

The State of Internet-Assisted Language Learning (IALL) Knowledge among English Major Students in a Yemeni Public University

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Abstract

The research aimed to examine the state of Yemeni English major students' knowledge of Internet-assisted language learning (IALL). Two types of knowledge were assessed, i.e. subjective knowledge and objective knowledge. The study also sought to examine differences in these two types of knowledge among students by gender and discipline of study, and whether subjective knowledge and objective knowledge were significantly correlated. Simple random sampling was used to select a sample of 598 English language students from education- and non-education study programs of a Yemeni public university during the 2017 academic year. Data were collected using two separate instruments: a self-developed IALL questionnaire for objective knowledge, and an adapted subjective knowledge scale. Descriptive statistics, independent-samples t-tests and bivariate correlation were carried out with SPSS software Version 24. The results show a moderate level of perceived IALL knowledge, but lower levels of actual knowledge on various aspects of IALL, particularly with respect to tools mostly used for oral language practices, such as Skype, Busuu.com, Live Mocha and SharedLingo. Gender influenced perceived knowledge – with female students reporting significantly higher knowledge levels – but not objective knowledge, while discipline of study influenced both knowledge types in favor of students pursuing non-education degree programs. A significant but inverse relationship was discovered between subjective and objective knowledge. The results emphasize the need to start focusing on adopting IALL tools by English learners in universities across Yemen.

Keywords: *Internet-assisted language learning, IALL tools and resources, perceived knowledge, objective knowledge, Yemeni university students*

INTRODUCTION

The pervasiveness of the Internet in contemporary educational landscape requires language and non-language students alike to have adequate knowledge about Internet-assisted learning. As university education is increasingly growing dependent on the Internet, knowledge of Internet tools and resources is crucial to the success of tertiary learning. Increasing in importance and adoption among students is Internet-Assisted Language Learning (IALL) where Web-based tools and resources are heavily utilized in the process of learning or acquiring a second language. IALL is not just important for language learning; it also facilitates learning in other domains for non-native speakers of a language. With IALL, second language learners can learn word meanings effectively, hear how native speakers speak and sound, check the grammatical accuracy of their writings online, and collaborate with other learners on language learning projects. Thus, having knowledge of IALL is fundamental to succeeding in learning a second language.

Over the past three decades, there has been an increasing amount of scholarly interest on the role of knowledge in changing behavior. An individual's knowledge plays a critical role in his/her decision-making. For example, it has been found that an individual's knowledge influences his subsequent search for other related and relevant information (Raju, Lonial, & Mangold, 1995; Philippe & Ngobo, 1999; Bouzaabia & Salem, 2010). Knowledge can be divided into two types: objective and subjective. Objective knowledge is when an individual truly possesses the knowledge and is able to demonstrate it in measurable ways. One is considered to have objective knowledge of a subject matter when he/she is able to correctly answer questions on the topic. Subjective knowledge, on the other hand, refers to a situation whereby an individual is able to give an opinion on a certain topic which can be either correct or incorrect.

Advancements made in Internet technology have influenced education, and in particular, language learning and teaching. Internet use is an effective pedagogical tool for teaching language and enhancing learning, as it is cogently stated that students who use Internet tools can effectively improve their language proficiency. IALL refers to the use of any available online tools that can assist students in their language learning, such as YouTube, SharedLingo, Duolingo, Quizlet flashcards, ELSA Speak, pronunciation apps, online dictionaries, and the like. IALL, a modern use of the Internet as a medium for teaching and learning a language, is another form of computer-assisted language learning (CALL). IALL is beneficial as it helps teachers to enhance their teaching and provide students with the opportunity to learn in an authentic and interesting environment (Gitsaki & Taylor, 2001).

Given its benefits, it is not surprising that IALL has been considered an essential stimulus and a motivating means of language learning. The adoption of IALL allows students to engage in various online programs and interact effectively with people over different platforms, such as Skype, Zoom, Google Meet, Telegram, WhatsApp, Padlet, Twitter, Instagram, and many other apps. Past studies have shown that students who used the Internet and computers as platforms and resources for learning were able to learn the English language and many other languages more quickly (Dogruera, Eyyamb, & Menevisab, 2011; Haron, & Zaid, 2015). This

is because computers and the Internet are modern instructional tools capable of delivering language content promptly and accurately from credible sources (including native speakers) to second language learners, allowing them to experience authentic language learning (Yang & Chen, 2007). Computers and the Internet enhance a student's comprehension level, and skills in reading and speaking, in addition to improving their writing techniques and abilities. On top of improving students' language skills (Mohamad & Daud, 2013), IALL provides numerous advantages for language learners such as facilitating communication, enhancing comprehension, and boosting critical thinking.

Despite the benefits that IALL offers, its adoption as a platform for language learning in the Arab countries, particularly Yemen, is not widespread as it is hoped to be. In particular, modern technology is rarely used in educational institutions in Yemen (Khasawneh, 2015). Regardless of the accessibility of technology, both the educators and learners of the English language in Yemen seldom use technology to facilitate learning. Additionally, they seem to be unaware of the importance and usefulness of such technology as a tool for language learning (Al-Ahdal, 2013; Alawi, 2014; Aldowah, Ghazal, & Muniandy 2015; Modhish & Alkadi, 2016). The lack of awareness in the Arab States regarding the potential of the Internet for teaching and learning is disarming (Khasawneh, 2015).

Studies have also shown that many developing countries do not optimize the use of technology in their education systems due to teachers' insufficient knowledge about the technology (Khasawneh, 2015; Modhish & Alkadi, 2016). Therefore, insufficient knowledge is considered a major obstacle to the adoption of new technologies in Internet-based learning. For this reason, it is argued that the mere availability of, or growth in technology without sufficient technical skills or know-how pertaining to their usage and applicability is a major setback in Internet-based learning (Khasawneh, 2015; Modhish & Alkadi, 2016). Hence, insufficient knowledge and negative attitude towards the use of Internet-based learning are seen as major obstacles to technology utilization among students in developing countries (Aduwa-Ogiegbaen & Iyamu, 2005; Modhish & Alkadi, 2016). Taking into account the importance of knowledge in technology adoption, this study sought to explore the state of objective and subjective knowledge of IALL among Arab students in Yemeni universities in order to understand the future and direction of IALL in Yemeni higher education. Given its nature and objectives, the study is expected to fill the gap in the IALL literature involving Arab students who are learning English as a second language.

Objectives of the Study

Hence, the study was conducted with the objectives of (i) exploring the levels of objective and subjective knowledge of IALL among English-major students of a Yemeni public university; (ii) examining statistically significant differences in their objective and subjective IALL knowledge by gender and discipline of study; and (iii) establishing the relationship between objective and subjective IALL knowledge types.

LITERATURE REVIEW

Knowledge is defined as the quantity of retained information which an individual uses to evaluate, decipher and respond to stimuli from their surrounding (Blackwell *et al.*, 2001). To facilitate research, Brucks (1985) has categorized knowledge into objective and subjective types. Objective knowledge is the body of information that an individual truly has that he or she can reproduce correctly when there is a need for it. One is considered to have objective knowledge of something when one is able to correctly answer questions on the topic. Subjective knowledge, on the other hand, refers to a situation whereby an individual is able to give an opinion on a certain topic which can either be correct or otherwise. Objective and subjective knowledge states are found to be positively correlated with indexes ranging from low to moderate (e.g., Brucks, 1985; Radecki & Jaccard, 1995; Carlson *et al.*, 2009).

The most notable theories of subjective and objective knowledge are based on the writings of Brucks (1985 – 1996). Other theorists are Carlson, Vincent, Hardesty and Bearden (2009) who presented their meta-analytical reviews of previous studies of this theory over a span of thirty years. Their analyses revealed that approximately 100 articles provided a dichotomy of the relationship between subjective and objective knowledge. For example, according to Brucks (1985), subjective and objective elements are essential ingredients of knowledge which influence a person's decision-making process in accordance with his or her different choices. However, later research has shown that although subjective and objective knowledge are linked to each other, their relationship varies by demography or personal characteristics. Differences in the relationship between the two knowledge types also vary according to each person's decision-making processes involving value judgment and perceived outcomes of a decision to be taken (Raju, Lonial & Mangold, 1995). On top of that, the differences are also a factor of individuals' psychological and cognitive abilities and their capacity to store certain amounts of information in their memory systems (Philippe & Ngobo, 1999).

To summarize, objective knowledge is what an individual actually and correctly knows about a given topic, while subjective knowledge refers to what the individual believes he/she knows, which may or may not be correct. Tunku Ahmad, Nordin, and Bello (2013) found a positive correlation of $r = 0.53$ between objective and subjective knowledge, while others arrived at more moderate figures, such as $r = 0.37$ (Wirtz & Mattila, 2003). This conclusion indicates that such relationships can be anticipated in future studies. These correlations could be used to predict the existence of a significant positive relationship in future studies to estimate the influence of knowledge on the acceptance of new ideas, such as IALL tools.

The changing patterns of human behaviour are very much governed by the degree of knowledge that individuals possess. Research has shown that the lack of knowledge is the biggest barrier to the adoption of new ideas and innovations (Blackwell, Miniard & Engel, 2001; Peredaryenko, 2016). Additionally, an individual's knowledge plays a critical role in their decision-making process. In the context of tertiary learning, knowledge affects students' ability to understand the features and usage of IALL, and how these tools work to maximize their learning and performance. IALL adoption is not complicated once students have acquired a certain amount of knowledge about the technology, and students with positive experiences in

Internet and technology use can be expected to show a positive attitude towards IALL, and demonstrate an intention to adopt it in learning a language.

Studies looking specifically at students' IALL knowledge are rare. There is an acute lack of research in this area despite the ubiquity and usefulness of such tools in language learning. Research in IALL has mainly focused on uncovering solutions and practices for the IT industry and businesses, and has largely neglected the importance of examining what end users, especially students in universities and colleges, know about IALL and whether they use it in their language learning. This study is an attempt to address this gap.

METHODOLOGY

Sample

Five-hundred and ninety-eight (N = 598) English major students from a Yemeni public university took part in the survey. Their selection into the study was made via simple random sampling. First, three faculties were identified to participate, namely Faculty of Education, Faculty of Arts and Faculty of Languages, the reason being that these faculties would likely have large numbers of students engaged in language learning in one way or another. Second, the questionnaires were distributed to each faculty, resulting in a simple random sample of 598 students, with females forming a majority of the sample (n = 489). Education major students made up 44.6% (n = 267), while non-education major students (Faculties of Arts and Languages) comprised 55.4% (n = 331) of the random sample. Table 1 shows the sample breakdown by gender and discipline of study.

Table 1
Sample Breakdown by Gender and Discipline of Study (N=598)

Characteristic	Category	Frequency	Percentage
Gender	Male	109	18.2
	Female	489	81.8
Discipline of Study	Education	267	44.6
	Non-Education	331	55.4

Instrument

Knowledge is the amount of information held in a person's memory (Blackwell *et al.*, 2001). In this study, students' knowledge of IALL was measured in two categories: subjective and objective knowledge. Subjective knowledge, which refers to what students think they know about IALL, was assessed through a five-point Likert questionnaire that required students to respond to statements about their IALL knowledge on a scale of 1 (Strongly Disagree) to 5 (Strongly Agree). Objective knowledge, defined as what students actually and correctly know about IALL, was assessed through twenty (20) True-False items on various IALL tools. The measure for subjective knowledge was adapted from Flynn and Goldsmith (1999), while the measure of objective knowledge was specifically developed to fit the study's objectives. The

complete questionnaire included three sections: Section A contained demographic items on gender, faculty, discipline of study (i.e., education-related or non-education related) and Internet experience. Section B contained five- Likert-type items that requested students to rate their subjective knowledge levels. The response categories used were “*Strongly Agree*”, “*Agree*”, “*Not Sure*”, “*Disagree*” and “*Strongly Disagree*.” Section C contained twenty (20) True- False items assessing English major students’ objective knowledge of IALL. A third option, “*I Don’t Know*” was provided to reduce guessing the correct answers by chance. The items were validated by a panel of experts for content validity. A pilot test was conducted and the internal consistency of the five perceived knowledge items was Cronbach’s alpha $\alpha = 0.884$, while the twenty objective knowledge items demonstrated a reliability of $\alpha = 0.790$.

Data Collection

Data were collected through two different means. The first was by approaching a number of lecturers to administer the questionnaires in their classes. Students filled them out on the spot and returned them after class. A good response rate of 60% was obtained from the administration of the questionnaire to two groups of students. In the second method of data collection, the questionnaire was sent out to students of the three faculties via email. The faculties provided the researchers with the complete name lists (i.e., sampling frames) containing student emails and their phone numbers to ease the process of contacting them for the study. The researchers made follow-up phone calls, and sent e-mail reminders and text messages to encourage greater student participation.

Data Analysis

Analysis of the data involved a combination of descriptive statistics (i.e. percentages and frequency counts), independent-samples *t*-tests, and bivariate correlations, each addressing research objectives one, two and three respectively. In order to determine the presence of statistically significant differences in English major students’ knowledge by gender and discipline of study, two sets of independent-samples *t*-test were run on the mean scores for perceived knowledge (computed from responses to the eight Likert-type items) and objective knowledge. The latter was drawn from students’ responses to the twenty (20) True-False items, which were graded and given a score, i.e. 1 for each correct answer, 0 for each wrong and “I don’t know’ responses. The scores were then summated, yielding a group score each for males and females, and for education and non-education English major students. A bivariate correlation procedure using the Pearson product-moment coefficient was run between the scores of perceived and objective knowledge to ascertain if the two measures were significantly and positively correlated.

RESULTS

This section presents the findings of the study based on the aforementioned research objectives.

Perceived Knowledge of Internet-Assisted Language Learning (IALL)

The first set of results shows the levels of perceived knowledge of IALL among the English-major students in one Yemeni public university. Table 2 shows the distribution responses to the perceived knowledge items.

Table 2
Yemeni English Major Students' Perceived Knowledge of IALL (N = 598)

<i>Subjective IALL Knowledge Items</i>	Response Categories					Mean	STD
	SD	D	N	A	SA		
1. I know a wide variety of IALL tools.	41 (6.9%)	53 (8.9%)	186 (31.1%)	265 (44.3%)	53 (8.9%)	3.39	1.00
2. I have extensive knowledge about IALL websites.	55 (9.2%)	116 (19.4%)	194 (32.4%)	197 (32.9%)	36 (6.0%)	3.07	1.06
3. I have expert knowledge about IALL.	74 (12.4%)	117 (19.6%)	191 (31.9%)	169 (28.3%)	47 (7.9%)	3.00	1.14
4. Compared to most of my colleagues, I know more about IALL.	96 (16.1%)	142 (23.7%)	211 (35.3%)	119 (19.9%)	30 (5.0%)	2.74	1.10
5. When it comes to IALL, I really know a great deal.	110 (18.4%)	119 (19.9%)	203 (33.9%)	120 (20.1%)	46 (7.7%)	2.79	1.18
Construct Mean						3.00	

Note: SD= Strongly Disagree, D = Disagree, N = Not Sure, A = Agree, SA = Strongly Agree, STD=Standard Deviation

From Table 2, it can be seen that the majority responses given by the Yemeni students to all items on perceived knowledge of IALL are either neutral or agree. Specifically, when asked whether they knew a variety of IALL tools, a majority of them (75%) picked either *neutral* or *agree* as their response. The mean value for item 1 is 3.39. Similarly, Item 2 that sought to ascertain the students' perceived knowledge of IALL websites collected most neutral and agree responses (65%) with a mean score of 3.07. On the other hand, a somewhat varied response was found on students' rating of their expert knowledge on IALL; even though a majority still responded neutral or agree (60%), but almost 20% of the sample disagreed they knew about IALL websites, with 12% strongly disagreeing to the statement. The mean score for Item 3 is 3.00. For Item 4 which sought responses indicating knowledge on IALL compared to colleagues, 35% chose neutral, while 24% disagreed and 36% agreed. Only a small percentage strongly agreed (5%) they knew more about IALL than their colleagues or peers. Hence, the mean value for Item 4 is 2.74, which indicates disagreement. Finally, Item 5 (knowing a great deal about IALL), 34% indicated neutral, while a somewhat balanced number either agreed or disagreed they knew a great about IALL, with 18% strongly disagreeing they had much knowledge of it at all. The mean score for Item 5 is 2.79 (indicating a disagreement). The mean agreement for perceived knowledge of IALL is 3.00. This shows that on average, the students tend to rate their knowledge in the neutral category bordering on disagreement that they knew

much about IALL.

Influence of Gender and Discipline of Study on Perceived Knowledge of IALL

The responses to the perceived knowledge items were summated and subjected to independent-samples t-tests to check for the influences of gender and field of study on Yemeni English-major students' perceived knowledge. An independent-samples t-test performed on the mean scores shows no statistically significant gender differences in students' subjective knowledge of IALL. However, a statistically significant difference was found in perceived knowledge based on the field of study. Table 3 shows the results of the t-tests.

Table 3
Influence of Gender and Discipline of Study on Students' Perceived Knowledge of IALL: A Summary of Independent Samples t-Test Results (N = 598)

Variable	Category	n	df	M	SD	t	p-value
Gender	Male	109	596	3.07	.88	1.004	0.317
	Female	489		2.98	.78		
Field of Study	Education	267	596	2.89	.87	-2.834	0.005*
	Non-Education	331		3.08	.73		

*significant at $p < 0.05$

Gender wise, male English major students reported higher levels of perceived IALL knowledge ($M=3.07$, $SD=.88$) than their female counterparts ($M=2.98$, $SD=0.78$). However, the difference was small (i.e., 0.09 points) and not statistically significant, [$t(596) = 1.004$, $p = 0.317$]. On the other hand, the difference in perceived knowledge based on discipline of study was statistically significant, [$t(596) = -2.834$, $p = 0.005$], in favour of non-education English major students ($M=3.08$, $SD=.73$). The mean scores show that the education group perceived significantly lower levels of knowledge of IALL ($M=2.89$, $SD=.87$). Be that as it may, the effect size of the difference is trivial at Cohen's $d = 0.24$.

Objective Knowledge of Internet-Assisted Language Learning (IALL)

The next set of results identifies the objective knowledge of IALL among the students. The results were obtained through their correct or incorrect responses to the true-false items on IALL. Table 4 shows the results.

Table 4
Yemeni English Major Students' Objective Knowledge of IALL (N = 598)

Objective IALL Knowledge Statements	Right Answer	Wrong Answer	Don't Know
1. IALL refers to the use of online websites for language learning (T)	468 (78.3%)	31 (5.2%)	99 (16.6%)
2. YouTube is not an IALL tool (F)	76 (12.7%)	425 (71.1%)	97 (16.2%)
3. IALL grew out of the field of CALL (T)	414 (69.2%)	49 (8.2%)	135 (22.6%)

Table 4 Continued

Objective IALL Knowledge Statements	Right Answer	Wrong Answer	Don't Know
4. SharedLingo is a language exchange website (T)	61 (10.2%)	39 (6.5%)	498 (83.3%)
5. To learn English online, learners' English level must be at least intermediate. (F)	337 (56.4%)	180 (30.1%)	81 (13.5%)
6. Livemocha is a language learning platform that has a wide selection of languages. (T)	66 (11.0%)	53 (8.9%)	497 (80.1%)
7. Only English language can be learnt using IALL tools. (F)	51 (8.5%)	486 (78.3%)	79 (13.2%)
8. Google Translate is strictly monolingual. (F)	124 (20.7%)	265 (44.3%)	209 (34.9%)
9. Skype has only text chatting to learn English. (F)	58 (9.7%)	212 (35.5%)	328 (54.8%)
10. Social media (e.g. Facebook) cannot be used for English language learning. (F)	96 (16.1%)	418 (69.9%)	84 (14.0%)
11. Learners can check synonyms using an online thesaurus. (T)	464 (77.6%)	76 (12.7%)	58 (9.7%)
12. The main focus of the IALL field is to create communicative language learning. (T)	367 (61.4%)	116 (19.4%)	115 (19.2%)
13. Smart phones cannot be used to watch English materials on YouTube. (F)	76 (12.7%)	426 (71.2%)	96 (16.1%)
14. Learners who use Busuu.com tend to develop an American accent. (F)	92 (15.4%)	58 (9.7%)	448 (74.9%)
15. Only some IALL tools require a subscription payment. (T)	221 (37.0%)	53 (8.9%)	324 (54.2%)
16. Most IALL tools are accessible 24/7. (T)	251 (42.0%)	82 (13.7%)	265 (44.3%)
17. The British Council online website can be used for learning English language. (T)	243 (40.6%)	91 (15.2%)	264 (44.1%)
18. Facebook groups cannot be used for learning English language. (F)	88 (14.7%)	413 (69.1%)	97 (16.2%)
19. WhatsApp is not an IALL tool. (F)	160 (26.8%)	341 (57.0%)	97 (16.2%)
20. MALL is another form of IALL (T)	391 (65.4%)	59 (9.9%)	148 (24.7%)

From Table 4, it can be noted that students had to address the items by selecting either *True*, *False*, or *Don't Know*. The results show that the English-major students produced somewhat varied and inconsistent responses to the objective knowledge items.

Specifically, for the true or correct answers, the percentages range from as low as 8.5% (on the item "*Only English language can be learnt using IALL tools*") to as high as 78.3% (on the item "*IALL refers to the use of online websites for language learning*"). Five items were found to be "unknown" to the students as many of them incorrectly responded to them. The items are (i) "*YouTube is not an IALL tool*" (71.1% incorrect responses); (ii) "*Only English language can be learnt using IALL tools*" (78.3% incorrect responses); (iii) "*Social media (e.g. Facebook) cannot be used for English language*" (69.9% incorrect responses); (iv) "*Smart phones cannot be used to watch English materials on YouTube*" (71.2% incorrect responses); and (v) "*Facebook groups cannot be used for learning English language*" (69.1% incorrect responses). The high percentage of incorrect responses recorded on these items shows poor objective knowledge of IALL among the sample.

Similarly, the same pattern of varied and inconsistent responses was also found in students' addressing the items on objective knowledge of IALL applications. Most indicated no knowledge of the apps. From Table 4, the highest percentage is recorded at 83.3% (on the item "*SharedLingo is a language exchange website*") and the lowest is 9.7% (on the item "*Learners can check synonyms using an online thesaurus*"). Overall, four items were recorded to have high percentages of students' indicating no knowledge of the specific applications. In addition to SharedLingo (83.3%), the students also lacked the knowledge of other IALL applications, such as *Livemocha* (where 80.1% of the sample did not have knowledge of this app), *Busuu.com* (74.9% with no knowledge of this app) and *Skype* (54.8%). The item, "*Only some IALL tools require a subscription payment,*" also recorded more than half of the sample indicating no knowledge of (54.2%). From these results, this study can conclude that most English-major students do not have the necessary knowledge of important IALL tools.

Of the 20 objective knowledge items, six had particularly high percentages of correct answers. More specifically, 78.3% of the students correctly knew what IALL constitutes (i.e., "*IALL refers to the use of online websites*"), 77.6% knew that they "*can check synonyms using an online thesaurus,*" and close to 70% correctly identified that "*IALL grew out of the field of CALL.*" In addition, between 56 and 66% had the following ideas correct: "*MALL is another form of IALL*" (65.4%), "*The main focus of the IALL field is to create communicative language learning*" (61.4%), and "*To learn English online, learners' English level must be at least intermediate*" (56.4%). From these results, it can be suggested that the majority of English major students have objective knowledge of IALL on the aspects of online information, online English programmes, Livemochat language learning, online thesaurus, communicative language learning, and MALL.

Overall, the analysis of students' responses to the objective knowledge items shows many of them having theoretical knowledge of IALL (e.g., the meaning of IALL and that it grew out of CALL and is associated with MALL). Students were, however, less knowledgeable about the specific IALL tools, while showing some familiarity with only the use of online thesaurus. Summarily, it can be said that objective knowledge of IALL is not prevalent among Yemeni English major students.

Influence of Gender and Discipline of Study on Objective Knowledge of IALL

Two independent-samples *t*-tests were performed to examine statistically significant differences in Yemeni English-Major students' objective knowledge of IALL by gender and discipline of study. Table 5 presents the results.

Table 5
Influence of Gender and Discipline of Study on Students' Objective Knowledge of IALL: A Summary of Independent Samples *t*-Test Results (N = 598)

Variable	Category	n	df	M	SD	t	p-value
Gender	Male	209	596	10.77	2.73	2.005	0.046*
	Female	389		10.17	3.13		
Field of Study	Education	267	596	9.87	3.16	-2.961	0.003*
	Non-Education	331		10.62	2.95		

*significant at $p < 0.05$

Female English major students performed significantly higher on the IALL objective knowledge test ($M=10.77$, $SD=2.73$) than their male counterparts ($M=10.17$, $SD=3.13$). The difference was statistically significant, [$t(598) = 2.005$, $p = 0.046$]. Discipline of study also exercised an influence on the sample's IALL test performance in favor of the non-education group ($M=10.62$, $SD=2.95$). The mean scores indicate that the education-related student group performed significantly lower in the IALL knowledge test ($M=9.87$, $SD=3.16$). However, the effect sizes of both differences were small and trivial, at Cohen's $d = 0.204$ and $d = 0.245$ for gender and discipline of study, respectively.

Relationship between Perceived and Objective Knowledge

A bivariate correlation is a measurement of the strength of the relationship between two variables. In this study, the strength of the relationship between perceived knowledge and objective knowledge was measured. The bivariate correlation procedure using Pearson product-moment coefficient run between the two types of knowledge produced a statistically significant result in the negative direction, at $r = -0.226$, $p = 0.001$. The result indicated a statistically reliable association between perceived and objective knowledge; they were found to be negatively related. This suggests that students with less objective knowledge tend to report higher levels of perceived knowledge. However, although significant, the magnitude of the inverse relationship was not strong. In this case, it is reasonable to conclude that perceived knowledge cannot be used as a proxy for actual knowledge of IALL.

DISCUSSION

The main aim of this paper was to identify Yemeni English major students' knowledge about IALL. A number of issues can be highlighted; first, this study provides the empirical evidence that Yemeni English major students lacked knowledge about IALL. A majority of the students surveyed had little knowledge about IALL tools and most aspects associated with it, although theoretically, they may know something about it. Secondly, in terms of objective knowledge, the study showed that a majority have some knowledge of only a few aspects of IALL, which were Facebook, WhatsApp, YouTube, Google Translate and online thesaurus. Yemeni English major students are considerably not well-informed about specialized IALL tools, such as Sharedling, Skype and Busuu.com that are beneficial for improving their oral English proficiency. This could be due to the fact that English Language in Yemen has been taught mainly through traditional methods.

Gender influences both actual and perceived knowledge where male students reported significantly higher levels of knowledge. The results are contrary to Tunku Ahmad *et al.* (2013) who found gender differences in actual knowledge, but not in perceived knowledge. In addition, discipline of study exerted a significant influence on both knowledge types in favor of non-education students. The pattern implies English major students from the education discipline are not very well-informed about IALL, whether subjectively or objectively.

Furthermore, in line with what has been found by Tunku Ahmad *et al.* (2013) perceived knowledge was significantly correlated with objective knowledge, corroborating earlier

stipulations that the former is a function of the latter (Radecki & Jaccard, 1995). However, the correlation coefficient of $r = -0.226$ suggests a negative correlation between the two types of knowledge. These results are in line with Taylor and Brown (1988), who stated that some people tend to underestimate their own level of knowledge, while others tend to overestimate their actual knowledge. In light of the results presented above, it can be concluded that Yemeni students rated themselves higher on IALL, but demonstrated an accurate knowledge level that is lower than what they reported.

Studies have shown that many developing countries are not able to incorporate technologies into their educational systems due to insufficient knowledge among students and teachers regarding how to use and apply new technologies in teaching and learning (Khasawneh, 2015; Modhish & Alkadi, 2016). The lack of knowledge is considered to be a major obstacle to the adoption of new technologies in Internet-based learning. For this reason, the findings of the current study have shed important light on the state of IALL knowledge. This study makes a contribution to the literature by providing findings regarding the current adoption of IALL among English major students. To the researchers' best knowledge, this study is the first of its kind to investigate IALL knowledge, particularly among English major students in Yemeni universities. Therefore, it contributes to both the IALL literature and the practice of language learning and teaching using Internet technology. Educators as well as the Ministry of Higher Education could benefit from the outcomes of the present study as an avenue to increase awareness regarding the importance of IALL knowledge in enhancing English teaching in Yemeni universities. This process will engender the integration of IALL in the mainstream educational institutions in the region. In addition, due to the peculiarity of the Yemeni context which is characterized by the segregation of education between the sexes and restrictions on the social presence allowed for women, the study has revealed statistically significant differences between male and female students regarding their knowledge of IALL. Accordingly, Yemeni education needs to find ways of narrowing the digital knowledge and literacy gaps separating Yemeni boys and girls to equalize the language learning performances of both sexes.

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