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AN INVESTIGATION INTO THE CONSTRUCT OF TRANSLATION STUDENTS' INFORMATION LITERACY

Mehmet YILDIZ*

Abstract

This study is the first paper to investigate Turkish translation students' information literacy, with particular focus on the steps ranging from problem detection to (un)acceptable solutions to detected problems. The paper investigated the construct of translation students' information literacy by describing their information retrieval trajectory in view of (1) need for information, (2) search locations by gender, source type, and search items' structures, and (3) search results by search items, participants' genders, search items' structures, and search locations. Due to the recent prominence of electronic media as translators' workbenches, this research was primarily focused on online information retrieval skills. A screen-recording program, Camtasia Studio, was employed to monitor the participants' information mining process. SPSS – a statistical software program – was used to gain insight into the relationships between the operationalized parameters. The sample comprises ten fourth-year translation undergraduates, selected through convenience sampling.

Keywords: *Information literacy, Translation students, Translation competence, Process research, Screen recording*

ÇEVİRİ ÖĞRENCİLERİNİN BİLGİ OKURYAZARLIĞININ DOĞASINA İLİŞKİN BİR ARAŞTIRMA

Öz

Bu çalışma, Türk çeviri öğrencilerinin bilgi okuryazarlığını araştırmayı amaçlayan ilk araştırmadır. Bilgi okuryazarlığının bileşenleri olan ve bir çeviri sorununun tespitinden söz konusu soruna kabuledilebilir/edilemez bir çözümün sunulmasına kadar uzanan adımlar çalışmanın odağını oluşturmaktadır. Çalışma, üç ana parametre bağlamında katılımcıların bilgi okuryazarlığı yörüngelerini betimleyerek çeviri öğrencilerinin bilgi okuryazarlıklarının yapısını araştırmayı amaçlamaktadır. Bu parametreler; (1) bilgi ihtiyacı, (2) cinsiyete, kaynak türüne ve aranan öğelerin yapılarına göre arama konumu ve (3) aranan öğelere, katılımcıların cinsiyetlerine, aranan öğelerin yapılarına ve arama konumlarına göre arama sonuçlarıdır. Elektronik ortamların son zamanlarda çevirmenlerin ana çalışma ortamları olması nedeniyle bu araştırma özellikle çevrimiçi bilgi edinme becerilerine odaklanmıştır. Katılımcıların bilgi edinme süreçlerini gözlemleyebilmek için bir ekran kayıt yazılımı olan Camtasia Studio kullanılmıştır. Çalışmanın amacı doğrultusunda işlevselleştirilen parametreler arasında herhangi bir ilişki olup olmadığını bulgulandırmak için bir istatistik yazılımı olan SPSS kullanılmıştır. Örneklem, uygun örnekleme yoluyla seçilen on dördüncü sınıf çeviri öğrencisinden oluşmuştur.

Anahtar sözcükler: *Bilgi okuryazarlığı, Çeviri öğrencileri, Çeviri edinci, Süreç araştırması, Ekran kaydı*

*Dr., Çanakkale Onsekiz Mart University, Faculty of Arts and Sciences, Department of English Language and Literature, ÇANAKKALE.
e-mail: mehmetyildiz@comu.edu.tr, (https://orcid.org/0000-0001-9482-4358)

1. INTRODUCTION

It is widely accepted that the primary objective of translation education is/should be to help prospective translators at translation schools develop a high level of translation competence, which incorporates declarative and procedural translational knowledge and skills, including but not limited to linguistic and world knowledge and transfer, instrumental, and research skills. Yet these sets of knowledge and skills cannot be attained or mastered within the entire span of an undergraduate program. Therefore, translation students should be helped in acquiring adaptive skills and in obtaining the capacity to adapt their already gained knowledge and skills to new situations. Bernardini (2004) suggests that learners should "*develop the ability to employ available knowledge to solve new problems, and to gain new knowledge as the need arises*" and "the ability to use finite resources indefinitely" (Bernardini, 2004: 19-20). Thus, students should be able to know how to wield tools "*to gain new knowledge as the need arises*" and a limited number of (re)sources to produce infinite solutions. This is why they need to develop a high level of information literacy, i.e., to solve a translation problem or difficulty posed by a new/unfamiliar intratextual, intertextual, or extratextual situation by operationalizing their information retrieval skills.

Massey and Ehrensberger-Dow (2011: 193) call for further research on information literacy:

Although not always labeled as such, information literacy has been implicitly recognized as a key aspect of translation competence by practitioners, teachers, and scholars. Yet, researchers have only recently begun to systematically examine information behavior in the translation processes of students and professionals to determine how translation-centered information literacy develops. The questions of how and whether translators use the tools and resources at their disposal and how students, novices, and professionals differ in this regard remain to be investigated in detail (2011: 193).

Although some research studies have been conducted regarding the information literacy of translators, the need for more research is yet to be satisfied (further elaborated on below). This research is an attempt to contribute to the related literature in this sense. Thus, firstly information literacy and its relevance for translation were discussed. Secondly, the data collection tool, the textual material, and the sample were presented. Then, the obtained data were analyzed to reveal what kind of information the participants needed, where they attempted to locate the piece of information in question, whether their genders were associated with their search location choice and search items' structures, how effective their search processes were, whether the success of their search process was associated with their genders, search items' structures, and search locations. Lastly, the paper provided the conclusions drawn from the analyses.

2. INFORMATION LITERACY

It is ideal yet over-idealistic with the available resources to teach students all knowledge, skills, and abilities that they will need to 'survive' in their post-graduation lives. This seems unlikely for several reasons, such as limited time of education, the ever-increasing number of skills, and incongruence between implemented curricula and real-life professional settings. Therefore, education and learning typically do and should continue out of school and after graduation. Pym (2005: 3) states that "*there is a whole range of possible training situations, some in universities, a lot outside universities*". This manifestly shows that learning mostly occurs outside formal schools. Specialized out-of-school learning primarily refers to on-the-job learning, yet, differently from formal education, "*field experience and self-instruction [potentially] involve much groping in the dark and learning by trial-and-error*" (Gile, 2009: 7). This predicament awaiting translation students in their post-graduation lives is aggravated by a volatile translation market, and since "*it is difficult to characterize the translation market unambiguously*" (Int, 2005: 134), schools cannot graduate market-tailored translators; thus, "*translators are forced to 'learn and train' in new fields, often all alone, and they must always be up-to-date in terms of new advances*" (Int, 2005: 134). This is why translation students need to be provided "*with tools to guide them in their autonomous progression along the learning curve after they leave the classroom*" (Gile, 2004: 2-3).

It is an agreed-upon fact that a full-degree translation program cannot inculcate every single skill in students; hence, students should be educated to learn and adapt and helped acquire skills adaptable to diverse tasks (Mossop, 2000; Bernardini, 2004; Pym, 2005; Yazıcı, 2011). To corroborate this proposition, Akbulut (2005: 105) argues that translation schools should train researching translators "*to teach them how to solve problems posed by a new translation situation by utilizing their previously acquired information retrieval skills as a scientist does*". Therefore, "*if we are to train translation students to work in different subject areas, text types and topics, our focus needs to shift from the acquisition of specialized knowledge in several domains to the development of information skills that*

can be used for problem-solving in any field of expertise" (Raido, 2011: 57).

It can be concluded from the remarks above that it is unlikely to design an exhaustive program to furnish the students with every single skill and piece of knowledge for them to confront any possible real-life translation situation and that the primary aim of translation pedagogy should be to equip translation students with an adaptive and flexible translation competence for them to be able to solve the problems and difficulties caused by new translation situations by adopting the most effective strategy possible. The impossibility of producing an all-around curriculum presupposes that education and learning remain incomplete and continue after graduation and thus entails that there should be some compensatory tools to make up for the shortcomings of the so-called 'incomplete' translation education. In other words, learning is typically an open-ended, never-ending process, and it can take place either at a translation education institution or in a non-formal learning environment. "*Many translators are still trained on-the-job; others learn a great deal from practicums; some are trained at postgraduate level (having done a first degree in something else), and still others are professionals who constantly retrain, taking a series of short-term courses*" (Pym, 2005: 6).

The foregoing discussion eventually points to and necessitates a high level of information literacy. It is already an indispensable component of the multicomponential translation/translator competence models yet named differently, i.e., (re)search competence (Schäffner, 2000), instrumental sub-competence (PACTE, 2009), research-oriented knowledge and skill (Yazıcı, 2007), tools and research competence (Göpferich and Jääskeläinen, 2009), information mining competence (European Master's in Translation Expert Group, 2009), general information handling and information skills (Calvo, 2011), and research sub-competence (Eser, 2015). These competencies "*include the routine use of standard translation tools and established resources, but also go beyond this to encompass the identification of translation problems and problem types, the location and evaluation of appropriate language and knowledge resources, and the ability to make adequate problem-solving decisions about the use of those resources*" (Massey and Ehrensberger-Dow, 2011: 194). The definition of information literacy should reveal its similarity with these (sub-)competencies as described by Massey and Ehrensberger-Dow (2011).

"*Information literate people will demonstrate an awareness of how they gather, use, manage, synthesise and create information and data in an ethical manner and will have the information skills to do so effectively*" (Society of College, National and University Libraries [SCONUL], 2011: 3). An information literate individual should typically move horizontally to acquire as many of these abilities as possible and vertically to develop expertise and specialization in each attribute. Therefore, as individuals become "*more information literate*", they are expected to "*demonstrate more of the attributes in each pillar and so move towards the top of the pillar*" (SCONUL, 2011: 4).

A similar list of abilities has been produced by the Information Literacy Competency Standards of Association of College and Research Libraries (Association of College and Research Libraries [ACRL], 2000), in which an information literate individual is expected to:

1. Determine the extent of information needed

2. Access the needed information effectively and efficiently

3. Evaluate information and its sources critically

4. Incorporate selected information into one's knowledge base

5. Use information effectively to accomplish a specific purpose

6. Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally (ACRL, 2000: 2-3).

It can be understood from the order of the abilities that individuals are anticipated to develop from Item 1 to the last for a proper information retrieval process – i.e., from the step of identifying the needed information piece up to the step of using it effectively and appropriately. This is why information literacy can be defined as "*a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information*" (ACRL, 2000: 2). According to Pinto and Sales, information literacy "*also enables people to take responsibility for their own continued learning in areas of personal or professional interest*" (Pinto and Sales, 2008: 5). Similarly, its role in lifelong learning is emphasized in the Information Literacy Competency Standards for Higher Education of ACRL that "*information literacy forms the basis for lifelong learning. It is common to all disciplines, to all learning environments, and to all levels of education. It enables learners to master content and*

extend their investigations, become more self-directed, and assume greater control over their own learning" (2000: 2).

It can be concluded from the remarks above that information literacy is among the key skills for the 'survival' of a translator in the market because, along with the other components of translation competence – e.g., linguistic sub-competence, thematic sub-competence, and transfer sub-competence –, it has the potential to contribute greatly to translation process by (a) alerting translators of a translation problem or the need for a piece of information and helping them (b) search for and take the most efficacious pathway to sort out the detected problem, (c) choose the most satisfactory search result over the others and (d) use it in the most effective and appropriate way possible. Thus, information literacy can be claimed to compensate for the shortcomings of linguistic and extralinguistic competencies and is needed to equip translators with the skills to confront the upcoming tasks by adding to their schemata of translation competence.

3. INFORMATION LITERACY'S RELEVANCE FOR TRANSLATION: NEED FOR MORE RESEARCH

The present study is intended to investigate the construct of Turkish translation students' information literacy by operationalizing their ability to locate, evaluate, and use effectively the needed information as the research parameters. Thereby, the research parameters are as follows: (1) ability to recognize when information is needed, (2) ability to locate the needed information, (3) ability to evaluate the located information, and (4) ability to use the obtained information effectively.

Because an information retrieval process cannot be initiated without problem detection, the participants' capabilities of pinpointing translation problems were included in the analysis. Since the detection of translation problems is assumed to mark the onset of information mining, the author operationalized translation problem detection as the first step of the information retrieval process.

The present study takes the participants' choice of keywords and search tools/environments as the criteria to evaluate how the participants locate the needed information. Keywords are useful indicators of whether a translator in need of some information is aware of what he/she needs. Ad hoc keywords potentially give information seekers a head start because they help inquirers refrain from an inconclusive search process and irrelevant search results, which in return minimizes the time spent. Moreover, not wasting time and effort on an initial search item but being capable of narrowing down the search results is a marker of an advanced level of information mining skill. However, a highly developed capability to extract keywords from a corpus of words does not guarantee the efficacy of the rest of the search process. For that, one needs to hold a high level of declarative and procedural knowledge of search tools and locations.

It is certain that search engines are beneficial in resolving a translational problem but may pose several difficulties. To elaborate, search engines produce a large body of relevant search results, but it is up to translators to discern one result from the other. In ACRL's Information Literacy Competency Standards for Higher Education, the importance of the reasoning skill of an individual is accentuated by stating "*information literacy is an intellectual framework for understanding, finding, evaluating, and using information—activities which may be accomplished in part by fluency with information technology, in part by sound investigative methods, but most important, through critical discernment and reasoning*" (ACRL, 2000: 3).

It can be understood from the above proposition that "*critical discernment and reasoning*" are the most important steps of the search process although being digitally competent or highly capable of extracting keywords plays a significant part in obtaining the needed information. However, because the current research is intended to investigate the construct of the participants' information literacy, the efficacy of the information retrieval capabilities of student translators, being the last step of information mining, will be assessed in consideration of whether a particular search result over the others is effectively used. An information literate student "*applies new and prior information to the planning and creation of a particular product or performance*" (ACRL, 2000: 13); therefore, a translation student is ideally expected to successfully introduce the acquired information into the target text, which is to a large extent the product of an *a priori* schema (of knowledge and skills).

As stated above, this research was initiated to answer Massey and Ehrensberger-Dow's (2011) call for more research to investigate translators' information-seeking behaviors. The author believes that this research gap has not

been filled yet even though several studies have been conducted so far. Kopczyńska (2013) has studied the information mining skills of students of English "*to determine whether and how dictionary microstructure can contribute to the quality of the target text*". Xu and Wang (2011) have investigated "*how translation students in Chinese universities are introduced to, use, and evaluate online resources in Chinese-English translation*". Paradowska (2020) has presented "*a collection of web-based resources for translators*" and showed "*the ways in which they can develop their web searching skills*". Alonso has questioned how translation professionals use Wikipedia (2015a) and Google (2015b). Sales and Pinto (2011) have found about "*the strengths and weaknesses indicated by professional translators regarding the information competencies they need*". Pinto et al. (2014) have examined the answers of self-reporting translation and interpreting students to assess "*the acquisition of the information competence*" in consideration of "*information search, assessment of information, information treatment, and communication and dissemination of information*". These papers were published in or after 2011, when Massey and Ehrensberger-Dow (2011) called for further research. An analysis of these research studies revealed that they are focused on the use of specific search tools and (re)sources (e.g., dictionaries, Wikipedia, Google), professional translations' wielding online information mining tools, how translation students make use of online information (re)sources, and how translation and interpreting students and professionals self-report their exploitation of information (re)sources.

A few more papers featuring information literacy and translation can be listed here. The studies were presented chronologically. Hirci (2012: 219) has operationalized "*pre- and post-experiment questionnaires to elicit views on the contribution of electronic reference resources to the translator's work, both from trainee translators and external evaluators*" in Slovenia. Hirci reports that exploiting electronic resources promotes translators' productivity and translation quality, but they can be "*detrimental when used uncritically*" (2012: 219). Pinto et al. (2014) have assessed "*the acquisition of the information competence*" in terms of "*information search, assessment of information, information treatment, and communication and dissemination of information*" by analyzing the data from self-report tests taken by respondents from Spanish universities. They have found their participants' overall levels of information management "*excellent, particularly in relation to disseminating and communicating information, and to assessing the information required for translation tasks*". Pakkala-Weckström (2015: 139) reports different research methods of second-year undergraduate translation students in Finland, who have been asked to submit "*work reports (or translation commentaries) on five homework assignments*". Volanen (2015) has experimentally investigated the information searching behavior of five professional translators in Finland and their use and views on online resources by examining information-seeking pauses (2015: 63). Alonso (2015a) has conducted a survey to find the way her respondents from 14 countries (and "others") use Wikipedia and to analyze their perceptions thereof. Gough (2016: 3) has conducted an empirical study to examine "*the use of online resources by professional translators during their translation-oriented research activities*" "*from an information behaviour perspective*" by delving into "*the nature and quantity of resources used by translators*" and "*the time they spend on research activities*". Kuznik (2017), a member of PACTE research group, presents the data, from a screen recorder, on the number of resources, total time of searches, time of searches at each stage of the translation process, number of searches, variety of searches, and acceptability of the results. Hvelplund (2017: 71) has examined "*time translators spend on digital resource consultation*", differences in eye movements "*between translation drafting, revision and digital resource consultation*", and types of digital resources employed by his participants. Shih (2017: 52) has investigated the web search behavior of six Chinese MA students of translation by using screen recording along with think-aloud protocols. Sales et al. (2018: 1) have recruited first-year translation trainees "*to investigate how they find, evaluate and use information for their course*". The study by Shih (2019) investigates the web search process of post-graduate students, "*when facing terminology problems*" to reveal "*characteristics of successful vs unsuccessful web search episodes*", "*characteristics of more optimal web search episodes*", and "*strategic web search process a trainee translator may engage in order to achieve web search optimisation*". Sycz-Opoń conducted two research studies in Poland in 2019 and 2021 to examine the information-seeking behaviors/styles of Polish students. In 2019, she made use of observation and think-aloud protocols to gain insight into the information-seeking behavior of 104 first- and second-year MA students of translation. In the study she conducted in 2021, she presents "*a typology of information-seeking styles*" of 52 MA students of translation and interpreting to generate six research styles.

The aforementioned research studies can be observed to present valuable insight into translators' information literacy. Yet they prove that there is exiguous research on this phenomenon. Raido (2014), Volanen (2015), Alonso

(2015a), Gough (2016), Shih (2017), Hvelplund (2017), Sales et al. (2018), Shih (2019), and Sycz-Opoń (2021) too claim that little research has been conducted to study information literacy and information search behavior of translators, particularly translation students. The chronological order of these nine studies reveals that more research is needed to develop a more in-depth understanding of information literacy.

To the author's best knowledge, the present study contributed to the above efforts to fill the research gap in the literature on information literacy by examining some never or rarely problematized phenomena. This is the first study to investigate the information literacy of Turkish translators, particularly translation students. It presents the participants' search locations according to their genders, the source types, the search items' structures and provides the search results in terms of the students' genders, the search items, the search items' structures, and the search locations. It can be listed among the very rare studies to investigate the relationship between information-seeking behavior and gender. The research is also among the few to deal with the entire construct of information literacy and to sample BA translation students, particularly fourth-year students. It is one of the few to use a statistical program to look for associations between the investigated parameters. Since the research obtained the information retrieval data by using a less intrusive data collection tool – a screen recorder – and the translation process was not interrupted by a reporter, an observer, or self-verbalization, the paper can be thought to have a high level of ecological validity, which helps reveal more naturally occurring, undisturbed information behaviors of the participating translation students. Besides, because the data were produced by the researcher by analyzing the recorded screen videos, the analysis can be expected to yield more reliable and valid results than the examination of participant-provided data could do.

The following part features the methodological consideration of the research, in which the author adopted the four major components of information literacy as his research parameters, i.e., recognizing when information is needed, locating the needed information, evaluating the located information, and using the obtained information effectively, to gain insight into the construct of the participating translation students' information literacy.

4. METHODOLOGY

4.1. DATA COLLECTION TOOL

The present study is an empirical study based on the analysis of qualitative and quantitative data. The qualitative data were obtained via Camtasia Studio 8. This software program is a screen recorder used to capture screen activities of text producers – translators herein. It is "*very useful in following the search paths and helping understand how and why the translators searched for information*" (Lauffer, 2002: 69). Thus, it was used to monitor the translation rendering process of the participating students, for it offers "*a real-time account of the translation process [and] a timed account of every action which took place on the screen during the production*" (Asadi and Séguinot, 2005: 523) and "*a detailed account of which electronic sources or web-sites the subjects are using during translation*" (Göpferich and Jääskeläinen, 2009: 173). This software program's running in the background makes it "*invisible and non-intrusive*" (Massey and Ehrensberger-Dow, 2010: 132), which "*does not affect the translator's natural working environment [and promotes] the ecological validity of the data*" (Asadi and Séguinot, 2005: 523). For the purpose of the study, the program was installed on ten computers. Then, ten participants were invited to translate an excerpt from an owner's manual into their mother tongue, i.e., Turkish.

4.2. MATERIALS AND PARTICIPANTS

The source text is an excerpt from the owner's manual of Ford Escape 2014 (Ford Motor Company, 2014: 26) on sale in the North American market. The source text consists of 230 words. Ten translation students (four male and six female students) in their fourth/final year were recruited from a state university through convenience sampling. Their working language pair was Turkish-English – the former being their native language. Similar process-oriented studies have been conducted to reveal novice or/and professional translators' translation processes. Alonso (2015b: 312) has included "*a total of five Spanish speaking translation professionals*" "*to explore how translation professionals use and perceive tools, especially generic tools such as Google and Wikipedia, during the translation process*". By using "*direct observation via screen recording*", Raido (2011: v) explores the web search behaviors of a total of six participants" on "*a naturally occurring sample of four postgraduate translation trainees*" and "*two additional subjects […] who participated in a pilot study conducted prior to the main study*". Lauffer (2002) has observed the translation process of three participants by employing a keylogger and a screen recorder. Shih (2017)

has used a screen recorder and think-aloud protocols to investigate six Chinese trainee translators' web search behavior. O'Brien (2008: 79) has employed five participants to investigate the relationship between Fuzzy Match value and cognitive effort. Along with her co-authors, she has recruited six professional translators "*to investigate the usefulness of sub-segment matching*" and translators' attitudes to the development of new interfaces in consideration of the observed matches (O'Brien et al., 2010: 187). Alves and Liparini Campos (2009: 191) have examined "*the performance of 12 professional translators […] in terms of the types of support they used for orientation, drafting, and revision*". Onishi and Yamada (2020: 1) have invited "*five university students and four professional translators to translate the same source text*" to compare their online searching behaviors. Rosa et al. (2020: 295) employed ten student translators "*to describe the process of English-Indonesian translation*". Asadi and Séguinot (2005: 522) have used "*a **large**[†] group of professionals [nine participants]*" to investigate their strategies, whereas Massey and Ehrensberger-Dow (2010: 133) have gathered their data from "*a **small**[‡] group (n=7) of freelance and staff professional translators*".

The process research studies above were observed to have recruited five, six, three, six, five, six, twelve, nine, ten, nine, and seven participants, respectively. Remarkably, Massey and Ehrensberger-Dow (2010) consider a group of seven participants to be a "*small*" sample, whereas Asadi and Séguinot (2005) regard their sample size of nine as "*large*". It can be concluded that there is no consensus on the 'ideal' number of participants to be included in a translation process research, yet the foregoing authors seem to have harvested satisfying amounts of workable data, referred to as "*data saturation*" by Saunders et al. (2018), because "*large amounts of data are generated*" in translation process research (O'Brien, 2008: 81; Dam-Jensen and Heine, 2009: 8). However, "*the amount of data generated [in a process research] even with a small cohort is rather overwhelming*" (Raido, 2014: 186) and "*the capacity of one researcher to thoroughly analyse the amount of data that translation process methods can produce is limited*" (O'Brien, 2009: 261), which "*reduces the number of participants*". Otherwise, the evaluation process would be "*very time-consuming*" (O'Brien, 2008: 81), "*prolonged and complicated*" (Dam-Jensen and Heine, 2009: 7). These are the reasons why the author of the current paper as the only conductor of the research believes that a group of ten students can conceivably provide him with the adequate amount of data to fulfill the purpose hereof. To elaborate, even a relatively small sample can generate a large amount of data in process studies, yet an excess of data will encumber a researcher's capacity to conduct a meticulous analysis, which will require a prolonged process; thus, a sample of ten students in this study was deemed to generate the data operationalizable to investigate their constructs of information literacy incorporating the steps ranging from problem detection to (un)satisfactory solutions to detected problems.

5. DATA ANALYSIS

In this part, the results of the analyses were presented in consideration of what kind of information was needed, where the participants looked for the needed information, whether the type of the search locations differed by the participants' genders and search items' structures, how effective the search process was, and whether the search results varied by the participants' genders, the location types and the search items' structures. Qualitative and quantitative data were exploited to investigate the information literacy constructs of the participants. To this end, some of the qualitative data were processed into quantitative data, such as the number of words looked up in an online dictionary and the number of fruitful search results. The quantification was carried out by enumerating the instances of the qualitative data, such as dictionary use and searched items. Besides, the qualitative data were analyzed on IBM SPSS Statistics 21, a statistical software program, to investigate whether there were significant associations between them. Because the qualitative data in the present study are categorical (e.g., search location, location type, participants' genders, and search items' structures), Pearson's chi-square test can be used (Field, 2009: 688). Yet there are two other assumptions to meet. When these two assumptions were not satisfied, the test was not performed.

a. When analyzing a 2-by-2 table, each expected frequency in each cell must be more than 5 to perform Pearson's chi-square test.

b. In the presence of larger tables, each expected frequency in each cell must be more than 1 or more than 20% of the expected frequencies must be more than 5 to run Pearson's chi-square test (Miller et al., 2002: 134).

[†] My boldfacing

[‡] My boldfacing

In the cases where the tables larger than 2 by 2 were analyzed if assumption 2 was not met, the related categorical variables were merged to increase the frequencies in each cell (Connolly, 2007: 183).

5.1. Recognizing the Need for Information

The first step that an information-literate person typically takes is to identify the item for which more information is needed. Such a need is a recurring case for translators. Linguistic, intratextual, and extratextual uncertainties, difficulties, and problems are inherent in the translation process because each commissioned text is new to translators – even if familiar to varying degrees – and incorporates various new challenges. To resolve these issues, they need to have recourse to tools and methods, particularly of information mining. Yet since the failure to identify such matters of concern would potentially lead to the production of a target text unacceptable by the client, a translator should (be able to) pinpoint them and come to understand the need for a piece of information.

Table 1: Most frequently searched single and multiple words (P: Participant; S: Searched; N: No search)

	SEARCHED ITEMS	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	TOTAL
1	Booster seat	S	S	S	S	S	S	S	S	S	S	10
2	Lap belt	S	S	S	S	S	S	S	S	S	S	10
3	4 feet 9 inches	S	S	S	S	S	S	S	S	S	S	10
4	Slouch	S	S	S	S	S	S	S	S	S	S	10
5	Belt-positioning	S	S	S	N	S	S	S	S	N	S	8
6	Child restraint	S	N	S	S	S	S	S	S	N	S	8
7	40 pounds	S	N	N	S	S	S	S	S	S	S	8
8	80 pounds	S	S	N	S	N	S	S	S	S	S	8
9	100 pounds	S	N	S	S	N	S	S	S	S	S	8
10	Outgrow	N	S	N	N	S	S	S	S	S	S	7
11	Seat cushion	N	S	S	N	S	S	S	S	N	S	7
12	Child safety seat	S	S	N	N	S	N	S	S	S	S	7
13	Shoulder belt	N	S	N	N	S	S	S	S	N	S	6

Séguinot (2000: 90) states "*problems […] do not actually exist out there. It is our perception that identifies something as a problem*"; therefore, this study is limited to the problems detected by the participants rather than possible pitfalls latent in the source text. In other words, the items considered in this paper were isolated from a plethora of searched items because the need for information is the first step of information retrieval. Table 1 presents the data on the 13 most frequently searched items as ordered starting with the most frequently searched, which is 'booster seat', the title of the source text. It was looked for by each of the ten participants along with 'lap belt', '4 feet 9 inches', and 'slouch'. Eight of the participants searched for 'belt-positioning', 'child restraint', '40 pounds', '80 pounds', and '100 pounds', whereas seven for 'outgrow', 'seat cushion', and 'child safety seat', and six for 'shoulder belt'. It is also noteworthy that after they looked for '40 pounds' to obtain its metric equivalent, they went on typing in '80 pounds' and '100 pounds' instead of calculating each based on the search result concerning '40 pounds'.

5.2. Locating the Needed Information

After realizing the need for a piece of information, an information-literate translator is expected to think of and decide where to find the needed piece in question. If he/she does not know about the source likely to produce the most viable result, then trial-and-error will take over to turn searching into groping. A translation-oriented inquiry should be purposeful and focused, for it is greatly decisive in the success of a search process. This part presents the data on search locations by participants' genders, source types, and search items' structures.

5.2.1. Search locations by participants' genders

Table 2 provides the search locations by the participants' genders. 28.8% and 10.3% of the male and female participants can be seen to have performed no search, respectively. This finding may suggest that the males were more knowledgeable about the search items at stake or failed to realize the need for a particular search item. Bilingual dictionaries can be observed to be the most frequented source of information for both genders (female: 30.8%; male: 25.0%).

Besides, the table shows that even though both genders used all the five types of information sources (i.e., a search engine, bilingual dictionaries, monolingual dictionaries, online encyclopedia, and converters), the female

students exploited a greater variety of search location combinations than the male students. The former can be seen to have used four combinations (i.e., bilingual dictionary+online encyclopedia, bilingual dictionary+search engine, bilingual dictionary+monolingual dictionary, and bilingual dictionary+bilingual dictionary), while the latter employed only one, i.e., bilingual+search engine. Massey and Ehrensberger-Dow (2011) present that their student participants have reported monolingual and multilingual online dictionaries, search engines, online encyclopedias, search portals, search catalogs/directories, terminology databases, and model/parallel texts as their sources of information. Xu and Wang (2011: 79-80) have found that their participating students have reported online dictionaries, online translation tools, internet search engines, and online corpora as their sources. To compare, the participants of the present research did not use online corpora, online translation tools, search directories, online terminology databases, and search portals. This suggests that they might not be knowledgeable about these sources or, even if they are, they did not want to use them.

Table 2: Gender-based distribution of first two information sources

		Gender		Total
		Female	Male	
Location	NoSearch	8 (6.2%)	15 (11.5%)	23 (17.7%)
	SearchEngine	10 (7.7%)	11 (8.5%)	21 (16.2%)
	Bilingual+Encyclopedia	1 (0.8%)	0 (0.0%)	1 (0.8%)
	Bilingual+SearchEngine	9 (6.9%)	8 (6.2%)	17 (13.1%)
	Bilingual	24 (18.5%)	13 (10.0%)	37 (28.5%)
	Bilingual+Monolingual	2 (1.5%)	0 (0.0%)	2 (1.5%)
	Converter	14 (10.8%)	4 (3.1%)	18 (13.8%)
	Bilingual+Bilingual	10 (7.7%)	0 (0.0%)	10 (7.7%)
	SearchEngine+Encyclopedia	0 (0.0%)	1 (0.8%)	1 (0.8%)
Total		78 (60%)	52 (40%)	130 (100%)

It is a notable finding that 60% and 40% of 130 searches were performed by the female and male participants, respectively. A similar pattern is conspicuous in the by-gender analysis of the location type: the female and male students performed 35.4% and 16.2% of the inquiries on bilingual dictionaries as their primary search locations, whereas the former and the latter triangulated 16.9% and 6.2% of their search results from bilingual dictionaries with secondary sources, respectively. This finding may suggest that the female students were more reliant on bilingual dictionaries than the male students, yet they were more doubtful about their first results and more prudent in making the final decision. This inference could be supported by the fact that the female and male participants were detected to have resorted to a different source of information than bilingual dictionaries in 18.5% and 12.3% of their searches, respectively. Moreover, Table 2 reveals that the female participants had no subsequent recourse to an online encyclopedia, while the male students did not use a bilingual dictionary and an online encyclopedia and also two bilingual dictionaries consecutively.

Table 3: Relationship between genders and information sources

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.724[a]	4	.020
Likelihood Ratio	11.805	4	.019
N of Valid Cases	130		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.20.			

Table 3. presents the results of the chi-square tests as to whether there was an association between the participants' genders and the type of information sources. Since there were seven cells (38.9%) with expected counts less than 5, five search combinations of two locations (i.e., Bilingual+Encyclopedia, Bilingual+SearchEngine, Bilingual+Monolingual, Bilingual+Bilingual, and SearchEngine+Encyclopedia) were conflated (Connolly, 2007: 183), by which Assumption 2 was satisfied. As evident from the table, there was a statistically significant relationship between gender and search location (X^2 (4, N = 130) = 11.7, p = .020). Thus, it can be inferred that different genders may avail of different sources of information to solve a translation problem.

5.2.2. Search locations by source types

Table 4 presents the primary and secondary online media where the participating students looked for the items about which they desired to know more. The table shows that the participants had recourse to five types of information sources – i.e., bilingual dictionary (Turkish-English), monolingual dictionary, search engine, online encyclopedia, and unit converter. The table also reveals that they used three types of bilingual online dictionaries, two types of monolingual dictionaries, one type of search engine, one type of online encyclopedia, and several unit converters. The most frequently exploited sources of information are bilingual dictionaries (76 instances), which are followed by a search engine (39 instances), unit processors (18 instances), monolingual dictionaries (three instances), and an online encyclopedia (one instance). Raido (2014: 173) states that students may not be able to resolve which resource to use when in need of a piece of information, which may account for their "*rather highly iterative or repetitive type of online search behavior that was characterized by frequent repeat visits to the same site (primarily reference sites)".* This proposition could explain the prevalence of bilingual dictionaries in search instances observed in the present research.

Table 4. Sources of information

	SOURCE	TYPE	FREQUENCY	(%)
1	Tureng	Bilingual online dictionary	67	48.6
2	Google	Search engine	39	28.3
3	Converter (generic)	Unit processor	18	13.0
4	Zargan	Bilingual online dictionary	5	3.6
5	Seslisözlük	Bilingual online dictionary	4	2.9
6	Wikipedia	Online encyclopedia	2	1.4
7	Freedictionary	Monolingual online dictionary	2	1.4
8	Merriam-Webster	Monolingual online dictionary	1	0.7
			138	100.0

Table 4 features only one search engine, which is 'Google', which is likely to result from the fact that Google is the most popular search engine and is capable of quickly providing the needed information in a vast array of sources. It is also evident from the table that the participants resorted to dictionaries as their primary and secondary information sources, accounting for 79 (55.1%) of 138 searches in total. Of these 79 searches, 67 (63 as a primary source) were conducted on a single bilingual online dictionary (Tureng), nine on two other bilingual dictionaries (Zargan and Seslisözlük), and three on two monolingual dictionaries (Freedictionary and Merriam-Webster). Some likely causes can be proposed as to why the participants predominantly used a single bilingual dictionary (i.e., Tureng); firstly, they might have started using a variety of bilingual dictionaries and singled one out over time thanks to its fruitfulness. Secondly, the dictionary might be recommended by a friend, a teacher, or a professional. Lastly, the dictionary in question could be so popular that it might have engrossed their attention.

Table 5 reveals that 63 of the dictionary lookups were primarily performed on bilingual dictionaries, whereas none of the participants used monolingual dictionaries as a primary source of information. Only two participants (P7 and P8) resorted to monolingual dictionaries; two inquiries on freedictionary.com and one on merriam-webster.com. Sycz-Opoń (2019) has obtained a substantiating result, which suggests that bilingual dictionaries are the most popular resources of student translators, whereas recourse to monolingual dictionaries corresponds to 1.79% of all the inquiries.

It is clear from the summarized data above that the dictionary searches correspond to more than half of the total inquiries. It can be understood from the table that only two participants used monolingual dictionaries but as secondary sources of information. This means that the other 76 searches were performed on bilingual online dictionaries. Such a prevailing use of bilingual dictionaries might have resulted from their easy accessibility (Sales and Pinto, 2011), their popularity among students (Roberts, 1992), and the participants' desire to find an immediate solution to a specific translation problem, which might be considered a usual practice, for they were asked to translate interlingually. It was observed that two participants had recourse to monolingual dictionaries to refine their search results that they obtained from a bilingual dictionary in order to find a working solution because, as Roberts

(1992) suggests, dictionaries may contain so much information and this profusion may lead to "*dilemma*".

As available in Tables 4 and 5, the present study corroborates the findings in the previous research. Raido (2011: 480) expresses that "*the student participants typically used reference sites (mostly dictionaries) as their first port of call in searching for both linguistic and thematic (specialized) information*". Shih (2017) has found bilingual online dictionaries to be her participants' primary sources of information. Massey and Ehrensberger-Dow (2011) report that their student participants have opted for multilingual online dictionaries as their first location of information retrieval. They have also shown that "*most freelancers, irrespective of their language versions, use search engines, online multilingual dictionaries and terminology databanks often or very often*". In addition, most of them often or very often consult online parallel texts and encyclopedias (Massey and Ehrensberger-Dow, 2011: 202). Ramos (2005) has found that 87.8% of her participants, translation students, make use of bilingual dictionaries. Sycz-Opoń (2019) remarks that dictionary consultations account for 72.70% of the total inquiries. Paradowska (2020: 174) has detected that the students in her research have most frequently availed themselves of "*Google search engine, bilingual dictionaries, and Wikipedia*" before her educational intervention, after which her participants started to use "parallel texts more frequently", to spend "more time checking target text accuracy*" and to rely "less on bilingual dictionaries and Wikipedia" (Paradowska, 2020*: 174). Similarly, PACTE (2009) has indicated that bilingual dictionaries are primarily consulted in the occurrence of "*linguistic problems*". Alonso (2015a: 98) reports that 82.8% of the participating professionals had recourse to bilingual and monolingual dictionaries. From the findings of the mentioned researchers, it can be propounded that monolingual and multilingual dictionaries are among the first-to-use sources of information for students and professional translators. However, this may not be the case for every research setting as Onishi and Yamada (2020) report that their participating student and professional translators have conducted 30.96% and 11.40% of the searches on dictionary websites, respectively. This result of theirs suggests that translation professionals may have recourse to non-dictionary resources more frequently than novices.

Table 5. Search items and first two information sources used by participants (N: no search)

SEARCHED ITEM	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
Booster seat	Google	Tureng Google	Tureng	Tureng Google	Google	Tureng	Tureng Freedictionary	Tureng Google	Tureng Google	Tureng Google
Lap belt	Tureng Google	Tureng	Tureng	Google	Tureng Google	Tureng Google	Tureng Zargan	Tureng	Google Tureng	Tureng
4 feet 9 inches	Google	Converter	Google	Converter	Google	Converter	Google	Converter	Google	Converter
Slouch	Tureng Google	Tureng	Tureng	Tureng	Tureng	Tureng	Tureng	Tureng Merriam-Webster	Tureng	Tureng Seslisözlük
Belt-positioning	Google Tureng	Tureng Google	Tureng	N	Tureng Google	Tureng	Tureng Seslisözlük	Tureng Zargan	N	Tureng
Child restraint	Tureng	N	Tureng	Tureng	Tureng	Tureng Seslisözlük	Tureng Zargan	Tureng Zargan	N	Tureng
40 pounds	Google		N	Converter	Google	Converter	Google	Converter	Google	Converter
80 pounds	Google	Converter	N	Converter		Converter	Google	Converter	Google	Converter
100 pounds	Google		Google	Converter		Converter	Google	Converter	Google	Converter
Outgrow	N	Tureng Seslisözlük	N	N	Tureng	Tureng	Tureng Freedictionary	Tureng Zargan	Tureng	Tureng
Seat cushion	N	Tureng	Tureng	N	Tureng	Tureng	Tureng	Tureng	N	Tureng
Child safety seat	Google Wikipedia	Tureng Google	N	N	Google Tureng	N	Tureng Google	Google	Wikipedia Tureng	Tureng
Shoulder belt	N	Google	N	N	Tureng Google	Tureng	Tureng	Tureng	N	Tureng

It was also found out that the participants benefited from only one search engine, namely Google (Table 5), which is the second most frequently exploited tool. In Alonso (2015a: 108), Google is reported as the most frequently used source of information by professionals (85.7%), which is substantiated by Onishi and Yamada (2020), who have revealed that their professional and student participants have spent 56.43% and 36.90% of their search time on non-dictionary websites, respectively. Shih (2017) has found that Baidu and Google were the search engines of choice by the Chinese trainee translators. Likewise, Xu and Wang (2011) note that 57% of their reporting students are frequent

users of internet search engines, while 41% sometimes use them and 2% never have recourse to search engines (2011: 73) and that Google (35.6%), Baidu (34.8%), and Yahoo (14.6%) are the most popular engines (2011: 74). 88% of their respondents remark that search engines are "*convenient and fast*", 86% think that they provide a vast body of information, and 60% are of the view that search results may be of varying quality (2011: 79). Xu and Wang (2011) also state that Internet search engines are widely used as a source of information, for most "*are free to access, with rapidly updated and real-time information and wide coverage of fields*" (2011: 64). In this study, the participants were observed to have recourse to the search engine (1) to retrieve such extralinguistic information as converted measure units and product's images, (2) to narrow down the search results, and (3) to check the accuracy of the guessed translation solutions. The screen records revealed that the participants made direct or indirect use of Google to convert length (feet and inch) and weight units (pound). To exemplify, four participants used it as a shortcut converter by directly typing in the unit to be converted into the metric, while the others used it to gain access to converters and then to perform the conversions. Because some of the conversion websites did not have user-friendly interfaces, the participants using the converters wasted far more time than the Google users. For instance, some converters have separate slots designated for feet and inches, while others require users to type and calculate feet and inches simultaneously by providing collapsing windows. The other searches on Google, as a secondary source, were majorly focused on the refinement of the results found on online dictionaries or conducted to make sure that the possible solution they guessed when they could find no equivalent for the search item on online dictionaries was a plausible solution. It was observed that, in doing so, they were quite incompetent in isolating the ad hoc keywords or adopting an effective method to maximize the efficacy of the search. For example, Table 6 shows that the participants are knowledgeable of the function of the quotation mark (to search for an exact item), a search behavior which Alonso (2015b: 315) too reports in her paper. Yet the participants were observed to be oblivious of the potential pitfalls. To be specific, they used these keywords sometimes to narrow down the search results and sometimes because they could think of no other way but to type in what they thought was true. It seems that they missed a point; the longer the search items are, the further they might move from the intended result.

Table 6: Some keyword examples

Search Item	Back Translation
'Turkiye'de çocuk koltuğu yasası'	Child Safety Seat Law in Turkey
'Türk Hukuk Sisteminde Çocuk Oto Güvenlik Koltuğu'	Child Safety Seat in Turkish Legal System
'Kemerin kucak kısmı'	Lap part of the belt
'Bele oturan çocuk güvenlik koltuğu'	Child Safety Seat fitting around the waist

Tables 4 and 5 exhibit a noteworthy picture, where only two students (P1 and P9) made use of an online encyclopedia, Wikipedia. Considering that the analysis was built on the participants' first two sources of information and only two instances of Wikipedia out of 130 searches, the students in this study can be claimed not to prioritize online encyclopedias as their primary search media. This finding contradicts Alonso (2015a: 111), in which she notes that the use of Wikipedia as a translation-oriented source of information has acquired a canon position, at least in her national context, and 53.6% of her participants look to Wikipedia to satisfy their need for information. Massey and Ehrensberger-Dow (2011: 202) report that most of their freelancers consult online encyclopedias along with online parallel texts "*often or very often to solve extra-linguistic problems*". Since, to the best knowledge of the author, there is scarce research on translation students' use of online encyclopedias and the present study harvested very little about how and why students benefit from online encyclopedias, further research is needed to shed more light on this phenomenon.

5.2.3. Search locations by search items' structures

Table 7 shows the distribution of the search locations according to the search items' structures. The table reveals that the single-word and multiple-word search items account for 15.4% and 84.6%, respectively. This finding suggests that the participants encountered difficulty with phrases and compound words more often than with stand-alone words.

Table 7: Search locations by structures of search items

		Structure		Total
		Single Word	Multiple Words	
Location	NoSearch	3 (2.3%)	20 (15.4%)	23 (17.7%)
	SearchEngine	0 (0.0%)	21 (16.2%)	21 (16.2%)
	Bilingual+Encyclopedia	0 (0.0%)	1 (0.8%)	1 (0.8%)
	Bilingual+SearchEngine	1 (0.8%)	16 (12.3%)	17 (13.1%)
	Bilingual	11 (8.5%)	26 (20.0%)	37 (28.5%)
	Bilingual+Monolingual	2 (1.5%)	0 (0.0%)	2 (1.5%)
	Converter	0 (0.0%)	18 (13.8%)	18 (13.8%)
	Bilingual+Bilingual	3 (2.3%)	7 (5.4%)	10 (7.7%)
	SearchEngine+Encyclopedia	0 (0.0%)	1 (0.8%)	1 (0.8%)
Total		20 (15.4%)	110 (84.6%)	130 (100%)

Their performing 38.5% of the initial inquiries for multiple words on bilingual dictionaries and 43.9% on a search engine, converters, and an online encyclopedia (Table 7) may suggest that they have developed an advanced understanding of terminological items, which can also consist of multiple words, and they are knowledgeable of tools to process available data to produce metadata, to delve into the relevant contexts through descriptions and images, and to obtain further refined results. However, their overdependence on dictionaries, bilingual dictionaries in particular, alludes that the participants of the present research, even though seniors, tended to exhibit an atomistic processing capacity rather than "*meta-level thinking*" typical of professionals (Yazıcı, 2016: 68).

Paradowska (2020: 174) has found out that her participants consulted "*web-based resources, or information needs*" with the purpose of "*checking the meaning of unknown words, checking the accuracy of translated phrases, searching parallel texts, and increasing extralinguistic knowledge*". She reports that the majority of them performed online searches to look up an unknown word and check how accurately they have translated a segment. She also notes that they have "*hardly ever used web-based resources to increase their extralinguistic knowledge or access parallel texts*" (2020: 174). She has observed these characteristics before she decided to intervene in her students' information retrieval behaviors. But after she had performed the intervention, she discovered that the participants have "*used parallel texts more frequently, spent more time checking target text accuracy and relied less on bilingual dictionaries and Wikipedia*" (2020: 174). The present study's participants' overreliance on dictionaries and search engines and seldom use of such media of extralinguistic information as product websites/forums, online encyclopedias, online corpora, and terminology databases is greatly similar to the search behaviors of Paradowska's participants before her pedagogical intervention. Thus, translation students' information mining capabilities should be assessed with diagnostic tests and, if need be, ad hoc pedagogical interventions should be implemented at once.

5.3. Evaluation and Effective Use of Obtained Information

Both SCONUL and ACRL list the critical evaluation of a piece of obtained information and its source as an indispensable step of the information retrieval process since meticulous assessment potentially enables to eliminate unlikely choices and to single out a potentially viable solution. Therefore, assessing the quality of a target text will eventually manifest how successful the evaluation step has been. This is why the success of the evaluation step was assessed based on the effective use of the retrieved piece in the produced target text.

Because a successful evaluation tends to precede and lead to a successful decision, acceptable use of a given search result as the agreed-upon solution depends on how successful the evaluation step has been. Thus, the author decided to tackle the evaluation and effective use of the obtained information under the same title.

5.3.1. Search results by search items, participants, and their genders

Table 8 shows how effectively the participants used the obtained information and reveals whether the translation solution is acceptable in consideration of the translation brief. Since some items were not searched for by some participants, they were not included in the analysis. The table indicates that the items in question were looked for 107 times, of which 50 and 57 yielded negative and positive results, respectively. This finding suggests that the participants realized the lexical and phrasal needs but performed weakly in almost half the searches and failed in one

or more of the following steps: effective access to information, critical evaluation of information and its source, and effective use of obtained information. From this general judgment, it can be inferred that they have a relatively low level of information literacy.

Table 8: Search results by items and participants (A: Acceptable; U: Unacceptable; N: No search)

	SEARCHED ITEM	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	POSITIVE	NEGATIVE	TOTAL
1	Booster seat	U	U	U	U	U	U	U	U	U	U	0	10	10
2	Lap belt	A	U	U	A	U	U	U	U	U	A	3	7	10
3	Belt-positioning	A	U	U	N	U	U	U	U	N	U	1	7	8
4	Child restraint	A	N	U	A	A	U	U	U	N	U	3	5	8
5	Child safety seat	U	U	N	N	A	N	U	A	U	A	3	4	7
6	4 feet 9 inches	A	U	A	A	A	A	U	A	U	A	7	3	10
7	Slouch	A	A	U	A	A	U	A	A	A	U	7	3	10
8	Shoulder belt	N	A	N	N	U	U	U	A	N	A	3	3	6
9	40 pounds	A	N	N	U	U	A	A	A	A	A	6	2	8
10	100 pounds	U	N	A	A	N	A	A	A	A	U	6	2	8
11	Outgrow	N	U	N	N	A	U	A	A	A	A	5	2	7
12	80 pounds	A	U	N	A	N	A	A	A	A	A	7	1	8
13	Seat cushion	N	A	U	N	A	A	A	A	N	A	6	1	7
												57	50	
	NEGATIVE	3	7	6	2	5	7	7	4	4	5	50		107
	POSITIVE	7	3	2	6	6	5	6	9	5	8	57		
	NO SEARCH	3	3	5	5	2	1	0	0	4	0	23		

From a deeper analysis of the data in the table, it can be concluded that none of the students were able to come up with an acceptable solution for 'booster seat', only three of ten students produced a working solution for 'lap belt', and one of eight for 'belt-positioning'. Considering that 'booster seat' is the title of the source text, this might mean that they would fail to adopt a macro-perspective on the intratextual context and handle the upcoming translation problems and their proposed solutions deprived of this macro-level view. Their relatively lower performance in yielding a viable solution for 'belt-positioning' and 'lap belt' may have resulted from this lack of perspective. 'Belt-positioning' is what exactly the booster seat is supposed to do, i.e., to elevate the child at a certain height so as to allow him/her to use the adult belt and 'lap belt' and 'shoulder belt' to firmly and securely 'restrain' the child to prevent 'slouching'. Thus, their failure to find a nonviable solution for 'booster seat' can speculatively account for their low performance in producing an acceptable target language equivalence of 'belt-positioning' (seven negative results out of eight searches) and 'lap belt' (seven negative results out of ten), 'child restraint' (five negative results out of eight), and 'should belt' (three negative results out of six).

It is also clear from the table that the students exhibited a relatively better performance in finding a working solution for the items including numbers – e.g., seven positives out of ten for '4 feet 9 inches', seven positives out of eight for '80 pounds', and six positives out of eight for 40 pounds and 100 pounds. Yet the table reveals that P2 and P3 conducted no search for '40 pounds', P3 and P5 for '80 pounds', and P2 and P5 for '100 pounds' and that P2 and P5 failed to produce working translation solutions for '80 pounds' and '40 pounds', respectively. Thus, P2 and P5 can be claimed to have realized the significance of converting these units into the metric system but did not know where and how to look for a working way to convert them. Their performances in these figures translated to their overall results in the table. It can be speculated based on the fruitful searches in Table 8 that P8, with nine positive search results, holds the highest level of information literacy, who is followed by P10 and P1 with eight and seven positive results, respectively. Contrarily, P3 was found to exhibit the lowest level of information literacy with two positive search results. P3 was followed by P2, P9, P6, P7, P5, and P4 with 3, 5, 5, 6, 6, and 6 positive results, respectively.

Table 9: Search results by genders

		Gender		Total
		Female	Male	
Result	No Search	8 (6.2%)	15 (11.5%)	23 (17.7%)
	Positive	36 (27.7%)	21 (16.2%)	57 (43.8%)
	Negative	34 (26.2%)	16 (12.3%)	50 (38.5%)
Total		78 (60%)	52 (40%)	130 (100%)

Table 9 gives the distribution of the search results according to the participants' genders. The table shows that the female participants produced higher numbers of positive (36; 27.7%) and negative results (34; 26.2%) than the male participants (positive: 21; 16.2%, negative: 16; 12.3%). It can be understood from the table that even though the female participants came up with a higher number of positive results (36; 27.7%), it is very notable that they produced almost as many unacceptable results (34; 26.2%) as their acceptable ones. The difference between the positive and negative search results accounts for 1.5%. While a similar success pattern holds for the male participants, the difference between their positive and negative results corresponds to 3.9%.

Table 10: Relationship between search results and genders

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.664[a]	2	.022
Likelihood Ratio	7.551	2	.023
N of Valid Cases	130		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.20.			

Table 10 provides the data as to whether there is any relationship between the search results and the participants' genders. The table indicates a statistically significant relationship between the search results and the genders (X^2 (2, N = 130) = 7.7, p = .022). This result suggests that male and female students may differ in terms of their success in coming up with an acceptable translation solution to a translation problem that has triggered the search behavior.

5.3.2. Search results by search items' structures

Table 11 presents the search results by the structures of the search items. The table shows that the participants produced 12 positive (9.2%) and five negative results (3.8%) in the single-word inquiries, whereas 45 positive (34.6%) and 45 negative results (34.6%) in the multiple-word searches. The participants conducted no searches for single- and multiple-word items in three (2.3%) and 20 (15.4%) instances, respectively.

Table 11: Search results by search items' structures

		Structure		Total
		Single Word	Multiple Words	
Result	No Search	3 (2.3%)	20 (15.4%)	23 (17.7%)
	Positive	12 (9.2%)	45 (34.6%)	57 (43.8%)
	Negative	5 (3.8%)	45 (34.6%)	50 (38.5%)
Total		20 (15.4%)	110 (84.6%)	130 (100%)

Table 11 reveals that the students were relatively more successful in their inquiries for the single words than for the multiple words, which might have arisen from bilingual dictionaries' potential to offer more viable results for single words and/or students' lack of declarative and procedural knowledge of where and how to look for a phrase or compound linguistic element.

Table 12: Relationship between search results and search items' structures

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.617[a]	2	.270
Likelihood Ratio	2.633	2	.268
N of Valid Cases	130		
a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 3.54.			

Table 12. provides the relationship between the search results and search items' structures. According to the table, there was no statistically significant relationship between the search results and the search items' structures (X^2 (2, N = 130) = 2.6, p = .270).

5.3.3. Search results by search locations

Table 13. presents the search results as distributed according to the search locations. The table shows that no search occurred in 23 (17.7%) of 130 instances, which may suggest that some of the students did not regard some items as translation problems, while the items at stake were considered so by some and/or that some failed to identify the potentially problematic elements. According to the table, 57 (43.8%) and 50 (38.5%) of the 130 instances yielded positive and negative results, respectively. Given that the rate of the negative results is very close to that of the positive ones, it can be propounded that the participating students hold a low level of information literacy.

Table 13: Search results by search locations

		Result			Total
		No Search	Positive	Negative	
Location	NoSearch	23 (17.7%)	0 (0.0%)	0 (0.0%)	23 (17.7%)
	SearchEngine	0 (0.0%)	15 (11.5%)	6 (4.6%)	21 (16.2%)
	Bilingual+Encyclopedia	0 (0.0%)	0 (0.0%)	1 (0.8%)	1 (0.8%)
	Bilingual+SearchEngine	0 (0.0%)	4 (3.1%)	13 (10.0%)	17 (13.1%)
	Bilingual	0 (0.0%)	21 (16.2%)	16 (12.3%)	37 (28.5%)
	Bilingual+Monolingual	0 (0.0%)	2 (1.5%)	0 (0.0%)	2 (1.5%)
	Converter	0 (0.0%)	14 (10.8%)	4 (3.1%)	18 (13.8%)
	Bilingual+Bilingual	0 (0.0%)	1 (0.8%)	9 (6.9%)	10 (7.7%)
	SearchEngine+Encyclopedia	0 (0.0%)	0 (0.0%)	1 (0.8%)	1 (0.8%)
Total		23 (17.7%)	57 (43.8%)	50 (38.5%)	130 (100%)

Table 13 also provides the location-based breakdown of the positive and negative results. Considering that each of these locations was visited at least once (see Table 4), 0.0% refers to the absence of the respective result type, i.e., positive or negative. The students were found to produce no positive results (0.0%) but negative ones (0.8% and 0.8%) by using the pairs 'Bilingual+Encyclopedia' and 'SearchEngine+Encyclopedia'. The table reveals that the pair 'Bilingual+Bilingual' produced the fewest positive results, whereas the highest number of positive results were produced with bilingual dictionaries (16.2%), which are followed by search engines (11.5%) and converters (10.8%). The table also reveals that bilingual dictionaries provided the highest number of negative results (12.3%) as well. This finding combined with the rates of the negative results concerning the source pair 'Bilingual+Bilingual' (6.9%) purports that the participants are not competent enough in exploiting bilingual dictionaries. The table also manifests that even the secondary sources used after the visits to bilingual dictionaries to come up with a working translation solution or to triangulate or improve a search result obtained on a bilingual dictionary could not prevent the participants from failing to produce unacceptable translation solutions. Among the most striking patterns in Table 13 is that the pairs of information sources provided more negative results and fewer positive results, whereas the participants were able to harvest a higher number of positive results than negative results with stand-alone sources such as bilingual dictionaries, search engines, and converters. Shih (2019) reports that the most unsuccessful web searches result from her participants' "*posing one single ST term as a query either in an online dictionary or a search engine*" and their accepting "*whatever they found in the online dictionary as a [target language] equivalent without double-checking it*". This finding was not substantiated by the current study because the searches on the bilingual dictionaries and a search engine were observed to have yielded the highest number of positive results (16.2% and

11.5%, respectively), which might be because the majority of the searches were performed to resolve multiple-word problems, for which search engines tended to generate better results.

Table 14: Relationship between search results and search locations

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	153.126[a]	8	.000
Likelihood Ratio	141.286	8	.000
N of Valid Cases	130		
a. 3 cells (20.0%) have expected count less than 5. The minimum expected count is 3.18.			

Table 14 presents the data as to whether there is any relationship between the search results and the search locations. Since there were 16 cells (59.3%) with expected counts less than 5, five search combinations of two locations (i.e., Bilingual+Encyclopedia, Bilingual+SearchEngine, Bilingual+Monolingual, Bilingual+Bilingual, and SearchEngine+Encyclopedia) were conflated (Connolly, 2007: 183), by which Assumption 2 was satisfied. The table shows that there is a statistically significant relationship between the search results and the search locations (X^2 (8, N = 130) = 153.1, p = .000), from which it can be concluded that search location potentially determines how fruitful a search process is likely to be. Similarly, Kuznik (2017: 226) found a relationship "between the number of resources used by translators and teachers whose Acceptability was medium or high" as they translate into their mother tongue. Her analysis suggests that subjects whose search produced a high level of acceptability have used a larger number of different resources. But she also notes that translators with low-acceptability results have exploited the largest number of different resources (2017: 226), which seems to support the finding in the present study that resorting to multiple sources does not translate to successful search results (Table 13).

6. CONCLUSION

Information literacy as a translation-related phenomenon has been studied very little. To date, even though valuable data have been produced with regard to the nature of translators' information literacy, more research should be carried out, as the foregoing researchers too claim. The current study was an attempt to contribute to the small but growing body of literature by researching the four major components of information literacy, namely recognizing when information is needed, locating the needed information, evaluating the located information, and using the obtained information effectively.

One of the primary concerns of the study was to explore several phenomena which had been never or rarely problematized by the previous research. The study was observed to offer new data on translation students' information-seeking behaviors, exclusively in terms of the following aspects: it is the first study to investigate the information literacy of Turkish translators, particularly translation students. As far as the author is concerned, the paper is one of the few to investigate the entire construct of information literacy. Furthermore, it makes considerable contributions to the available literature by presenting data on (a) the participant students' capacity to recognize the information need, (b) the search locations according to the participants' genders, source types, and search items' structures, and (c) their search results according to the search items, their genders, the search items' structures, and the search locations, which were also operationalized as the research parameters to form the backbone of the analysis.

The study was primarily built on the analysis of 130 instances – i.e., of 13 items that were most frequently searched for by the ten participants. The single- and multiple-word searches account for 15.4% (20) and 84.6 (110) of the 130 inquiries, respectively, including 23 no-search instances. This shows that the participants needed to look for phrases and compound words more frequently than stand-alone words. The participants were also detected to have encountered difficulty with the phrases and compound words more often than with the stand-alone words.

The gender-based analysis of the search locations showed that the female students made more inquiries than the male participants and they were more reliant on bilingual dictionaries than the male students but more doubtful about their first results and more prudent in making the final decision because they more frequently triangulated their initial search results by a secondary search location. The inquiry as to whether there was an association between

the participants' genders and search locations yielded a statistically significant relationship between these two parameters. The problematization of how male and female students benefit from different search locations was not observed in the current body of research. Hence, it can be further studied in future research. Because the present study relies on the analysis of translation students' information literacy in consideration of their online activities, future research on translation students' offline information retrieval can be complementary to this paper.

The participants were found to have had recourse to five types of information sources, which were bilingual dictionaries (Turkish-English), monolingual dictionaries (English-English), a search engine, an online encyclopedia, and unit converters. The results showed that the students' search location of choice was bilingual dictionaries which were followed by a search engine, Google. This result was found to be in congruence with the previous research but also manifested that the search locations consulted by the participating students were less diverse than the ones observed in the reviewed works. Whether translation students in different Turkish universities benefit from more diverse search locations and tools can be investigated by other researchers. Moreover, a comparative research study to sample Turkish and international translation students can present invaluable insights into their information retrieval-related differences and similarities.

An individual with a higher level of information literacy is expected to use the obtained piece of information in the most acceptable way possible. The participants' success in finding an acceptable translation solution and using it effectively was of the utmost importance "*because translators' autonomy and part of their initial success depend on their skill to recognize when they need information and, above all, on knowing how to locate, evaluate and use it effectively*" (Pinto and Sales, 2008: 434). With the no-search cases excluded, the participants produced 107 search instances, of which 50 and 57 yielded negative and positive results, respectively. This indicates that the participants were able to obtain no acceptable results in almost half the searches; thus, although they identified the information need, the students with the unsuccessful results can be thought to have failed in one or more of the following steps to generate a successful solution – accessing information, critically evaluating the obtained information and its source, and effectively using it. This purports that the participants have a relatively low level of information literacy.

Although a statistically significant relationship was observed between the participants' genders and the search results, the author could not judge which one was more successful in finding a working solution because although the female participants harvested higher numbers of positive results than the male students did, yet the former also produced more negative results than the latter. The participants were found relatively more successful in their inquiries for the single words than for the multiple words. But the analysis yielded no statistically significant relationship between the search results and the search items' structures.

The search results were also examined in consideration of the search locations. It is a remarkable finding that the pairs of information sources provided more negative results and fewer positive results, whereas the participants were able to harvest a higher number of positive results than negative results with the stand-alone sources, i.e., bilingual dictionaries, search engines, and converters. This finding may suggest that the students were not knowledgeable enough about how to collectively or interchangeably exploit multiple sources of information to produce a working translation solution. Olalla-Soler (2018: 1313) reports "*no clear relationship between the use of electronic information resources […] and the quality of the translation solutions*". In contrast, the present study identified a statistically significant relationship between the search results and the search locations, evidencing an association between translation quality and information resources. Raido (2014: 181) states that most of her students successfully solved translation problems; however, she also reports that their "*uncritical reliance on solutions offered in online bilingual dictionaries led to poor translation solutions in some cases*". Shih (2019) proposes that search success is closely associated with "*in-depth and exploratory types of search behaviour*" and time and effort invested in critically assessing search engine result pages. Moreover, she expresses that it is not only the amount of time that leads to success but also "*how and where it was spent*". For Raido (2014: 183), positive search results depend on "*knowledge about search engine features*" and most importantly "*on the selection of key [source text] terms and the planning of search statements*". Besides, she notes that her participating students have sometimes entered "*acronyms, allosemic words, and collocations*" in bilingual online dictionaries, which should be attended to with "*formal training in the use of appropriate resources*" and "*the formulation of effective search statements*" (2014: 181).

These results of this research paper, along with those of the previous, revealed that translation students should be trained as to which information (re)sources to use when they need to solve a translation problem, be it lexical, phrasal, sentential, or textual. "if [students are] provided with translation strategies there is a greater chance that they will arrive at good solutions" (Kussmaul, 1995: 9). Therefore, they should be informed about the existence of a great variety of sources, such as search engines, monolingual and multilingual online and offline dictionaries, online and offline encyclopedias, thesauruses, online corpora, professional forums, online translation tools, search directories, online terminology databases, and search portals. The low diversity of the resources used by the participants in this study may indicate that they received no or inadequate training in using the listed search locations. In addition to these pieces of declarative knowledge, they should also be presented with how to exploit the information (re)sources at their disposal.

In addition to the cognitive side of translators, their affective and behavioral components should be attended to. Translation students should learn how to manage such affective aspects as "*frustration and mental fatigue*" (Shih, 2019: 921), "*haste and impatience*", "*uncertainty and doubt*" (Sycz-Opoń, 2019: 167), and stress. This research substantiated the findings of a great majority of the reviewed studies that dictionaries are the first-to-consult resources since, as Sycz-Opoń (2019: 167) claims, they were taught from the very beginning of their language education that dictionaries potentially generate successful results (mostly they do when used appropriately). This inculcation is likely to make translation students develop a search reflex, namely defaulting to dictionaries, but it will take much time and effort to reverse or attenuate this calcified behavior. These affective and behavioral factors might have caused the participants herein and in the other studies to fail to come up with a satisfactory solution to a translation problem and to choose dictionaries as their primary source of information over the other sources, respectively. This is why classes focused on information literacy should be offered right from the first year of translation education to help them acquire declarative and procedural knowledge and skills in lessening affective load, for example through effective time and resource management, and thinking of potential information depositories other than dictionaries. The interrelation between affective factors and the differences in the male and female students' search performances – as in this study – could be a noteworthy research topic.

6. REFERENCES

Akbulut, A. N. (2005). Özerk bir Bilim Dalı olarak Çeviribilim – Adı ve Kimliği, *The Fourth Language, Literature and Stylistics Symposium,* Çanakkale, Turkey, 17-19 June 2005, 103-113.

Alonso, E. (2015a). Analysing the use and perception of Wikipedia in the professional context of translation. *The Journal of Specialised Translation*, (23): 89-116. https://jostrans.org/issue23/art_alonso.pdf.

Alonso, E. (2015b). Google and Wikipedia in the Professional Translation Process: A Qualitative Work. *Procedia - Social and Behavioral Sciences*, (173): 312-317. https://doi.org/10.1016/j.sbspro.2015.02.071.

Alves, F. and Liparini Campos, T. (2009). Translation Technology in Time: Investigating the Impact of Translation Memory Systems and Time Pressure on Types of Internal and External Support. In: Göpferich S, Jakobsen AL and Mees IM (eds) *Behind the Mind. Methods, Models and Results in Translation Process Research*. Copenhagen: Samfundslitteratur, 191-218.

Asadi, P. and Séguinot, C. (2005). Shortcuts, Strategies and General Patterns in a Process Study of Nine Professionals. *Meta*, 50(2): 522-547. https://doi.org/10.7202/010998ar.

Association of College and Research Libraries (2000). *Information Literacy Competency Standards for Higher Education*. Retrieved July 3, 2020, http://www.acrl.org/ala/mgrps/divs/acrl/standards/standards.pdf.

Bernardini, S. (2004). The theory behind the practice: Translator training or translator education?. In: Malmkjaer K (ed.) *Translation in undergraduate degree programmes*. Amsterdam and Philadelphia: John Benjamins Publishing, 17–29.

Calvo, E. (2011). Translation and/or translator skills as organising principles for curriculum development practice. *Journal of Specialised Translation*, (16): 5-25. https://jostrans.org/issue16/art_calvo.pdf.

Connolly, P. (2007). *Quantitative data analysis in education: A critical introduction using SPSS*. Abingdon and New York: Routledge.

Dam-Jensen, H. and Heine, C. (2009). Process research methods and their application in the didactics of text production and translation: Shedding light on the use of research methods in the university classroom. *trans-kom. Zeitschrift für Translationswissenschaft und Fachkommunikation*, 2(1): 1-25.

European Master's in Translation Expert Group (2009). *Competences for professional translators, experts in multilingual and multimedia communication*. Retrieved July 3, 2020, https://ec.europa.eu/info/sites/info/files/emt_competences_translators_en.pdf.

Eser, O. (2015). A model of translator's competence from an educational perspective. *IJCLTS*, 3(1): 4-15.

Field, A. (2009). *Discovering Statistics Using SPSS*. 3rd Edition. London: Sage Publications.

Ford Motor Company (2014) 2015 ESCAPE Owner's Manual. USA. https://www.fordservicecontent.com/Ford_Content/Catalog/owner_information/2015-Escape-Owners-Manual-version-1_om_EN-US_07_2014.pdf

Gile, D. (2004). Integrated problem and decision reporting as a translator training tool. *Journal of Specialised Translation*, (2): 2-20. https://jostrans.org/issue02/art_gile.php.

Gile, D. (2009). *Basic concepts and models for interpreter and translator training*. Amsterdam and Philadelphia: John Benjamins Publishing.

Gough, J. (2016). *The patterns of interaction between professional translators and online resources*. PhD Thesis, University of Surrey: UK.

Göpferich, S. and Jääskeläinen, R. (2009). Process research into the development of translation competence: Where are we, and where do we need to go?. *Across Languages and Cultures*, 10(2): 169-191.

Hirci, N. (2012). Electronic reference resources for translators. *The Interpreter and Translator Trainer*, 6(2): 219-236, DOI: 10.1080/13556509.2012.10798837.

Hvelplund, K. T. (2017). Translators' use of digital resources during translation. *HERMES - Journal of Language and Communication in Business*, (56): 71-87. https://doi.org/10.7146/hjlcb.v0i56.97205.

Int, A. (2005). Translator training and modern market demands. *Perspectives*, 13(2): 132-142.

Kopczyńska, M. (2013). Do dictionaries really convey the meaning? The influence of the microstructure of selected dictionaries on the quality of student translations. In: Piątkowska K and Kościałkowska-Okońska E (eds) *Correspondences and contrasts in foreign language pedagogy and translation studies*. Switzerland: Springer, 241-255.

Kussmaul, P. (1995). Training the Translator. Amsterdam and Philadelphia: John Benjamins Publishing.

Kuznik, A. (2017). Use of instrumental resources. In: Albir AH (ed) *Researching Translation Competence by PACTE Group*, Amsterdam: John Benjamins, 219-242.

Lauffer, S. (2002) The translation process: An analysis of observational methodology. *Cadernos de Tradução*, 2(10). 59–74.

Massey, G. and Ehrensberger-Dow, M. (2010). Investigating demands on language professionals. *Bulletin suisse de linguistique appliquée (Special issue)*, (1): 127-141. http://doc.rero.ch/record/11876?ln=fr.

Massey, G. and Ehrensberger-Dow, M. (2011). Investigating information literacy: A growing priority in translation studies. *Across Languages and Cultures*, 12(2). 193-211. DOI: 10.1556/Acr.12.2011.2.4.

Miller, R. L., Acton, C., Fullerton, D. A. and Maltby, J. (2002). *SPSS for Social Scientists*, New York: Palgrave Macmillan

Mossop, B. (2000). What should be taught at translation school?, *Innovation in Translator and Interpreter Training*. http://www.fut.es/~apym/symp/mossop.html

O'Brien, S. (2008). Processing fuzzy matches in translation memory tools: An eye-tracking analysis. In: Göpferich, S., Jakobsen A. L. and Mees, I. M. (eds) *Looking at eyes: Eye-tracking studies of reading and translation processing*. Copenhagen: Samfundslitteratur, 79-102.

O'Brien, S. (2009). Eye tracking in translation process research: Methodological challenges and solutions. In: Mees IM, Alves F and Göpferich S (eds) *Methodology, technology and innovation in translation process research: a tribute to Arnt Lykke Jakobsen*. Copenhagen: Samfundslitteratur, 251-266.

O'Brien, S., O'Hagan, M. and Flanagan, M. (2010). Keeping an eye on the UI design of translation memory: How do translators use the 'concordance' feature?. In: *Proceedings of European Conference on Cognitive Ergonomics*, Delft, The Netherlands, 25-27 August 2010, 187-190.

Olalla-Soler, C. (2018). Using electronic information resources to solve cultural translation problems. *Journal of Documentation*, 74(6): 1293–1317. https://doi.org/10.1108/JD-02-2018-0033.

Onishi, N. and Yamada, M. (2020) Why translator competence in information searching matters: An empirical investigation into differences in searching behavior between professionals and novice translators. *Invitation to Interpreting and Translation Studies*, (22): 1-23.

PACTE (2009). Results of the validation of the PACTE translation competence model: Acceptability and decision making. *Across Languages and Cultures* (10): 207-230. https://doi.org/10.1556/Acr.10.2009.2.3.

Pakkala-Weckström, M. (2015). Student's data mining skills in second-year undergraduate translation. *Current Trends in Translation Teaching and Learning E*, (2): 139-170.

Paradowska, U. (2020). Web-based resources and web searching skills for translators with a specific focus on the Polish-English language pair. *Current Trends in Translation Teaching and Learning E* (7): 167-212.

Pinto, M. and Sales, D. (2008). INFOLITRANS: A model for the development of information competence for translators. *Journal of Documentation*, 64(3): 413-437.

Pinto, M., García-Marco, J., Granell, X. and Sales, D. (2014). Assessing information competences of translation and interpreting trainees: A study of proficiency at Spanish universities using the InfoliTrans Test. *Aslib Journal of Information Management*, 66(1): 77-95. https://doi.org/10.1108/AJIM-05-2013-0047.

Pym, A. (2005). Training translators – ten recurrent naiveties, *Translating Today*, (2): 3-6. https://usuaris.tinet.cat/apym/on-line/training/10_naivetes.pdf.

Raido, V. E. (2011). Developing Web Searching Skills in Translator Training, Developing Web Searching Skills in Translator Training. *Revista Electrónica de Didáctica de la Traducción y la Interpretación*, (6): 57-77.

Raido, V. E. (2014). *Translation and Web Searching*. New York: Routledge.

Ramos, M. (2005). Research on dictionary use by trainee translators. *Translation Journal*, 9(2). Retrieved July 2, 2020, https://translationjournal.net/journal/32dictuse.htm.

Roberts, R. P. (1992). Translation Pedagogy: Strategies for Improving Dictionary Use. *TTR*, 5(1): 49-76.

Rosa, R. N., Amri, Z. and Zaini, Y. (2020). Translation strategies used by student translators in solving equivalence finding-related problems. In: *Proceedings of the 7th International Conference on English Language and Teaching (ICOELT 2019)*, Padang, Indonesia, 4-5 November 2019, Atlantis Press, 394-401.

Sales, D. and Pinto, M. (2011). The professional translator and information literacy: Perceptions and needs. *Journal of Librarianship and Information Science*, 43(4): 246-260. DOI: 10.1177/0961000611418816.

Sales, D., Pinto, M. and Fernández-Ramos, A. (2018). Undressing information behaviour in the field of translation: A case study with translation trainees. *Journal of Librarianship and Information Science*, 50(2): 186-198.

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H. and Jinks, C. (2018). Saturation in qualitative research: Exploring its conceptualization and operationalization. *Quality and Quantity*, 52(4): 1893-1907. https://doi.org/10.1007/s11135-017 0574-8.

Schäffner, C. (2000). Running before Walking? Designing a Translation Program at Undergraduate Level. In: Schäffner, C. and Adab, B. (eds) *Developing Translation Competence*. Amsterdam and Philadelphia: John Benjamins Publishing. 143-156.

Shih, C. Y. (2017). Web search for translation: An exploratory study on six Chinese trainee translators' behaviour. *Asia Pacific Translation and Intercultural Studies*, 4(1): 50-66. DOI: 10.1080/23306343.2017.1284641.

Shih, C. Y. (2019). A quest for web search optimisation: An evidence-based approach to trainee translators' behaviour. *Perspectives*, 27(6): 908-923. DOI: 10.1080/0907676X.2019.1579847.

Society of College, National and University Libraries (2011). *The SCONUL Seven Pillars of Information Literacy Research Lens for Higher Education*. Retrieved July 5, 2020, https://www.sconul.ac.uk/sites/default/files/documents/coremodel.pdf.

Séguinot, C. (2000). Knowledge, Expertise and Theory in Translation. In: Chesterman A, Salvador NGS and Gambier Y (eds) *Translation in Context: Selected Contributions from the EST Congress*. Amsterdam and Philadelphia: John Benjamins Publishing. 87-104.

Sycz-Opoń, J. E. (2019). Information-seeking behaviour of translation students at the University of Silesia during legal translation – an empirical investigation. *The Interpreter and Translator Trainer*, 13(2): 152-176.

Sycz-Opoń, J. E. (2021). Trainee translators' research styles: A taxonomy based on an observation study at the University of Silesia, Poland. *The International Journal for Translation and Interpreting Research*, 13(2): 136-163.

Volanen, S. (2015) *Translating with the Web Professional translators' information-seeking behaviour in translation with online resources*. MA thesis, University of Turku, Finland.
Yazıcı, M. (2007). *Yazılı Çeviri Edinci*. İstanbul: Multilingual.
Yazıcı, M. (2011). *Çeviribilimde Araştırma*. İstanbul: Multilingual.
Yazıcı, M. (2016). Barriers vs Creativity in Translator Training, *Journal of Education and Practice*, 7(27): 62-68.
Xu, M. and Wang, C. (2011) Translation students' use and evaluation of online resources for Chinese-English translation at the word level. *Translation and Interpreting Studies*, 6(1): 62-86.

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