

On a Theoretical Framework for Language Learning Apps Evaluation

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Abstract—This paper addresses the first step to evaluate language learning apps: what theoretical framework to adopt when designing the app evaluation framework. The answer is not just one, since there are several options that could be proposed. However, the question to be clarified is to what extent the learning design of apps is based on a specific learning approach, or on the contrary, on a fusion of elements from several theoretical proposals and paradigms, such as m-learning, Mobile Assisted Language Learning and a number of theories about language acquisition. The present study suggests that the reality is closer to the second assumption. This implies that the theoretical framework against which the learning design of the apps should be evaluated, must also be a hybrid theoretical framework, which integrates evaluation criteria from the different theories involved in language learning through mobile applications.

Keywords—Action-oriented approach, apps evaluation, mobile-assisted language learning, post-method pedagogy

I. INTRODUCTION

THE popularization of mobile devices (smartphones, Personal Digital Assistants (PDAs), tablets and so on) has led to the emergence of a new concept in learning, known as *mobile learning* or m-learning. The m-learning is characterized by the use of mobile devices, allowing learning wherever the learner is, as long as an Internet connection is available. Modern mobile devices can download programs from the Internet, a kind of software specifically designed for these mobile devices, known as ‘mobile application software’, ‘mobile app’ or simply ‘app’. Research on mobile applications for language learning is still an emerging field of research, and the studies are scarce. Most of these studies have focused on overall reviews of a large number of apps, as [1] and [2], or have addressed very specific aspects of some app, as the use of gamification [3] or user evaluations like [4] and [5]. The conclusions of these studies tend to be contradictory: together with several benefits, a number of challenges have also been pointed out [6], however, the research is characterized by focusing only on one of the two sides of the coin. Thus, little is known yet about the learning design of these applications, and consequently one of the immediate needs is the development of evaluation tools for apps. Evaluation tools should examine not only the content of the apps as learning material but «what is implied» [7] in the app learning design. The analysis of the evaluation tools proposed for this type of application (e.g. [1], [8]-[11]) reveals that they make little or no reference to specific theoretical frameworks for language learning. This fact is striking, since,

after all, these apps are, mainly, a resource for learning languages. In this study the criteria that should support the scaffolding of the evaluation of apps will be addressed, and a proposal for a theoretical framework consistent with these criteria will be suggested.

II. MOBILE ASSISTED LANGUAGE LEARNING IN THE M-LEARNING CONTEXT

The evaluation of apps for language learning necessarily involves the contextualization of two relatively new concepts, still evolving: m-learning and Mobile Assisted Language Learning (MALL). However, the definition of m-learning is controversial [12] and consequently, this poses some difficulty when establishing the theoretical principles for the evaluation of learning materials linked to this approach. The first definitions of m-learning were rather simple, and considered m-learning as a subset of e-learning, namely e-learning through mobile devices. This position can be found in researches like [13], [14] or [15]. Other authors, such as [16], consider that m-learning shares properties with flexible learning, since m-learning presents the characteristics of «just enough, just in time, just for me» that according to [16] are characteristic of flexible learning thanks to the online delivery. However, these definitions have been rejected for being technocentric, as they are based on purely technological concepts [17]. According to [18], defining m-learning as e-learning or flexible learning subsets, delivered by mobile technology, would overlook the contributions that m-learning can make to the learning process.

The search for a non-technocentric definition of m-learning has led several authors suggesting a base in the concept of ‘mobility’ by [19]. These authors propose a new concept of mobility, not just through space, but also through time and different learning contexts. Reference [20] highlights that this conceptualization of mobility allows boundary-crossing and interaction between learners in different learning contexts. Reference [21] argues similarly and claims that the cornerstone of m-learning theory is the notion of «continuous movement» between different contents, learning contexts and topics. Reference [22] asserts that traditional learning resources are actually embedded into m-learning, so through m-learning, the learner also moves «in and out» of technology; in addition, [1] states that mobility also occurs between various electronic devices, as tablets, netbooks, handheld PCs, portable media players, phablets or smartwatches, among several others. The problem with this line of definitions is that when [19] speaks of

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contextual, interactive, interdisciplinary and multimedia mobility, they are referring to the type of mobility that e-learning allows, not m-learning. Therefore, grounding the definition of m-learning on the concept of mobility by [19] does not clarify what the m-learning contribution is (beyond the flexibility in delivery that implies the portable nature of mobile devices), which leads back to the starting point of the technocentrism in m-learning definitions.

Other concepts have been proposed to define the contribution of m-learning, such as the concept of «learning through conversations» proposed by [22], or the suitability of m-learning for the integration of formal and informal learning, advocated by [23], [24] or [21], among others. However, the result is that none of these proposals have been able to generate a conclusive definition of m-learning [12]. In this regard, it is worth to consider whether the knot of the problem is that pedagogical considerations cannot be left out of technological ones, and consequently, a definition of m-learning would not be feasible outside of the previous definition of ‘what it is planned to learn’ through mobile technology. From this point of view, abstract definitions of m-learning might be not only unworkable, but also unnecessary. Instead, there is large agreement in that m-learning offers a number of main affordances: connectivity, context sensitivity, customization of learning experience and social interactivity [25]. Therefore, exploring how these affordances can contribute to a specific learning experience (maths, geography, languages) is what would really define the specific contribution of m-learning. This positioning, the denial of the feasibility and necessity of m-learning abstract definitions, might be clearer when m-learning is linked to the learning objective at hand, in this case, a foreign language.

The concept of MALL was first coined by [26] and initially defined as language learning through mobile devices. As previously discussed, in this definition the issue of technocentric orientation prevails, and if in the case of m-learning it reveals its dependence on the concept of e-learning, in the case of MALL that definition raises its dependence on Computer Assisted Language Learning (CALL). CALL is a prior educational trend, also based on the use of digital technology, but in this case, computers. Even for some authors, such as [9], MALL should be considered just a ‘relatively new area of CALL inquiry’. However, in our view when mobile technology is applied to a specific field of learning, the novelties that this technology brings to the learning experience may begin to seem clearer. Since the appearance of the first smartphones in the mid-2000s, it is evident to some researchers, such as [26] or [27], that there are remarkable differences between CALL and MALL. These differences are related to the impact that learning occurs statically, in front of a computer in a specific space, or mobile, using a portable device with which the learner is not constrained to a specific location. However, the position of [26] or [27] runs into a new problem: defining what exactly is a portable device.

According to [28], there is no definitive definition of mobile device, among other reasons, because the market does not stop updating the catalogue of these devices. Most of the authors,

such as [29] or [30], opt for non-closed inventories of easily portable devices, which are characterized by being small and light enough to be carried in a handbag or a pocket [31]. Few authors, like [32] or [33], have included the laptop in the list, device responsible for blurring the boundaries between CALL and MALL. Nevertheless, as [28] points out, laptops allow a certain level of mobility, but cannot be easily carried, so these authors are inclined to define mobile device as a device with which the user can walk around. In our view, definition of mobile device [28] should be considered precisely the one that better allows define MALL in opposition to CALL, as mobile devices enable a constant and spontaneous access to content, that the computer does not allow. This fact transforms the learning episode through CALL and MALL in two different experiences, as according to [34], it enables learning opportunities to arise more easily, since the language learner can consult their device at any time. In this way, as [13] or [35] point out, the learning opportunity does not depend on a specific location in space or time, but can emerge at any moment. While watching a movie, listening to a song, reading a text, shopping or ongoing bureaucratic procedures, the learner can immediately and continuously consult his device. This circumstance provides, in the very context, with the needed resources to understand what the learner hears or reads, or how to express new notions. Therefore, the potential contribution of m-learning for the acquisition of foreign languages (MALL) consists in facilitating learning «anywhere and anytime» and «on-the-go» [20]. This contribution should be considered highly relevant for language acquisition, as learning «anywhere and anytime» and «on-the-go» implies valuable opportunities for contextualized language learning [36]. Therefore, as a consequence of the «anywhere and anytime» and «on-the-go» concepts, the salient features in MALL design can be currently enumerated as follows, according to [37] and [28]: Integrating formal and informal learning, personalized and social learning, cross time and across locations, ubiquitous access, integrating physical and digital worlds, use of multiple types of devices, seamless switching between multiple learning tasks, knowledge synthesis and integrating multiple pedagogical models. Thus, together with the aforementioned general contributions of m-learning [23], the evaluation of an app for language learning must evaluate to what extent all these aspects have been didactically exploited.

III. MALL: AN APPROACH TO LANGUAGE LEARNING

As mentioned in the introduction, app evaluation models tend to limit the assessment criteria to m-learning affordances and MALL salient features, with scarce or no attention to learning language theories criteria. Hence, answering the question of whether MALL is an approach to language learning has important implications for the evaluation of apps. If the answer is affirmative, MALL theoretical scaffolding would be enough to ground language learning apps evaluation. If negative, more theoretical support would be needed to assess the learning design of the apps. MALL materials have been produced not only in the shape of apps but in several other formats, such as teleconferencing [38], podcasting [39],

Multimedia Messaging Service (MMS) [40] or e-mails, SMS and web materials [41]. All these materials try to exploit in a single device the connectivity, context sensitivity, individuality, portability and social interactivity characteristic of m-learning. That is what should be expected, since as [42]-[45] state, materials produced within a given approach are evaluated according to how the material reflects the pedagogical principles of that approach. Nevertheless, this discussion on whether MALL is an approach or not, presents the additional problem of defining 'approach'.

As [46] points out, the terms 'approach', 'method', 'technique' or 'way/form of learning' are used synonymously. The result of the inconspicuous use [46] of these terms has the consequence that any novel learning proposal, even a mere way of presenting the materials, may receive the name of approach. Approach and materials are intimately connected, but according to [47], they belong to different levels of concretion, with another level between them: that of the method. For some authors like [48] the approach is axiomatic, a number of beliefs about how languages are learned; the materials, on the other hand, are a component of the method, understanding the method as the implementation of the ideas and beliefs that make up the approach. Reference [46] defines approach as the basic philosophy on the matter being considered, a set of beliefs and points of view on a specific field, while the method is defined as 'overall long term orderly presentation of the material based on the approach'. Other authors [47] use other terminology and state that any language learning method is theoretically related to the approach in which is framed; according to these authors, the design is what as [48] calls method, and is composed of a number of elements, ranging from the syllabus or the type of activities proposed, to the learning materials. Hence, [48], as [46], suggests that the method is part of the approach, and that within a single approach several methods can live together. In turn, [47] suggests that the approach is part of a method: its theoretical essence. Therefore, for these authors seems to be clear that the level of concretion of the approach, the method or methods and the specific learning materials is different: the approach contains the theoretical principles and the materials are the result of the implementation of those principles, the final product that will be supplied to the learner.

Talking about 'theoretical principles' is however still too vague. It is necessary to specify what these principles consist of. References [48] and [47] agree that a language learning approach is based on two aspects: a theory about the nature of language and a theory about the nature of learning. The former expresses a number of beliefs about aspects such as the concept of communicative competence (that is, what it is to be competent when speaking a foreign language) what laws of meaning govern the structure of the language and how they do it; the latter describes the psycholinguistic and cognitive mechanisms of language learning and the 'conditions that need to be met in order for these learning processes to be activated' [47]. The present study proposes that, among those conditions, the theory of learning must also account for how a particular technology can optimize the learning of a language, whether that technology is a simple paper and a pencil, a printed book,

a computer or a mobile device. Traditional technologies such as notebooks, blackboards, pencils and books are so largely integrated that they have become invisible, to the point that it is not perceived the impact they generate on the learning process, and how it would change radically if such technology did not exist. Although the psycholinguistic and cognitive processes of language learning do not vary substantially due to the use or not of technologies, these processes can be fostered by the use of mobile technology. As already mentioned, the opportunity to learn «anywhere and anytime» and «on-the-go» [20] offered by mobile devices clearly indicates MALL's contribution to language learning. However, this does not appear to imply a new language learning theory, let alone a theory about the nature of language. Rather, it seems more the harnessing of a new technological resource to increase the number of language learning opportunities. Even if the exploitation of this resource could significantly enhance language learning, this would not mean that MALL is a new approach, unless the theories about the nature of learning and language embedded in MALL were novel or at least, clearly outlined.

The publicity about the apps or the confidence that may inspire the prestige of technology companies can lead to believe that they have developed complete learning models for their mobile applications. Thus, an exploration in MALL literature may clarify this matter. According to [1] or [49] the success of MALL for effective language learning depends on the ability of the app developers to apply the pre-existing Second Language Acquisition (SLA) theories. Reference [50] defends the same position and adds that apps cannot just replicate materials created for CALL, a common practice in his view, but must exploit the affordance of mobile technology. Reference [51] claims that MALL is not an independent field, but dependent of SLA research. Reference [52] remarks that classic user-centered and collaborative practices of the apps are coherent with the SLA findings as well as based on the principle of learning languages through social interaction. This statement presented by [52] as a positive aspect of apps, shows that apps are not a novelty in terms of learning theory. Coming to specific aspects of learning material evaluation, in his meta-analysis about learning outcomes of MALL, [53] claims that materials designed for MALL must be evaluated through a framework that integrates both m-learning and SLA criteria. Reference [11] states that checklists, theoretical frameworks and SLA-based criteria for evaluation are, in large measure, applicable to the apps. The analysis of the literature, therefore, suggests that app designers have not developed specific learning models for these new applications; on the contrary, researchers in MALL consider an ideal feature -although as stated by [20], overlooked with some frequency- the foundation of app learning design in theoretical frameworks based on SLA research. Therefore, it seems that MALL does not imply a shift in the theory of learning in general or learning languages specifically, nor does it propose a new theory about the nature of language; and not only does it not formulate new theories, but it does not clearly propose pre-existing theories. It is common for researchers to praise the anchoring of MALL in general learning theories, such as constructivism or social theories of learning according

to [1], [54] to the detriment of behavioral methodologies, seen as obsolete. Despite these vague references, it is infrequent to find mentions in these studies to specific approaches or methodologies of language learning, which, as proposed by [47], suppose a notably more specific theoretical framework, which integrates not only a general theory of language learning, but other elements: a theory of language, a design (general objectives, program, type of activities, teacher and student roles, etc.) and a procedure (pedagogical techniques, practices and behaviors). Indeed, stating that an app is anchored in a constructivist, social or learner-centered theory of learning is saying very little about the proposed methodology and nothing new in language learning theories. Taking into account the commonly accepted definitions of approach that have already been discussed, [48] and [47] state that there seems to be no reason to consider MALL a new approach to language learning, but rather a learning medium that, by using mobile technology, offers a number of high-potential contributions to the learning process, named salient features of MALL. These salient features in MALL design, described by authors such as [37] or [28], are not enough to establish the theoretical bases of a novel approach, although they must be considered when evaluating apps for language learning. Hence, the evaluation of applications must also be supported by a specific theoretical framework on SLA compatible with the characteristics of MALL discussed so far.

IV. FROM METHODS TO MACRO-STRATEGIES IN THE «POST-METHOD PEDAGOGY»

Once it is concluded that app evaluation must integrate a specific theory about language learning, the next question to resolve is which theory, approach or method should be chosen, which is the best and most effective. In the words of [55], the fundamental characteristic of the 20th century is its search for the 'best method' of teaching languages; and not only the 20th century, since the 19th century already saw passionate debates on the same issue [47]. This matter is still relevant when it comes to the application of digital technology to language learning. However, the search for the 'best method' has led many authors to the conclusion that there is no such a best method (e.g. [56], [57], [58], [59] or [60]). The 1990s brought the popularization of the concept of post-method pedagogy, however there are numerous previous authors who point in the same direction. Reference [61] considers that the term method had lost its substance, [62] claims that the notion of method has only served to impoverish the understanding of language teaching, and even, according to [63], language teaching would have been better understood if the concept of method did not exist at all. This does not mean that the advent of post-method pedagogy implies the rejection of any method, but the belief that all methods are partially suitable for language learning. In the words of [64], 'all methods are partially true or valid'. The abandonment of methodological dogmatism that characterizes the search for the ideal method [55] has been praised as the main contribution of the post-method pedagogy.

The first consequence of the arrival of post-method pedagogy is that instead the rigid guidelines of the method, highly

conditioned by its 'design' and 'procedure' [47], several authors are rather inclined to suggest a number of recommendations in the form of decalogues of general pedagogical principles (e.g. [65] and [57]). These recommendations only point to general lines of pedagogical action, and thus differ from the prescription of a certain method, where each teaching action that must be performed is described in detail. Another difference is that these recommendations are not based on the views of the method designer, but on evidence from SLA research [36]. The macro-strategic model [57] is particularly well-known, however, several authors have presented other macro-strategy lists (e.g. [36], [66]-[68]). These proposals present a high level of common positions. Thus, for example, the pedagogical principles proposed by [67] and [36] coincide in 70% of the principles suggested.

From the analysis, screening and fusion of those decalogues [36], [57], [65]-[68] a number of macro-strategies, that may be applied to any context of language teaching, can be extracted. In this specific case, the principles have been applied to the design of the language learning apps, and offer a solid foundation for developing app evaluative frameworks:

- Principle 1: The app provides opportunities to develop a rich repertoire of formulaic expressions and a rule-based competence.
- Principle 2: The app ensures that learners focus both on meaning and on form.
- Principle 3: The app takes into account learners' 'built-in syllabus'.
- Principle 4: The app provides extensive and not impoverished L2 input.
- Principle 5: The app provides opportunities for output and interaction.
- Principle 6: The app takes into account individual differences in learners.
- Principle 7: The app gives assessment and provide meaningful feedback.
- Principle 8: The app promotes cooperative/collaborative learning.
- Principle 9: The app caters for learners' needs, interests and motivation.
- Principle 10: The app stimulates the dimension of the language learner as a social agent, as autonomous learner and as an intercultural speaker.

Principle number 10, which recommends stimulating the triple dimension of the language learner, deserves to be discussed in more detail, since it bases a language teaching approach, the Action-Oriented Approach. This approach has been elaborated by the Council of Europe (CoE) and presented in the *Common European Framework of Reference for Languages* (CEFR), published also by [69]. The analysis of the Action-Oriented Approach allows to gain a better understanding of the philosophy of language teaching within the framework of the countries belonging to the European Union and the CoE, and the impact of the approach beyond this group of countries.

V. A LANGUAGE LEARNING APPROACH FOR APP EVALUATION: AN ACTION-ORIENTED APPROACH

Post-method pedagogy is essential to understand the emergence of the Action-Oriented Approach. The end of the search for the ideal method means that language teaching opens to approaches that, as the Action-Oriented Approach, focus not on how the learning process should be, but in what type of result is intended. This implies that the focus shifts from the procedures to the outcomes. According to this view, the learner needs to develop several competences (both linguistic and general competences) in order to communicate effectively. The use of the language is linked to a number of contexts, conditions and constraints that affect learners when engaging in linguistic activities, involving language processes to produce or understand a range of texts related to several themes and domains. To do this, the learners activate the strategies they deem most appropriate to solve the tasks they face within the social context. The monitoring and the result of all this process on the part of the learner makes this modify or reinforce their competences [69]. This is the philosophy underpinning the Action-Oriented Approach, that has therefore been defined as non-judgmental and open to contributions from any methodology [70], since it is based on the premise that different methodologies may be applicable or advantageous in different learning contexts.

The name Action-Oriented Approach describes well the orientation of the approach, a way to promote the integration of the European citizens as social agents [70]: 'At the European level, the notion of key competences for citizens is becoming a central policy issue'. Therefore, the essence of the approach is to provide the language learner with the contents, communication contexts and tasks necessary to develop the level of competence needed to act linguistically as an agent (with personal needs and objectives) within society. In opposition to mere transmission of knowledge, European policies aim to educate for social and professional life. Reference [73] admits that no theoretical model has managed to clearly delineate the role of agency in foreign language learning; however, [74] claims that the perception of language as an activity carried out by speakers who are social agents has deep roots in the linguistic tradition. This author quotes [75] which defines the use of the foreign language as typical of an agentive learner, carried out with specific plans, in a specific place and with specific interlocutors. Reference [75] does not cite [76], however this author had already described what implications this conceptualization has for foreign language pedagogy. According to [76] to be effective, it must be linked to 'a particular group of teachers teaching a particular group of learners pursuing a particular set of goals within a particular institutional context embedded in a particular sociocultural milieu'. This represents a serious challenge for language learning materials, like the apps, developed not so much to be linked to a specific group of learners, rather to the contrary, to a community of millions of users in dozens of countries. But it is not the only challenge. Europe is an increasingly globalized space of coexistence, where citizens and goods circulate freely; for that reason, Europe needs to manage important migratory

flows and commercial activity, and language as a vehicle of communication plays an essential role. In this regard, Piccardo [70] states that linguistic communicative skills are 'realized through complex, collective tasks, where speaking and doing are intermingled, thus putting into practice an action-oriented perspective on language'.

The agentive conceptualization of language learning is not limited to the European environment. The term of «social agent» is not necessarily handled in the documents that establish the linguistic policies of other regions of the World, however, the concept itself is implied since the teaching is aimed at developing the learner's ability to communicate and perform linguistic tasks: talking and doing are intermingled processes [77]. Due to the adoption of the CEFR in several countries of the World, the concept of the learner as a social agent is present in syllabuses in America [78], but also spreads to other regions far from the western orbit. For instance, [79] documents it extensively in Japan and [80] and [81] in China.

According to [57] and [58], contemporary society demands from the citizen a continuous effort to adapt to an increasingly globalized world, in which intercultural dialogue is essential to stimulate collaboration and reduce conflicts. This proposal will have a great impact, since as stated by [82], it will inspire in the Action-Oriented Approach the conceptualization of the language learner in a triple dimension: as a social agent, who makes use of the language to meet their needs and achieve their life goals; as an autonomous learner, that takes control of the learning processes; and as an intercultural speaker, who develops the necessary skills to communicate with people of other cultures and to mediate between different cultures that coexist in common urban spaces. This triple dimension of the language learner has become a conceptual framework used at a global level [83], as it is useful for the organization of foreign language learning content. Therefore, the evaluation of apps should pay particular attention to how they stimulate the triple dimension of the language learner, and assess whether the app's learning design proposes tasks that prepare the learner to achieve his or her goals in society, that support intercultural dialogue and mediation, and that enable the learner to 'learn to learn'.

VI. CONCLUSIONS

Apps have modified our contemporary world; nowadays, they are used for all kinds of purposes, also educational. In the specific case of foreign language learning, it is evident that they offer a range of possibilities that were unthinkable before their appearance. However, apps industry is an emerging market in full expansion, currently characterized by the large number of new products that appear daily. In this context, it is necessary to develop evaluation tools that allow educational institutions, teachers and users in general to analyze and evaluate the learning design of these apps. When it comes to evaluating, it must be taken into account that language learning apps orbit around two centers, not just one: m-learning and SLA. Research at MALL has not developed, at least so far, its own learning approach. Researchers speak about several promising features of MALL, based on m-learning affordances, but a list of

characteristics is not a theoretical framework to evaluate materials for language learning, independently of the technology used. It is also necessary to integrate a specific theory on language learning, and the Action-Oriented Approach offers the advantage of being a post-method and integrative approach in terms of methodology, so it does not imply any conflict with the MALL design. It is based in the findings in SLA research, and in an agentive, autonomous and multicultural concept of the language learning process. Thus, the evaluation of apps based on the fusion of the theoretical principles of m-learning, MALL and the Action-Oriented Approach seems a solid theoretical framework, against which to evaluate language learning apps.

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