



PERCEPTIONS OF ESL STUDENTS ABOUT USING WEB-CONCORDANCING AND LANGUAGE REFERENCE RESOURCES IN ACADEMIC WRITING

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ABSTRACT

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Online corpora as valuable resources have received considerable attention in teaching English for academic purposes (EAP). The current study investigated ESL participants' perception of using online concordancers and other reference resources in their academic writing outside the classroom context, after some initial hands-on practice in the classroom. The researcher designed an online interface and included multiple reference resources such as concordancers, thesaurus, online dictionaries and Google as the main search engine. This study used a qualitative case study approach through conducting semi-structured interviews and stimulated recall to achieve in-depth descriptions of the participants' perceptions of corpus consultation. The findings revealed that the process of corpus consultation is time-consuming; however, the multiple resources assisted the participants to experience new ways of encoding their intended meanings. They became more attentive to the accuracy and appropriacy of the language they use to convey their intended meaning. It was found that not only did reference resource consultation raise participants' awareness of the lexico-grammatical aspects, but also increased their confidence in academic writing.

Contribution/Originality: This study is one of very few studies which have investigated corpus consultation using a suite of reference tools in a Malaysian university context. The study findings suggest that instructors should encourage students to consult reference resources to address their writing problems in terms of vocabulary, grammar and collocation.

1. INTRODUCTION

In higher education contexts, the skill of academic writing plays a major role in the students' academic success and careers. Many studies have reported that after having studied English for several years, non-native students still experience much difficulty in their writing (Geluso, 2013; Hinkel, 2002; Silva & Silva, 2009; Yoon, 2016; Yoon, 2008). Due to process-oriented writing pedagogy, the emphasis has been shifted from product-oriented pedagogy, which is more focused on surface-level, to content and idea development in writing. What has become of lesser importance, as Hinkel (2002) highlighted, are the language aspects such as the grammar and vocabulary which construct academic texts. When it comes to assessment, raters seem to be more concerned with the linguistic errors made by the writers than the rhetorical and discourse features of the texts (Hinkel, 2002).

Therefore, second language writers still require support concerning language features, namely accurate and appropriate use of vocabulary and grammar. It is argued that reference resources can support students in improving their vocabulary and grammar (Yoon, 2014). However, based on the existing research, reference resources are significantly underused by second language writers (Yoon, 2016). Their reference resource consultations are limited to searching for the equivalent words in bilingual dictionaries (Frankenberg-Garcia, 2005; Frankenberg-Garcia, 2012). Therefore, to address the writers' difficulties regarding accuracy issues, it is important to raise second language writers' awareness of the functions of reference resources.

In the contemporary learning context, which has widely become learner-centered and technology-rich, concordance tools have the potential to facilitate language learning. A concordancer is computer software that shows the linguistic item in the center with its immediate context (co-text), which is called *keyword in context* (KWIC). KWIC could be read horizontally to show how certain linguistic items are utilized in context (i.e., language use). Concordance output can also be read vertically to show repeated patterns of those linguistic items (Hyland, 2003). Reading horizontally means analyzing an occurrence qualitatively in which any use of expression is analyzed with reference to its contribution in an empirical constellation, where speaker-hearer and discourse knowledge system, etc. are involved. Reading vertically entails analytical steps of quantification, generalization and formulaic structuring. Here, formulaic structures of usage, tendencies and norms are identified, and comparisons of groups of speakers takes place (Schmidt & Wörner, 2012).

Johns (1991) who coined the term data-driven learning (DDL) has proposed concordancing as a language pedagogy tool. The underlying theoretical foundation of DDL and the cognitive tool is derived from social constructivism and distributed cognition. Learner concordancing requires that learners take the role of researchers to independently elicit the rules and regularities of language from concordance lines. Jonassen (2011) defined cognitive tools as technologies supporting cognitive processes, or those assisting learners' engagement in higher order thinking.

In this study, language problems refer to students' difficulties in finding appropriate grammar, vocabulary, and collocation. The majority of non-native speaker students, especially those from ESL/EFL contexts, struggle with writing in terms of grammar, lexico-grammatical patterns and collocation (Geluso, 2013; Yoon, 2016). Therefore, introducing concordancers and online reference resources as problem-solving tools might scaffold students during academic writing. Under these circumstances, the incorporation of concordancers might assist second language writers to receive instant support for solving language problems that occur during academic writing.

Corpus consultation has begun to be empirically studied as a reference tool for second language writing (Chambers & O'sullivan, 2004; Fauzi & Hashim, 2020; Gaskell & Cobb, 2004; Kamaruddin, Rosli, Hamid, Hamzah, & Salleh, 2019; Kennedy & Miceli, 2010; Park, 2012; Yoon, 2008; Yoon, 2014). Several latest studies examined the effects of concordancing on writing from the perspective of reference tools (Frankenberg-Garcia, 2005; Kennedy & Miceli, 2010; Yoon, 2016; Yoon, 2008). In addition to concordancers, usage of Google as a concordancer is considered highly promising in revolutionizing language pedagogy and second language writing (Geluso, 2013). Several researchers suggest that in Google-assisted language learning, Internet search engines serve as concordancing tools (Acar, 2011; Bruce, Coffey, Rees, & Robson, 2016; Conroy, 2010; Geluso, 2013; Panah, Yunus, & Embi, 2013; Shei, 2008; Zhang, Zheng, & Li, 2017).

In the context of the Malaysian university, ESL postgraduate students as non-native English writers also face difficulties in phraseology, collocation, lexical and lexico-grammatical structures. They are not familiar with concordancing tools as instant supports to address the grammatical and lexical accuracy of their writing. At the same time, despite the increasing interest in the use of concordancing and other online reference resources in various disciplines such as Medical Science and Chemistry as evidenced in the past studies (Bruce et al., 2016; Zhang et al., 2017) there is still a lack of sufficient investigation on university students' perceptions of these resources to solve their language problems independently during academic writing. However, little research is

available, particularly in context, on the ESL postgraduate students' perceptions of using a suite of reference resources for solving their writing problem in terms of grammar, vocabulary and collocation.

Hence, this study investigated postgraduate ESL students' perceptions about consultation with language reference resources such as concordancers, collocation dictionaries, and Google to solve their language related problems in writing their research papers or dissertations. This study, therefore, addressed the following research question:

1. How do postgraduate ESL students perceive online language reference resources as writing supporting tools?

2. LITERATURE REVIEW

The majority of the studies that examined the use of concordancing as a reference resource had trained learners and assigned them some written tasks in a classroom setting. They consulted with corpora to correct errors in their written tasks, revise their writing according to teachers' feedback, or correct their errors. Educators have utilized corpora and concordancing tools in varying ways to encourage and study the development of effective writing, especially in academic contexts.

Kennedy and Miceli (2010) integrated an "apprenticeship" approach into a curriculum. They compiled the corpus, named CWIC (*Contemporary Written Italian Corpus*) that consists of 500,000 words related to genres of letters, emails, and magazines by providing the model of personal writing. They designed a user interface to enable learners to search concordance lines. The results revealed that out of three participants, two students effectively consulted with the corpus and they used some strategies to solve their problems by consulting with the corpus and dictionary. This study concluded that explicit training of corpus consultation should be provided prior to corpus use to make learners familiar with unique functions of corpus consultation. Similarly, Frankenberg-Garcia (2005) and Gilmore (2009) exclusively examined the results of learners' one-time use of corpora and other reference resources during learners' time-limited task of writing in the language or translation classroom.

Likewise, Yoon (2016) conducted a study to investigate the effectiveness of free online reference resource consultation of six Korean ESL graduate students in a Canadian university. The interface of online reference resources called i-Conc including the Google search engine, concordancers such as The Corpus of Contemporary American English (COCA) and JustTheWord (JTW), online bilingual and monolingual dictionaries, and thesaurus for resolving language problems during academic writing tasks out of the classroom setting. The results revealed that consulting with the i-Conc interface assisted participants to solve their language problems and to find proper lexical and grammatical patterns. Some participants stated that the nature of concordancing was time-consuming; however, corpus consultation increased their confidence in academic writing.

Other studies that have used concordancing tools and on-line reference resources include (Zhang et al., 2017) that focused on the use of personally developed corpora to assist in academic writing development of postgraduate medical students. Bruce et al. (2016) described student feedback to activities using concordancing as a resource for developing academic writing skills among Chemistry undergraduate students and Romer and Wulff (2010) examined the use of specific linguistic structures (demonstrative pronouns) in different disciplinary corpus subsets.

Overall, the findings obtained from these studies have not comprehensively examined the potential changes in students' writing performance and their attitudes towards using online reference resource consultation in academic writing. At the same time, the success of non-native English language writers in achieving appropriate results using these resources also varied and seemed to be determined by several important factors such as language proficiency, learning style, and nature of the task (Lee & Swales, 2006).

In the context of the Malaysian university, Iranian postgraduate students as non-native English writers also face difficulties in phraseology, lexical and lexico-grammatical structures. They are not familiar with concordancing tools as instant supports to address the grammatical and lexical accuracy of their writing. At the same time, despite

the increasing interest in the use of concordancing and other online reference resources in various disciplines such as Medical Science and Chemistry as evidenced in the studies mentioned earlier, there is still a lack of sufficient investigation on university students' perceptions of these resources to solve their language problems independently during academic writing.

Hence, the present study used the Google and Google Scholar search engines together with other concordancers and online dictionaries as problem-solving tools to scaffold writing accuracy. The researchers conducted a survey and a semi-structured interview after corpus consultation by participants on their perception about using language reference resources including web dictionaries, thesaurus, web-based concordancers and web-search engines as writing assistance.

3. METHODS

This study used a qualitative case study approach to gain a more comprehensive understanding of the participants' perceptions of interaction with corpus consultation. To investigate how postgraduate students consulted with online reference resources, the participants were carefully selected from a larger pool of available respondents. Initially, 27 postgraduate students attended the writing workshop. After three sessions of hands-on practice in using reference resources, six interested participants were invited to use corpus tools for improving their writing in a case study. They were supposed to consult with online reference resources during a five-month period to write their research paper or a part of their dissertation.

3.1. Survey and Interview

After consultation with reference resources, the participants' perception of the tools' usefulness was measured through a survey adapted from Yoon (2016). The participants were asked to rate online language resources regarding usefulness and difficulty of use on a scale of 1 (very useful) to 5 (very difficult to use). Subsequently, the six participants had an in-depth interview with the researchers for 40 to 50 minutes. They explained their overall evaluations and attitudes towards language reference tools in academic writing. A semi-structured interview was conducted to extract a detailed explanation from the participants regarding the highlights of using concordancing tools in their academic writing. All the interviews were conducted in Persian, audio recorded and fully transcribed and thereafter translated into English by a professional translator.

3.2. Instrument

To scaffold participants in writing, a website named *Onlineconc* was designed and developed. The researchers featured four concordancing resources, namely the Corpus of Contemporary American English (COCA), JTW, Flax learning collocation, and Frazeit. Google and Google Scholar were included as search engines. Four kinds of online dictionaries such as Ozdic.com, Bilingual and monolingual dictionaries, and Thesaurus were also featured in each tab on *Onlineconc*.

Initially, the participants registered on the *Onlineconc* homepage to make their queries. The rationale for designing the *Onlineconc* toolkit was to avoid opening different windows on the participants' laptops and to track participants' query logs and search patterns more efficiently. Each query made in the search box of *Onlineconc* automatically recorded participants' consultation patterns in the form of a query log. Figure 1 illustrates the homepage interface of reference resources of *Onlineconc*.

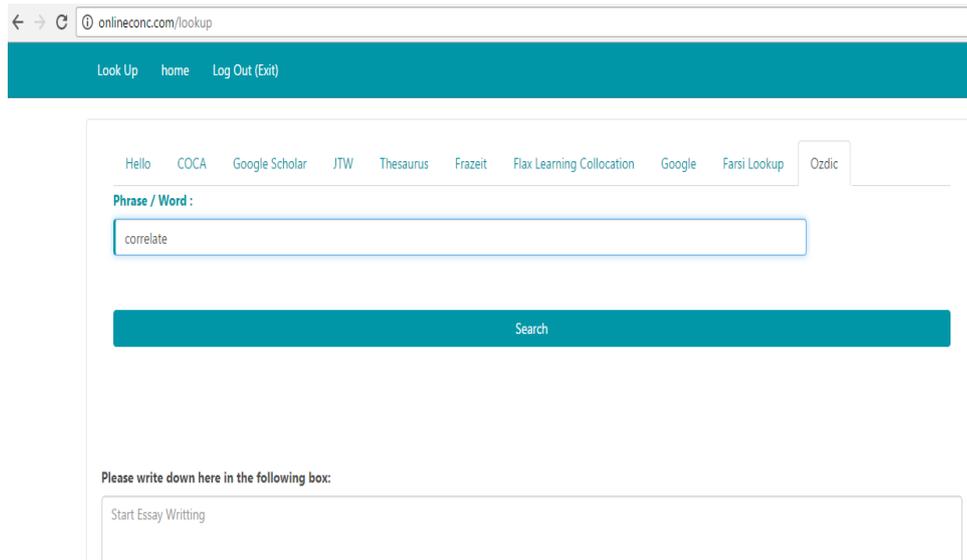


Figure-1. Screenshot of *Onlineconc* homepage.

Source: Shakibkotamjani (2017).

3.3. *The Corpus of Contemporary American English (COCA)*

The Corpus of Contemporary American English (COCA) is a large, genre-balanced corpus of American English. As the most widely used corpus of English, COCA provides incomparable insights into variation in English. It contains over one billion words of text (i.e., 20 million words yearly from 1990 to 2019) with 8 genres namely, fiction, spoken, newspapers, magazines, academic texts, TV subtitles, movies subtitles, web pages, blogs, etc. (with the update in May 2020) (<https://www.english-corpora.org/coca>). Users can click on any of the links in the search form to the left for the purpose of context-sensitive help, and to see a wide range of queries that COCA offers. COCA helps students improve vocabulary and collocation (Rafatbakhsh & Ahmadi, 2019, 2020; Shin & Chon, 2019).

3.4. *Just Word (JTW)*

Just word (JTW) is an online concordancer which enables users to type in a word or word combination. JTW offers information about parts of speech and clusters and presents different collocations of a word. It highlights the good and bad word combinations in various colors (Halasek, 2014).

3.5. *FLAX (Flexible Language Acquisition)*

FLAX (Flexible Language Acquisition) was designed to automate the production as well as the delivery of interactive digital language collocations. Its simple interface with powerful language analysis tools makes it attractive to teachers and learners. It offers authentic, contextualized supply of language learning from digital libraries. FLAX provides open source software issues under GNU, General Public License (<http://flax.nzdl.org/greenstone3/flax?a=fp&sa=collAbout&c=collocations>) (Yu, Wu, Witten, & König, 2016).

3.6. *Frazeit*

Frazeit is an online tool that helps users to improve their writing skills and learn from professional authors. As one of the most advanced internet-based platforms for sentences, it contains more than 100 million sentences. This tool can be beneficial for teachers, students, professional writers, and the writing community (<https://frazeit.it/>) (Dos Santos, Becker, Muhammad, Hegelheimer, & Kochem, 2018).

3.7. Google Scholar

Google Scholar, as a powerful search engine, offers a simple way to search for scholarly literature broadly. It enables users to search and find relevant works across various disciplines, scholarly research, and sources namely, articles, abstracts, books, theses, and court opinions from professional societies, academic publishers, universities, online repositories and other websites (<https://scholar.google.com/intl/en/scholar/about.html>). Google Scholar helps students improve their academic writing (Brezina, 2012).

3.8. Thesaurus.com

Thesaurus.com is regarded as the world's largest free online thesaurus accessed by Dictionary.com. This online tool has been serving millions of people to improve their English language skills and look up the precise word with more than three million synonyms and antonyms (<https://www.thesaurus.com/>). This digital tool lends support to academic writing (Chen, Huang, Chang, & Liou, 2015; Schcolnik, 2018).

3.9. Google

Google, formerly known as BackRub, is a huge search engine that was founded by Sergey Brin and Larry Page in 1996, as a research project, based at Stanford University, to find files on the net. They subsequently changed the name of this search engine to Google, inspired by the term googol. Google has access to ever-growing amounts of data which can be retrieved for different purposes including language learning (Geluso, 2013).

3.10. Farsi Lookup

Farsi Lookup is an online tool with embedded Persian and English dictionaries that helps users to translate words from Persian to English, Persian to Persian, and English to English.

3.11. Ozdic

Ozdic is an online dictionary that enables users to search for collocations and common word partnerships. It also helps the mastery of English vocabulary at an advanced level (Unver, 2018).

3.12. Data Analysis

Participants' responses to the survey regarding the usefulness of online reference resources were analyzed using descriptive statistics. In terms of analyzing the qualitative data, the researchers transcribed all interviews, then systematically went through the textual data.

Primarily, the researchers first conducted an initial coding as they went through the responses to summarize respondents' ideas. Before data collection, the researcher found pre-set codes (often referred to as *a priori codes*). A set of codes emerged from analyzing the transcriptions of the interviews. These *emergent codes* were related to participants' ideas and reflections on using reference resources.

In the second step, the coding scheme was revised. In the next step, the researchers developed an initial list of categories, then they modified and revised initial list of categories and subcategories based on additional rereading of the transcript.

In the final stage, the researcher moved from categories to concepts. To ensure the credibility and reliability of data analysis, the researchers used member checking and sent the report of each case study to each participant via email. Participants were asked to read their case study report and assess the accuracy and adequacy of the inferences made in the report.

4. RESULTS AND DISCUSSION

Based on the interview data, most of the participants evaluated online language reference resources as positive in academic writing. They expressed that consultation with language reference resources assisted them in solving their language-related problems (grammar, phraseology, collocation, and colligation) while writing their academic papers or dissertations. Table 1 illustrates the frequency of searches performed by the research participants.

Table-1. Frequency of search performed by participants.

Name resource	Amin	Bitu	Raha	Niloo	Sahar	Ali	Total
Google	325	14	15	8	43	3	408
Thesaurus	71	19	13	7	27	9	146
JTW	25	32	24	10	19	14	124
Flax	46	22	12	5	22	9	116
Frazeit	17	41	6	3	37	8	112
Ozdic	22	25	16	4	23	4	104
COCA	10	24	14	5	7	5	65
Farsi dictionaries	12	18	13	0	4	3	50
Google scholar	3	1	2	0	2	1	10
Total	531	196	115	42	184	56	1147

Source: Shakibkotamjani (2017).

They made a total of 1147 queries based on their query logs and Google was ranked as the most frequently consulted resource followed by thesaurus and JTW. The participants' attitudes towards using the language reference resources are discussed in the rest of the paper. What follows are the discussions structured around the emergent codes and categories as well as subsequent related concepts especially with regards to data obtained from the sample interviews.

4.1. Easy Access to Various Resources

One of the first responses that all the participants highlighted was that *Onlineconc* was a handy toolkit because it allowed them to have access to various multi-purpose language reference resources through a user-friendly interface. Many of the participants maintained that they found online reference resources particularly useful for verifying their hypotheses and eliciting the accuracy and appropriacy of the linguistic items.

An example of this response was given by Amin who performed the highest number of queries among all the participants. He maintained the following:

"I found the reference resources very useful. I have never heard of concordancing. Interestingly, each resource had a unique function. If I had to open each resource tab separately, it would have been harder for me to use all the resources simultaneously".

4.2. Usefulness of Each Resource

Participants mentioned that each resource featured in *Onlineconc* was useful for a specific purpose. For instance, Bitu frequently looked up the appropriate collocation in COCA, JTW, Flax, and Ozdic.

"I would like my writing to look natural; therefore, as I was writing, I checked for appropriate collocations on COCA, JTW, and Flax."

For many of the participants, COCA was a concordancer that provided extensive amounts of reliable concordance lines, and it facilitated eliciting and verifying phraseologies and grammar in creative ways. However, based on students' query logs, most participants did not frequently use COCA. Amin who performed 604 queries, seldom consulted with COCA, despite being aware of the usefulness of this concordancer. He mentioned:

"In particular, COCA is highly valued, because it is the biggest corpus made by native speakers. I searched for the grammatical structures, when I was not sure how to use it in the sentence. However, sometimes I could not

remember the query syntax, you know, it was very complicated, and I forgot it. So I prefer to use JTW or Flax for checking collocations”.

Most of the participants found JTW as a user-friendly tool for finding and checking collocations. Some of the participants believed that Flax collocation assisted them to find proper collocation and by clicking on each cluster of collocation, they were able to see the concordance lines. They found Ozdic, Flax, and JTW useful because they helped them prevent the interference of their L1 with their L2 writing.

Most participants found Google as an easy reference tool for searching the phrases and word sequence of any length. Amin frequently used Google, because it enabled him to verify the sequence of the lexical chunks and even sentences.

4.3. Promoting Confidence and a Positive Attitude

Most participants mentioned that consultation with online reference resources helped them with gaining confidence in their academic writing. The participants responded that consulting with multi-source language reference resources assisted them to corroborate the results of the lexical, grammatical, and stylistic accuracy and appropriacy of what they intended to convey. This reassurance of correct usage gave them enough confidence that their intended message will be clear to readers.

In this study, most participants except (Niloo) expressed that when they were using language reference tools, they were more courageous in writing. Secondly, some participants mentioned that when they were consulting with language reference resources, they focused more on lexical choice and grammar. They tended to be more strategic and advanced in their reference resource use since they used the tools for purposes for which they had never consulted before. Thirdly, consulting with concordancers particularly made some participants aware of the lexico-grammatical aspects such as collocation, colligation, and vocabulary. Finally, some of the participants stated that they had more independence as English academic writers and would finally decrease their dependency on getting support from editors.

4.4. Challenges of Using Onlineconc

Despite the positive points of consulting with language reference tools, the participants mentioned that the nature of corpus consultation was time-consuming and cognitively taxing. Being time-consuming and requiring extra cognitive load were extracted as the main themes from participants' interview as the two main challenges of using language reference resources.

4.5. Time-Consuming

The participants pointed out that using language reference resources was time-consuming due to the following reasons. The first reason was associated with the nature of Web-based resources. Certain concordancers such as JTW, which is established by non-commercial institutions, were slow in returning query results (particularly in returning concordance lines). However, the speed of returning results for other online resources such as Google, Google Scholar, and online Persian dictionary was high, because they were run by predominantly commercial search engines.

4.6. Extra Cognitive Load

The second challenge is associated with the nature of concordancing. Most participants felt that the nature of concordancing is time-consuming. They described that when they encounter a problem, they had to choose a consultation resource, formulate an appropriate query syntax, and examine the concordance lines to select an appropriate solution for the given problem. It should be mentioned that in the consultation sequence, particularly

for evaluating query results, participants encounter greater cognitive load, as they had to deal with several other aspects of the writing process.

The current study found that the participants had a positive attitude towards using language reference resources as academic writing assistance. This result is in line with Yoon (2016) who reported that Korean ESL students found consulting with multiple reference resources including concordancers and dictionaries useful. The participants of the current study also mentioned that each resource featured in *Onlineconc* had a unique function. These results are in tune with those of Frankenberg-Garcia (2005) and Yoon (2016) which suggest concordancers reduce the interference of L1 with L2 academic writing by providing the proper collocation.

Another important finding was that concordancing assisted participants to increase their self-confidence in academic writing. The participants perceived Google as the most useful resource and the frequency of use significantly corresponded with the perceived usefulness. This result is supported by other studies such as Conroy (2010) and Yoon (2016) that found that Google is a useful tool for finding appropriate phraseology. COCA was perceived as the most sophisticated and difficult concordancer in terms of usage. Despite its difficulty of use, COCA was still perceived as one of the more useful resources. The finding is in line with other studies (Yoon, 2016; Yoon, 2008).

The findings also revealed that despite the positive aspects of consulting with reference resources, participants believed that consultation with reference resources was time-consuming and imposed an additional cognitive load on them. These results are in agreement with Chang (2014) study; he found that consultation during writing interrupted their flow of thoughts and participants were uncertain about the result of their consultation.

5. CONCLUSION AND RECOMMENDATION

The purpose of the current study was to explore how postgraduate ESL students perceive online language reference resources as writing supporting tools through survey and semi-structured interview. The participants' perception of using online language reference resources was extensively positive. The participants became more attentive to the accuracy and appropriacy of form-meaning mappings and increased their awareness of the lexicogrammatical aspects of their own writing.

The findings place premium on some beneficial insights. Firstly, each resource needs to be used in combination with all other resources, since each serves a distinct purpose per se. Lastly, there is a sheer necessity to provide appropriate training for the participants to enable them to utilize the designated online language reference tools appropriately. Getting support from reference resources is useful for EFL and ESL postgraduate students who are supposed to write research articles and dissertation and they have little opportunity to engage in the explicit language learning. This study has shown that there is a positive attitude towards the use of such resources among the postgraduate learners in the study. This encouraging finding should spur educators to find ways to integrate these resources in their classrooms and allow learners to easily access them.

The findings have important implications for writing pedagogy and English teachers. Primarily, the study has shown that some learners feel that consultation with reference tools can enhance their autonomy and self confidence in academic writing. Therefore, English instructors in higher education, who frequently deal with the lack of resources and time under university policy restrictions, can introduce reference resources to students particularly in correcting lexical, grammatical and collocation errors. Future studies might focus on writers at different levels of language proficiency in different contexts with different purposes for writing such as writing-to-learn-content, learning-to-write, writing-to-learn-language, or writing-to-mean.

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