance offers quick references to the problems. For an example, for word *boreh*, concordance no. 38-65 provides a glimpse of basic information about *boreh* (see figure 4).

5) <https://baliaromaticspa.wordpress.com/2008/11/21/mengenal-boreh-warisan-tradisional-dari-bali/>
Text, Wordlist, text/html, UTF8 (Content-type), 2008-11-21 (Body near 'Last Modified')

38: Wanita Spa di Rumah ? Mengapa Tidak... + Mengenal Boreh - Warisan Tradisional dari Bali Posted on
39: Posted on November 21, 2008 | 3 Komentar kencur Boreh ? Benda Apa ini ? Jika anda orang bali atau
40: agak lalu, anda pasti mengenal ramuan bernama boreh. Boreh adalah semacam ramuan yang dikenal
41: lalu, anda pasti mengenal ramuan bernama boreh. Boreh adalah semacam ramuan yang dikenal masyarakat
42: dan merupakan warisan leluhur dari jaman dulu. Boreh adalah ramuan yang dibuat sebagai "lulur" yang
43: itu me"ngurut"nya untuk membersihkan lapiran boreh yang telah mengering tersebut. Boreh ada
44: lapiran boreh yang telah mengering tersebut. Boreh ada bermacam macam dan biasanya dibuat untuk
45: sang ibu terutama didaerah pedesaan akan membuat boreh untuk anaknya yang terbuat dari beras , kencur
46: bilamana merasa kaki sangat dingin juga membuat boreh , ada yang dibuat seperti boreh bayi , atau ada
47: juga membuat boreh , ada yang dibuat seperti boreh bayi , atau ada juga yang membuat boreh dengan

Figure 4. Concordance of word *boreh* in WebCorp

Through combining the concordance results with the visual aids provided by Chrome, the difficulties can be resolved. The translation technique for both cases is a combination of borrowing technique and linguistic amplification by adding complementary information about each term. The results can be seen on tables 2 and 3.

Table 3. Eight characteristics Javanese traditional healing terminology found in 250 Jamupedia articles.

<i>Gondongan</i> (Mumps)	<i>pegel linu</i> (aches and pains)
<i>Keputihan</i> (Leucorrhoea)	<i>sakit kepala</i> (head ache)
<i>masuk angin</i> (catch a cold)	<i>Sariawan</i> (mouth sprue)
<i>nyeri haid</i> (period pain)	
<i>panas dalam</i> (Heatiness)	

For the third case, translating the article's titles, there are parameters to consider. In translating a popular article, along with word to word translation or sentence to sentence translation processes, there is also a need to make a translated title have enough 'power' to attract potential readers to read any article represented by the title (E. J. Skripsiadi, personal communication, September 13, 2021). This can be accomplished by finding the keyword/s of any source title, finding its English translation, and then analyze the Chrome concordance resulted from the process. For an example, the original title *Manfaat Mengkudu* (see <https://jamupedia.com/manfaat-mengkudu/>) is translated into *benefits of mengkudu*. The English title is then pasted onto the advanced Chrome search bar for its concordance list (see Figure 5).

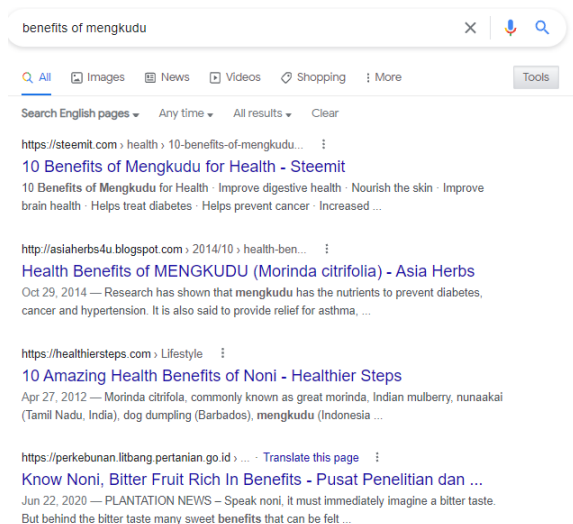


Figure 5. A Chrome's crude concordance list representing the search terms *benefits of mengkudu*.

With the concordance list as the reference, the next step is finding the most used word/s from the lists and use it (or them) as the basis of the target text's title. In this case, the translation processes tend to apply more than one of translation techniques. The reason behind the complex translation processes is the need of 'punchy' or 'powerful' words needed by any popular website article, including jamu sites, to generate interest of the would-be reader and, as a result, generate more traffic into the sites (which means an increased economic potential).

Conclusion

Regarding web as a corpus, through the web browser as its corpus analysis tool and using linguistics corpus, a translator may reap benefits during translation processes. The web browser's capability to generate a concordance list, where a translator can find patterns of how a word is used in sentences, and its quickness in providing the additional information of the word in multimode forms (images, videos, texts, and sounds), enable a translator to find the word's translation in target language easily. Web as Corpus is also an affordable and free approach to solve translation problems.

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