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ACQUISITION OF LANGUAGE MEANINGS VIA SMART TECHNOLOGIES

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Abstract. *This paper reports on a pilot research project on the technology-based language learning repertoire of 150 Omani college and high school students and gives its interpretation from the perspective of learning theories. The question under study is to highlight the ways and underlying goals the students set while using smart technologies autonomously. Learning the L2, as well as the acquisition of the L1, have almost the same psycholinguistic mechanisms. Using e-media brings the process of L2 learning even closer to the model of L1 acquisition, as it creates real time tasks and contexts for meaningful learning. The methodological standpoint of the analysis is the assumption that students acquire and memorize new verbal meanings of English more effectively when they use technology independently to communicate and construct knowledge. The study includes a classification of educational applications in terms of their cognitive and communicative functions. The findings corroborate the foundations of the Semantic Theory, Constructivist Theory of Learning, Cognitive Linguistics and Communication Theory. The results of the study contain practical implications about using smart applications and extensions for autonomous learning as well as in classroom settings.*

Key words: *technology-based language learning, cognitive and communicative functions, autonomous learning, Oman*

1. INTRODUCTION

The penetration of smart technologies into the sphere of education has caused a series of questions about the extent and agents of technology in teaching and learning. The Report on Global Internet Society (2014) states that one of the "three fundamental pillars" building up Smart Development, along with technical and governance infrastructures, is the human infrastructure, i.e., "the trained, educated, and engaged technologists who create, populate, and maintain networks at a local and regional level" (Global Internet Report, 2014, 58).

Smart development in education suggests a balanced use of smart technologies both by teachers and learners, with a tendency of an increase in learner autonomy. In this context, educators and language teachers in particular, need some kind of professional guidance through the expanding possibilities offered by e-media.

Whereas teaching with technology is supposed to be controllable and organized, the control and organization of learning, when almost every student owns a smart device, is practically beyond impossible. At the same time, the changing tools and forms of student

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activity require teachers to extend their knowledge to match the new learning reality. For this, teachers need to update their skills and knowledge in technology, the Internet market and its changing faces and of course, upgrade their teaching tools and approaches to what is freely accessible for their students.

Research in this aspect of language teaching touches such problems as meaningful and autonomous/independent learning, motivation, forms and channels of communication, psycholinguistic mechanisms of language learning. It can be said that very little has been studied about the psycholinguistic role of smart technologies in language learning. Although there are a number of studies on learning strategies of separate skills with computer-assisted language learning (CALL), such as writing, reading and listening (Zaini & Mazdayasna, 2014), the overall mechanisms of language learning, those that deal with the psychology of language and mental operations, have barely been touched upon.

In this paper, we argue that smart technologies can enhance meaningful language learning provided that there is common awareness of certain psycholinguistic mechanisms on the one hand and the functional types of internet language learning products on the other. Analyzing and correlating the needs with the opportunity can systematize and significantly improve the choice and inclusion of smart applications/extensions into the language learning menu of the students.

The conceptual framework of the research detailed in this paper is based on psycholinguistic theories of foreign language learning and the educational implications of constructivism and pragmatics. Questioning, statistics, content analysis and classification comprise the main methods applied in the study. The data and results of the research, as well as the implications and examples are recommended for classroom and extracurricular application.

2. THE PROBLEM

In order to become independent learners, students must be given tasks and activities relevant to their skills, needs and interests. Only by constructing their own meanings through these tasks and activities, are students motivated to stay within the zone of active learning. A necessary condition for continuous learning is a certain degree of familiarity and automaticity of activities. The task and the interest must be balanced. For this, the portable e-devices they possess, can become the teacher's best friend. As Brown (2001) states: "Meaningful learning will lead to better long-term retention than rote learning" (p.57).

Vygotsky's theory of learning (Kozulin, 2003) presents meaningful learning as a psychological distance between what the student knows and can do without any help and what he/she does not know and cannot do at all. This space is the Zone of Proximal Development, which is the actual stage of learning from elementary imitative learning to lifelong, self-paced learning. The concept of self-paced learning which, according to Naidu (2008), "implies freedom from the constraints of time and pace" (p.262), can be seen as a key to the changing attitude towards language education. Naidu (2008) contends that "in this mode of learning, individuals are able to carry out their learning activities within a time frame and at a pace that suits them" (p.262).

Unlike other sectors of the economy, smart technologies in language education have multiple consumers and operators, and as such, there is a necessity to set institutional rules so that they legally become a tool of meaningful learning, like pens, dictionaries or

handbooks. The problem, thus, stands as a pyramid of three facets, the first among them being the effective combination of formal and informal components of language learning activities. The informal component is especially significant, as the teenagers often operate their smartphones more freely in a self-paced manner, with minimal or zero control and instruction on behalf of the teachers.

The second side of this problem is that meaningful language learning is a very subjective process that may occur in non-educational contexts; the teachers' task is to provide students with adequate search and instrumental skills on time and without much instructional interference so as not to interfere with their involvement in processing meaning.

Finally, the third aspect of the problem proceeds from the second one: in order to provide the students with search-and-selection skills, teachers need to have certain tools and principles. These principles can be borrowed from psycholinguistics, mapping the core mechanisms of language acquisition and foreign language learning in particular. In other words, every English language teacher should know the basic mechanisms of language learning in order to be able to set out valid learning objectives. Once the objectives are set and corresponding language learning mechanisms are identified, the teachers can choose and offer the students e-applications suitable to their specific needs and help to avoid time-consuming blind searches.

Besides the above-mentioned aspects of the question, there are a few more circumstances, such as the social and cultural context including the level of technology and skills, the perceived needs and the quality of the smart applications offered in e-stores. Below, I will elaborate on each of them.

3. The Context

According to Schwartz (2013), "school often means rules and regulations that can seem unrelated to the broader goals of education" (n.p.). She further elaborates that in school "students are told to sit down, be still, show up at specific times, and demonstrate knowledge in ways that have nothing to do with the real world" (n.p.). Interestingly, these rules, no matter whether they have historical premises or are formed spontaneously as a result of borrowing the educational traditions of other cultures and countries, reflect the teaching philosophy either of the institution or the teacher. A teacher practicing authoritarian methods and strict control of student behavior can hardly expect them to be good users of smart technologies. What needs to be considered here is the fact that the educational system of Oman is developing in the context of rocketing technologies, and every college student has immediate personal access to them. This is a benefit, which should be kept free from the scholastic educational traditions. Instead, a review of the rules and forms of educational activity is required to create a reasonable differentiation and balance between the functions of the teacher and smart technologies in the classroom.

However, the most typical picture of language learning classes is the teacher-centered model, where the only user of technology is the teacher, who keeps the attention of the students if not on her/himself, but on what she/he shows and plays using the technology. The irrevocable fact is that college students in Oman widely use technology in their everyday life. Fewer results are shown by high school students. They have their informal "enhancement" of language learning task performance, which is not always encouraged by the teachers, often, because the teachers themselves are overloaded with unnecessary

formalities. Unfortunately, these formalities do not require them to spend time on updating themselves with types of smart applications and extensions. That would help both students and the teachers to make faster and more efficient choices of contemporary learning tools for in and out-of-class activities.

4. THE NEEDS

Dealing with the ocean of information and e-applications is another problem, which extends between information overflow to zero use of applications caused by randomness of choices. To meet this situation, both the users and operators of e-learning need to be clearly aware of their specific needs and goals before and especially in the course of surfing and searching the internet for learning purposes. Otherwise, a vague understanding of one's goals may mislead and easily deviate the 'surfer' from the course. As a result, a couple of interesting hours of searching for something vague and unclear turns into a 'surf' from one wave of opportunity to another, until the user is led out of the search purposeless and feels tired, with no results at hand. The second step of developing search skills are as vital as the understanding of the goal. The interconnection between these two – the clear understanding of needs and formulating them into search words – is apparent.

5. THE CHALLENGES

The big problem of smart technologies in education, well known to language teachers, is that together with its obvious opportunities and promise of efficiency, it often turns practically useless or very time/effort consuming to try to include it in any part of the education process, be it learning or teaching. For one reason, in the growing market of language learning e-sources, finding the needful becomes more and more difficult because of the variety in quantity and quality of the products offered. Often the learning materials and applications turn out to be useless because of wrong and misleading labelling. For example, the title or the description may promise you fast and easy memorization of words and rules, but it turns out to be a mere pronunciation drill or letter memorization game.

And last but not the least, students' preferences in smart technologies are formed under a number of socioeconomic and cultural circumstances and can be considered part of the objective challenges to formal language learning with smart technologies. Before offering new forms of activity, a teacher should at least be aware of those that are popular among the students and are meaningful for them. Thus, summarizing the introduction of the problem, we set forward the following questions:

- What are the common psycholinguistic descriptors of these language learning activities?
- What are the most popular smart technologies and language learning activities among Omani college students?
- What are the main types of language learning smart applications found in e-stores?

6. THE RESEARCH

6.1. Methodology

The methodological standpoint of data collection is based on the assumption that students acquire and memorize new meanings and speech units of English more effectively, when using technology in well-targeted and meaningful activities to communicate and construct knowledge independently. However, the main conceptual toolkit we operate with in order to carry out the analytical part of the research is the psycholinguistic theory of language learning and the social constructivist theory of cognition developed respectively by L. Vygotsky, J. Piajet and A.A. Leontiev (Robbins, 2003).

The Vygotskiyan (Vygotsky, 1982) theory of social construction of learning, which originated in experimental studies of different ethnic cultures, states that the semantic structure of lexical units and verbal consciousness on the whole, depends on the structure of the social activity carried out by the individual in its life-span (ontogenesis) and cultural experiences of the group (phylogenesis).

Piaget's epistemological theory (1970) of learning describes the inner process of development of meanings: he proposed the concepts of assimilation and adaptation as phases of human learning through psychological adjustment with the external world. Alexei A. Leontiev (Leontiev, 2005) focused on the difference between the world of objects and the world of language and speech, thus clearly separating the general learning problems from those of language learning. From the educational point of view this separation defines two types of learning activity – objective activity and speech activity.

While using language learning applications and extensions, the students perform activities with language objects, giving them their own unique meanings, learning to use them to meet interests and solve problems. Besides that, performing new social, operational and verbal activities with the help of this or that smart application the students see the immediate results of their activities, which motivate them to memorize the knowledge and skills acquired. What particular operations help them acquire word meanings?

Leontiev (2005) suggests the following types of associations students make while acquiring new language meanings. These are those basic psycholinguistic mechanisms that are usually activated in the course of language learning.

- Connecting the acoustic object with a visual one. This type of connection occurs mainly when linking the new form with the familiar meaning. However, in the process of connection, deviations of meaning are possible.
- Connecting the visual or acoustic sign with sensory motor perceptions. This type of connection works when learning verbs through commands and orders.
- Connecting with linguistic context: matching, inserting, choosing.
- Connecting with extra linguistic context. This type of connection is accompanied by replacing with disposable similar ones and opposites.
- Connecting with features and attributes, creation of synonymic lines.
- Connecting in a syntagmatic chain, or to put it simple, using the sign in a meaningful phrase or sentence, mainly through predication.
- Connecting through definition using the complex of the above types – attribution and predication.

My observations and random conversations with students proved that the most advanced ones can reflect on and explain the connections they make while learning new words and

meanings. Hence, it seems to be logical to look for the relevance of smart language learning applications with these mechanisms, because each of these exercises, games or activities provides one or several forms of meaningful verbal activity. The term 'meaningful activity' comes to encompass what is presented briefly above as the mechanisms of acquisition of meanings of language units. Most contemporary theories of learning agree (Illeris, 2009) that meaningful learning is stimulated and emerges from authentic contexts and activities. When students face authentic problems, within certain time and space limits, they not only rapidly transfer into the new learning, and particularly, the new language context, but also become more motivated and active. Only through meaningful learning activities do the students create their own mental models of the knowledge acquired and the skills used. Along with the expansion of their independent advancement through the zone of proximal development - the ZPD (Vygotsky, 1982, pp. 2, 247), their mental models increasingly become complex and multifunctional. Their knowledge of language and speech units and structures begins to be more consistent, and the conscious use of skills becomes more productive.

6.2. Subjects and data

To begin the study, the data about students' needs and priorities while choosing smart devices and technologies were collected. The subjects were one hundred Omani foundation program students of the English Language Centers at Technology Colleges in Oman. To observe the age dynamics of the attitudes towards smart technologies as well as the change in educational institution, a control group of 50 government high school students was added.

A questionnaire with five multiple choice questions was developed for data collection (see Table 1 for more information). All the questions, except for Question 2, allowed more than one choice of answer. Besides the written enquiry, the students were asked to describe in a spontaneous conversation when and how they used their smartphones for language learning, what applications they used and if they were encouraged to use them in the classroom. Thus, the statistical data collected was supported by a discursive context which could provide a better understanding of the real state of things and the actual merits the students gain from using technology. However, not all the students were willing to share detailed and extended opinions and we have to refer their discourse rather as subjective background information than statistics. The content of this contextual discourse proved, however strange it may seem, that the majority of teachers do not encourage students to use technology for their elementary language learning needs, thinking that using bilingual dictionaries is a form of cheating, even when they are used for performing classroom assignments. Moreover, few, if any, teachers would give the students any links to internet language learning sources, such as dictionaries, vocabulary and grammar exercises and drills or video lessons. The majority of students stated that communicating with the English language teacher they seldom need any means of technology and almost never share any smart language learning experiences with them (see Table 2 for more information). The reason is twofold: on the one hand the students avoid written communication with the teacher, on the other, the teachers are not prepared to guide and lead the students towards autonomous language learning through smart applications.

The e-learning activities provided by the English Language Centers have little inconsistent effect for several reasons. The context represented by students' multiple replies and some narration gave us a hunch that the first step to take towards the understanding of

what the students can definitely do through ST was to detect from the array of answers the elementary cognitive operations they perform to learn English. Some schemes of language acquisition theories will help us to furnish the research with clear and easy-to-use benchmarks, as well as a conceptual framework for the discussion of the results.

The questionnaire (Table 1) comprises 5 simple questions and from 4 to 5 even more simple options of replies for multiple selection. As the focus of the study was the autonomous choices and references of the students, the questions and the answers were designed so as to reflect the following:

- The availability and access to smart technologies (Question 1) – the context and challenges.
- Frequency of access to smart technologies for language learning (Question 2). – The needs as well as the level of self-paced and independent learning.
- Frequency and type of communication with the English language teacher (Question 4). – Indicator of blending the formal and informal aspect of language learning.
- General aim and contents of technology-mediated learning activities (Question 5).
- Specific purpose of using smart technologies for language learning (Question 3).

6.3. Results

6.3.1. Data analysis and discussion

The questions included in the questionnaire were multiple choice, where more than one response is accepted. The simplicity and freedom of selection from response types implied the intention of creating a spontaneous, not cautious state of mind in students, which is a necessary condition for authenticity of the data collected. According to the responses, there are two clear types of language teaching objectives that refer to the type of meanings and whole mental models constructed: borrowed or acculturated meanings and new meanings constructed through independent learning activities. The underlying assumption is that modeling the transformations of language phenomena (categorizing, associating and building syntactic chains) is necessary for constructing such advanced language competencies as discursive, social and communicative competencies relevant for the respective local settings. The research methodology of connecting the language learning applications to corresponding language learning operations and strategies allows a deeper look into the seemingly simple, technology-related language learning activities.

Autonomous acquisition of new meanings through language learning e-applications on portable devices, activate typical cognitive mechanisms that can be traced through psycholinguistic methods of analysis. Modelling these processes develops a simple, yet clear model and understanding of the types of language internalization and the specific functions of definite e-applications contributing to that process. Even approximated classifications of language learning e-applications can serve as basis for modelling of instructional technologies suitable for definite learning contexts.

As said above, the explicit statistical information about the choices of students implies a psycholinguistic agenda, which is aimed at disclosing the language learning strategies and mechanisms preferred by the students. As far as independent language learning is based on strategies which are within the students' Zone of Proximal Development (Vygotsky, 1982, p.2), the next question of the psycholinguistic observation agenda is the possibility of revealing the students' general ZPD in respect with autonomous usage of language learning strategies. Outlining, the students ZPD through the study of their independent learning activities may be of use for rethinking and improving the learning tasks.

The statistics of the research yielded an opportunity of a study of the language learning strategies preferred by the students and concurrent psycholinguistic mechanisms. The questionnaire reflects the practice and attitudes of technical college students to technology applications in the context and encounters of their English studies. Table 2 presents the social statistics of the participants and their answers to the questionnaire questions.

The analysis and interpretation of the data helped us to reveal not only the typical behavioral choices of the students but also led us to the understanding of the most common channels of acquisition of meaning underlying these choices. According to the statistical data, the most popular device is the smartphone and the most widely practiced language learning activities are translation into L1 for comprehension and performance of the assignments; translation and writing down own ideas and opinions in English and communication with peers.

Also, there are some other forms of implied learning of English experienced by the students: those who have achieved trust and rapport with their teachers may initiate online communication with the teacher, mostly for the exchange of individual thoughts and attitudes, but obviously, enjoying individual encounters and sharing ideas in English. Some initiate group chats, which also gives them thrilling experiences in English communication. Thus, we can state that personal e-devices avail vast learning opportunities for the students, who seek more personalized meaningful communication rather than task performance.

It is worth mentioning, despite the existence of well-equipped computer laboratories, software and materials, the college students avoid attending the e-learning laboratories, even when there are targeted assignments prepared for them as separate modules or a component of a module to be marked. As random informal conversations with about 20% of college students showed, the students would rather use their smart devices with freedom of choice of place or time than attend the laboratories to do assignments. They would like to have a list of online or downloadable activities available for longer periods of learning. This fact indicates the necessity of separate research on the motivational factors, communicative context, perhaps, reform in methodology and contents of e-learning design. On the other hand, considering the obvious advantage of smartphones as an alternative to expensive equipment and software, the teachers, in order to engage the students in meaningful language learning, can encourage them to use their handy smart devices in the classroom for understanding and constructing, evaluating and enjoying English.

6.3.2. Pragmatics of smart language learning applications

The changing contexts and needs of learners urge the teachers to be constantly updated on emerging educational technologies. One of the earliest typologies of technology in language learning is the classification of computer assisted language learning means and materials by Davies, Hewer, Rendall and Walker (2004). This classification focuses on the opportunities of the computer as a language learning support device. These opportunities include generic (such as Word, PowerPoint and Excel) and specific such as interactive learning exercises/quizzes) software, web-based information, programs and communication. Nowadays, there are so many language learning software and mobile applications that a functional selection is necessary to make them serve particular language learning purposes. This is why, following the pragmatic principle which says that ‘the best is the one that works’, a brief survey of online stores was conducted with a purpose to identify the functional scope of language learning applications (Hovhannisyan & Al-Hattali, 2015). It

resulted in three general classes of smart extensions and applications shown in Table 3, namely, organizers; source-books; games and drills. The more detailed characteristics of this classification are as follows:

a. Training and memorization facilities: these are different drills and exercises aimed at developing automatized language skills. The students might partly perceive them as games, as long as they are not too difficult and do not contain repetition elements. Many of them show scores and results immediately after the performance, creating an atmosphere of a competitive game. These applications are for individual use and are very catchy unless the teacher explains the rules and the competitive aspect of the activity.

b. Group/class activity organizers. This group includes communication and activity organizers in the broader sense: virtual class spaces with online performance and submission of assigned tasks, worksheets and templates for interactive classwork. However, because of the diverse levels of e-skills this type of applications may be inefficient for spontaneous communication between the teacher and students (University of Washington, 2013). Besides that, virtual classrooms often imply a centralized organization, focused on the personality of the teacher and seldom provide the students an opportunity of peer interaction.

c. Linguistic information about English: these applications introduce the structural levels and rules of English – the spelling and pronunciation, grammar, vocabulary as well as syntax and larger communicative units such as idioms and collocations. Most of them have lecture/illustration form and are directly educational. The motivational value and effectiveness of these applications may be a matter of another discussion. However, these are rather assistants and substitutes for the teacher and suggest some facilitation. A certain advantage is that they often help the students to transcend the skills accumulated into theoretical knowledge which is a necessary condition for skill consolidation as well as for organization of verbal consciousness. Also, they can partly or completely replace the teacher and the books, are free of time, place and frequency restrictions.

d. Non-linguistic information in English: these are encyclopedic and communicative materials. They can provide general knowledge about the world and develop students' erudition, identity and skills to perform immediate learning tasks. Here we include various social media and means of communication in English.

Despite the development of educational technologies and the increasing number of smart language learning applications teaching lexical meanings and grammar, most of them have different levels of quality, degree of success and vitality. As shown by the statistical results, among the growing number of e-drills, exercises, games, worksheets, online and downloadable dictionaries, especially the bilingual ones, remain the most popular source of reference among the learners of English (Loucky, 2003; Tseng, 2009).

6.3.3. Pedagogical implications

In communicative language teaching it is essential for the teacher to differentiate between the meanings taught and the meanings construed and admit the factual results as products formed under the confluence of objective and subjective factors (Al-Busaidi, Al-Belushi, William, 2014). We teach what is accepted as Standard English. What students acquire and the way they apply, it contains contexts and connotations, which teachers should not control and interfere with as long as these speech units ensure understanding and communication. Language attrition is inevitable in almost all the cases of EFL in a non-English speaking environment, especially among teenagers. What we have to admit,

is that despite various grammar checkers, because of the rapid change and emergence of varieties of English and especially because of the involvement of students into the global information flow, makes control of language standard principally and practically impossible. The students, communicating their ideas through portable technology, prefer to minimize the use of grammar rules and standards and still manage to communicate meanings, succeeding in the transformation and exchange of the existing meanings into new ones. This fact and the study material allow drawing some in-depth inferences for teaching and curriculum in the favor of psycholinguistic analysis of semiotic processes in technology-based language learning.

It has been stated by different research (e.g., Kukulska-Hulme, 2013) that students need a greater variety of task types and freedom of decision and choices in order to be motivated for engaging in foreign language activities. The teachers' task is to manage through using e-learning applications carefully within the students' Zone of Proximal Development, knowing precisely what particular learning mechanisms and skills they are going to work out in their students' verbal consciousness. To complete this task, the teacher has to know what mechanisms form the process of meaning and how to adapt language learning e-applications to these mechanisms and processes.

Meaning comes as a semiotic process of connecting signs, visual and acoustic images, motions and emotions in a relevant activity and environment. Retention of vocabulary and the information obtained through mental efforts is maintained better than that memorized without any effort. For example, Hulstijn (1992) contends that "retention of an inferred word meaning will be higher than the retention of a given word meaning" (p.113). This brings us to the need to reflect upon the importance of the depth of processing of meanings on the part of the student.

While choosing language learning applications and materials for the students, their pragmatic value should be prioritized, but the evaluation must be done from the students' own perspectives about what is meaningful and what is not. As stated in Ellis (2003), meaningful tasks are worked out by: involving students in real, purposeful activities, rather than in the exchange of information. Having offered my students online listening-speaking activities designed by Anglo-Link (http://www.anglo-link.com), I noted their active interest and high performance in the suggested options of reading, writing, listening and speaking activities with free pacing. When asked about the reasons of liking the activities, my 50 students reasoned that they were easy to perform and memorize (38), not stressful and funny to practice (21), fast to use in every day communication (24). Besides listening and speaking they were involved in watching, writing, some even found time for mini role-plays between the examples. Thus, the accent on meaningful engagement must be a prior condition in the choice of language learning applications as it is through engagement that such required psychological factors as memorizing, emotional involvement and imagery are activated.

When the students are allowed to use their smartphones and computers for definite learning activities, we can call it a controlled learner-centered classroom, where the teacher needs to monitor if the students are using computers and smartphones as learning tools to perform the given task. In such cases, the risk of losing students to technology is minimal, as they are taught to use the smart devices purposefully.

Another point to consider is that smart technologies in the classroom may cause different non-standard role settings. The teacher needs to weigh and choose the degree of her/his own activeness and role, keeping in mind that she/he might get better results by giving clear instructions for doing the assignments (extensional) and motivating them to

set learning goals (intentional). Given that the time limits are also set, the instructor can refrain from interfering with the students' independent roaming, reading and composition, as accomplishing cognitive and creative processes sometimes is the most important achievement of the class. It is here that the revision of such concepts as 'teacher centered vs. student centered' and 'task based vs. competency based' instruction opens a new perspective of the term 'instruction' itself.

7. Conclusion

The summary of the study and its possible extensions lead to conclusions, which may be regarded as recommendations for teachers and course/curriculum designers.

The research statistics and the equally important experience of teaching, observations and out-of-class conversations lead to the assumption that teenage students of colleges of Oman prefer to use their smartphones on a daily basis to solve the following learning tasks:

- perform tasks and submit assignments;
- communicate reports and presentations by practicing creativity and choice of styles;
- develop new meanings and skills through the acquisition of the language forms and speech patterns;
- acquire new cognitive and communicative competencies through English-Arabic and Arabic-English translation of words and phrases;
- realize personalized learning and communication inherent in culture and traditions.

If we attempt to grade the language learning applications according to their descending order of popularity among the high school and college students of Oman, the list may include dictionaries and translators; linguistic information about the English language (grammar and phraseology); training and memorization facilities; organizers and spreadsheets; sociocultural information about English speaking countries.

The benefits the students get from being exposed to the vast range of choices are the following:

- The teenage students get motivated by the idea of using their smart devices to solve learning tasks;
- The smart applications stimulate autonomous learning and self-organization;
- The results are presented as learning products and may raise the scores;
- These activities are fun and attractive, emotionally comfortable;
- The learning contents are real and connect to the potential job market;
- The students expand their learning and memorization styles, cognitive and metacognitive functions.

Knowing their students' priorities, the teachers can benefit from the incorporation of smart language learning technologies in their practices. More about the practical implications of the classification of smart language learning applications was discussed at the workshop given at Oman International ELT Conference (Hovhannisyan & Al-Hattali, 2015). Particularly, the proposed classification of smart language learning applications can help the teachers to reach the following goals:

- Easily sort out the functional type of the smart application and its uses.
- Know and choose some to offer for autonomous use and others - to use in class.

- Link the smart language learning tools to relevant psycholinguistic mechanisms and skills.
- Make as many learning styles available for students as possible and involve students with different learning styles.

The study also proves that students' preferences and skills in smaller smart devices must be considered for ELT purposes (Kukulska-Hulme, 2013). The benefits expected from this tendency is that the teacher-student communication and the students' learning itself may become more personalized, a tendency, which comes to meet the student-centered and self-paced language teaching and learning criteria.

From the critical point of view, the degree and volume of smart technology consumption for language learning not only depends on the language level and e-skills of the learners, but to a great extent correlates with the philosophy and professional capacity of the teacher to help the students follow their learning needs, navigating through the increasing number of devices, applications, sources and services.

Finally, teachers need to bear in mind, that activation of speech mechanisms follows cognitive processes and in fact, the learning of a language takes place after the formation of mental maps and motor patterns. It is important that the teacher always prioritizes thinking and never pushes through to formal acquisition of vocabulary. Knowing the elements and psychological mechanisms of meaningful learning the language teacher has more chances of successful teaching focusing on students' experiences of processing and creating meanings before adapting materials to teaching tasks.

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APPENDICES

Table 1 Questionnaire

Answer the questions by choosing all that applies to you.

Your age_____ Gender: Male. Female.

1. I have my own

   A. Smartphone
   B. Tablet
   C. Laptop
   D. Computer

2. All of the above mentioned. I use my device for my English studies

   A. Often, every day.
   B. Sometimes, once a week.
   C. Rarely, once or twice a month.
   D. Never, I don't know how to do it.

3. I use my device (smartphone, tablet, lap top) to

   A. Look up word spelling.
   B. Look up word pronunciation.
   C. Translate English words to Arabic.
   D. Translate Arabic words to English.
   E. Look up a grammar pattern.

4. I use technology to contact my English teacher.

   A. Yes, I use email.
   B. Yes, I use text messages (WhatsApp, SMS, Facebook, etc.)
   C. Yes, we have videoconferences.
   D. Yes, we use virtual class applications.
   E. No, I meet her/him only in class.

5. My device (smartphone, tablet, laptop etc.) helps me

   A. To do homework.
   B. In class to do classwork.
   C. To communicate in out-of-class settings.
   D. To find information in English.
   E. To find information in Arabic.

Table 2 Student responses

Students (number)	College	College	School	Total
Age group: 18-19	Boys 58	Girls 42		100
Age group: 16-17			Girls 50	50
Technology owned (%)				
Smartphones	100	100	90	Over 95
Tablets	20	10	10	Under 15
Laptops	95	90	90	Over 90
PC	40	30	20	Around 30
All above mentioned	12	8	4	Under10
Frequency of usage for LL purposes (%)				
Every day	100	100	100	100
Once a week	95	90	85	Around 90
Twice a month	0	0	0	0
Never	0	0	0	0
Cognitive language learning purposes (%)				
Look up word spelling	40	60	70	Around 60
Translate English words to Arabic	100	100	100	100
Translate Arabic words to English	80	70	30	50
Look up a grammar pattern	20	60	40	43
Communicative language learning purposes (%)				
Via email	5	3	0	Under 3
Via SMS, WhatsApp	80	60	0	23
Videoconferencing	0	0	0	0
Via virtual class applications	60	70	30	53
Face-to-face	100	100	100	100
Language learning pragmatics (%)				
Homework	100	100	70	90
Classwork	70	50	10	43
Out-of-class activities	70	80	40	63
Target language (English)	40	60	40	46
Native language (Arabic)	100	100	100	100

Table 3 General classes of smart extensions and applications

Class/activity organizers	Source books	Games and drills
Knowledge and activity organizers, virtual classrooms, spreadsheets, other communication tools.	Dictionaries and grammar references, electronic course and work books.	Drills, exercises, memorization lists and tables.